KAISER CENTER OFFICE PROJECT

Draft Environmental Impact Report Appendices
SCH No. 2008052103

Prepared for
The City of Oakland

August 2010

ESA



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SCH No. 2008052103

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The City of Oakland

August 2010

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Los Angeles

Oakland

Olympia

Petaluma

Portland

Sacramento

San Diego

Seattle

Tampa

Woodland Hills

206213

APPENDIX A

Notice of Preparation (NOP) and Responsive Comments

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APPENDIX A.1
NOP and Attachments

CITY OF OAKLAND

Community and Economic Development Agency, Planning & Zoning Services Division
250 Frank H. Ogawa Plaza, Suite 3315, Oakland, California, 94612-2032

NOTICE OF PREPARATION (NOP) OF A DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) KAISER CENTER PROJECT

The Oakland Community and Economic Development Agency, Planning and Zoning Division, is preparing a Draft Environmental Impact Report (EIR) for the Kaiser Center Project as identified below, and is requesting comments on the scope and content of the EIR. The EIR will address the potential physical, environmental effects for each of the environmental topics outlined in the California Environmental Quality Act (CEQA). The City has **not** prepared an Initial Study.

The City of Oakland is the Lead Agency for the Project and is the public agency with the greatest responsibility for approving the Project or carrying it out. This notice is being sent to Responsible Agencies and other interested parties. Responsible Agencies are those public agencies, besides the City of Oakland, that also have a role in approving or carrying out the Project. When the Draft EIR is published, it will be sent to all Responsible Agencies and to others who respond to this NOP or who otherwise indicate that they would like to receive a copy. Responses to this NOP and any questions or comments should be directed in writing to: Margaret Stanzione, Planner IV, City of Oakland, Community and Economic Development Agency, Planning Division, 250 Frank H. Ogawa Plaza, Suite 3315, Oakland, CA 94612; (510) 238-4932 (phone); (510) 238-6538 (fax); or e-mailed to mstanzione@oaklandnet.com. Comments on the NOP must be received at the above mailing or e-mail address **by 5:00 p.m. Monday, June 23, 2008.** Please reference case number ER 08-003/PUD 08-103 in all correspondence. In addition, comments may be provided at the EIR Scoping Meetings to be held before the Landmarks Preservation and Advisory Board and the City Planning Commission. Comments should focus on discussing possible impacts on the physical environment, ways in which potential adverse effects might be minimized, and alternatives to the project in light of the EIR's purpose to provide useful and accurate information about such factors.

EIR SCOPING MEETING
LANDMARKS PRESERVATION ADVISORY BOARD
Monday, June 9, 2008
6:00 p.m.
Oakland City Hall – Hearing Room 1

EIR SCOPING MEETING
CITY PLANNING COMMISSION
Wednesday, June 18, 2008
6:00 p.m.
Oakland City Hall – Hearing Room 1

PROJECT TITLE: Kaiser Center Project

PROJECT LOCATION: 300 Lakeside Drive. The project site to be redeveloped is an approximately 2.2-acre portion of the 7 acre Kaiser Center site, and is located at the northeast corner of Webster and 20th Streets in the City of Oakland, Alameda County, California. The project site is a portion of a larger parcel identified as Assessor's Parcel Number 008-0652-00-105.

PROJECT SPONSOR: The Swig Company, LLC

EXISTING CONDITIONS: The project site contains existing commercial structures which range from approximately 25 to 35 feet tall, and includes Longs Drugs Store/US Bank on 20th Street (generally the "20th Street Mall") comprising approximately 58,190 square feet, and 24 Hour Fitness on Webster Street (generally the "Webster Street Mall") comprising approximately 38,190 square feet. The project site and the larger Kaiser Center site are CEQA historic resources (Oakland Cultural Heritage Survey Rating A1+; listed on the Local Register of Historical Resources; appears eligible for the National Register individually and as part of the Lake Merritt District (code 3B)).

The project site is located in Oakland's Central Business District. Uses to the east of the project site include the existing Kaiser Center office tower (386 feet in height), parking garage and roof garden, as well as Lakeside Park opposite Harrison Street and Lakeside Drive, and Lake Merritt beyond. To the southeast of the project site opposite Harrison Street and 20th Street is 4.2-acre Snow Park. Uses to the west of the project opposite Webster Street include approximately four low- to mid-rise commercial uses

(25 feet to 65 feet) and surface parking lots. Uses to the north of the project site opposite 21st Street include the Pacific Bell/City National Bank Building (313 feet), the Ordway Building (404 feet), the AT&T Building (125 feet), and surface parking lots. The Cathedral of Christ the Light (57 feet) is located one block northeast of the project site. Uses to the south of the project site opposite 20th Street include Lake Merritt Plaza (371 feet). The project site has not been identified on the Cortese List of Hazardous Waste and Substance Sites as of the date of this Notice.

PROJECT DESCRIPTION: The proposed project would redevelop approximately 2.2 acres of the 7-acre Kaiser Center property to include approximately 1.47 million square feet (msf) of office, ground-floor retail, parking, and enhanced open space on approximately 97,000 square feet at the northeast corner of Webster and 20th Streets in Downtown Oakland. The project would result in two office towers of approximately 436 feet or 34 stories tall in place of the "20th Street Mall" (generally in the location of Longs Drugs Store/US Bank), and 566 feet or 42 stories tall in place of the "Webster Street Mall" (generally in the location of the 24 Hour Fitness). Approximately 22,500 square feet of retail space would be constructed on the ground floor along the Webster and 20th Street frontages. The project would add approximately 852 net new parking spaces, which would be integrated into the existing Kaiser Center garage or constructed behind the new ground-floor retail. The project would relocate the westernmost portion of the existing rooftop garden to the southern portion of the site, which would result in a net increase of public open space by approximately 4,500 square feet. The public open spaces uses would be made accessible by a new exterior "grand stairway" from 20th Street to the rooftop garden. All existing development on the 2.2-acre project site would be demolished and replaced as part of the proposed project. In connection with the redevelopment of the 2.2-acre project site, the Kaiser Center site would be subdivided into four parcels, although no physical changes are proposed to the remainder of the Kaiser Center site. The proposed project would also require Planned Unit Development (PUD) approvals as well as other possible discretionary permits from the City.

The project site is located within the City of Oakland General Plan Central Business District land use designation, and is located within the City of Oakland's C-55, S-1, and S-4 zoning districts (Commercial – Central Core, Special Zoning – Downtown Residential Usable Open Space Combining District, and Special Zoning – Design Review Combining Zone). The C-55 zoning district is intended to preserve and enhance a very high-intensity regional center of employment, shopping, culture, and recreation, and is appropriate to the core of the central district. The S-17 zone is intended to provide open space standards for residential development that are appropriate to the unique density, urban character and historic character of the central business district. The S-4 zone is intended to create, preserve, and enhance the visual harmony and attractiveness of areas which require special treatment and the consideration of relationships between facilities, and is typically appropriate to areas of special community, historical, or visual significance.

PROBABLE ENVIRONMENTAL EFFECTS: It is anticipated that the proposed project may have the following environmental effects: aesthetics (including views and shadows), traffic, circulation, and parking; air quality; and cultural resources. It is anticipated that the project will not have the following environmental effects: biological resources; geology and soils; wind; hazards and hazardous materials; hydrology and water quality; land use, plans, and policies; noise levels; population and housing; public services; recreation; utilities and service systems; and cumulative growth. However these environmental factors will nevertheless be analyzed in the EIR.

The Draft EIR will also examine a reasonable range of alternatives to the Project, including the CEQA-mandated No Project Alternative, and other potential alternatives that may be capable or reducing or avoiding potential environmental effects.

Gary V. Patton, Deputy Director
Planning and Zoning

May 22, 2008
ER 08-003

Attachments: ASK-047-Project and Lot Information
ASK-048-Building Section Looking East
ASK-050-Site Plan
ASK-057-Sixth Level Floor Plan (including rooftop garden)

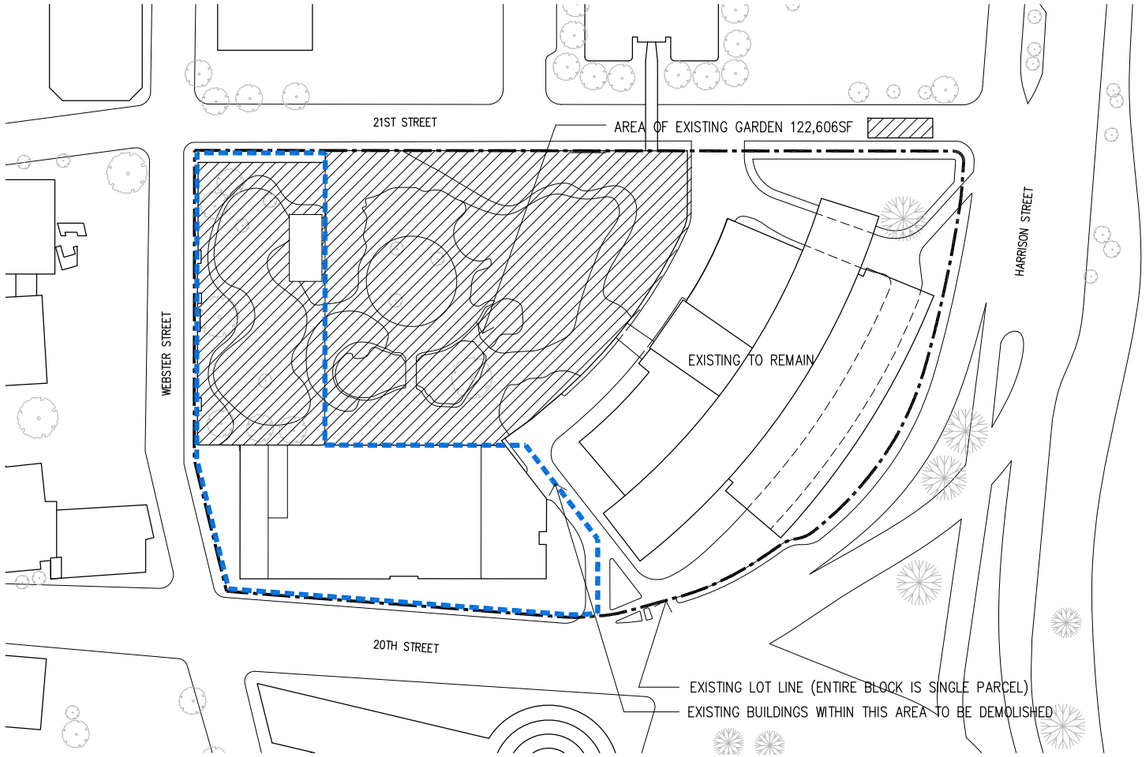
EXISTING & PROPOSED AREA OVERVIEW

	TOTAL EXISTING	- EXISTING TO BE DEMOLISHED	= EXISTING TO REMAIN	+ NEW	= TOTAL	% CHANGE
TOTAL LOT AREA*	311,741GSF	0	311,741GSF	0	311,741GSF	0%
TOTAL BUILDING FOOTPRINT AREA	197,460GSF	74,900GSF	122,560GSF	80,168GSF	202,728GSF	+3%
TOTAL FLOOR AREA	1,690,879GSF	280,002GSF	1,410,877GSF	1,830,984GSF	3,241,861GSF	+92%
BUILDING HEIGHT						
MAXIMUM STORIES	29	N/A	29	42	N/A	N/A
MAXIMUM FEET	386'	N/A	386'	±573.5'	±573.5'	+49%
NUMBER OF PARKING SPACES **	1340	155	1185	852	2037	+52%

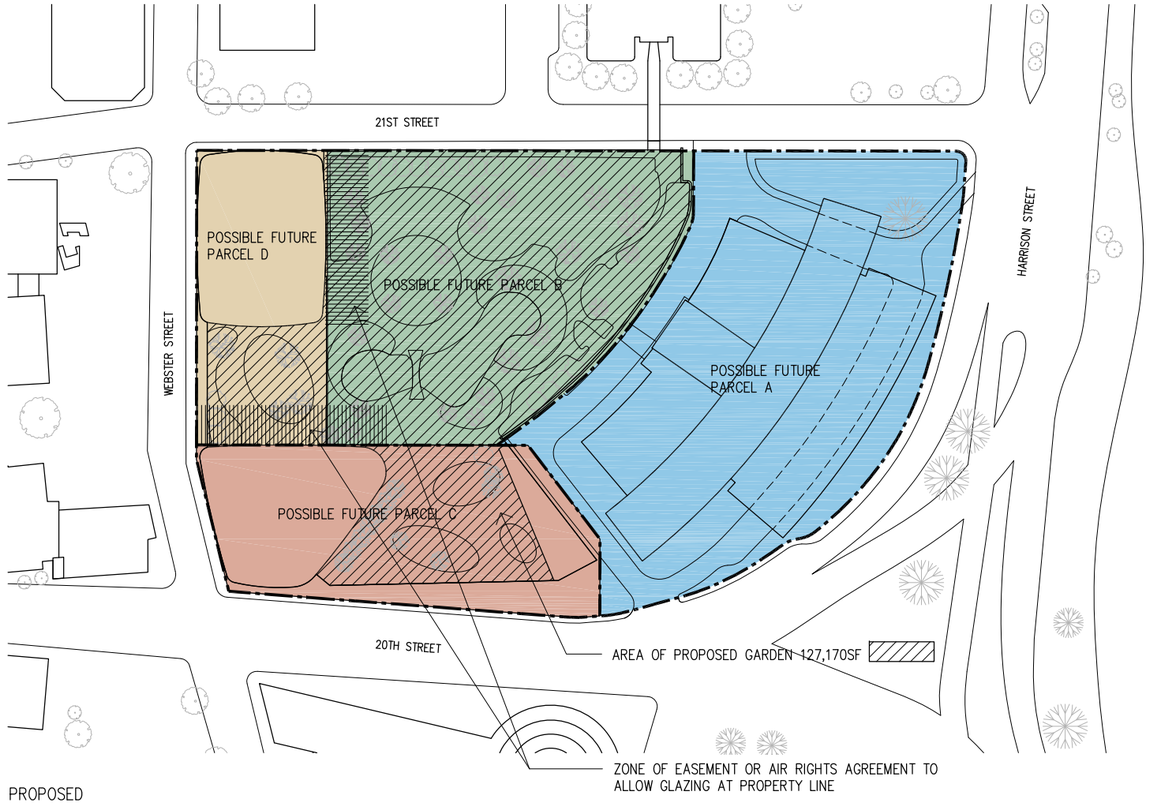
* LOT AREA INCLUDES ALL FOUR POSSIBLE FUTURE PARCELS

** PARKING INCLUDES SPACES RESERVED FOR (E) KAISER CENTER TOWER AND ORDWAY BUILDING. SEE ASK-059

NOTE : POSSIBLE PARCELS SHOWN ON THIS DRAWING ARE FOR REFERENCE ONLY AND ARE INTENDED ONLY TO FACILITATE DESCRIPTION OF THE RELEVANT AREAS AND LOCATION OF THE PROPOSED PROJECT. THIS DRAWING DOES NOT SUGGEST OR PROPOSE A LEGAL SUBDIVISION.



EXISTING



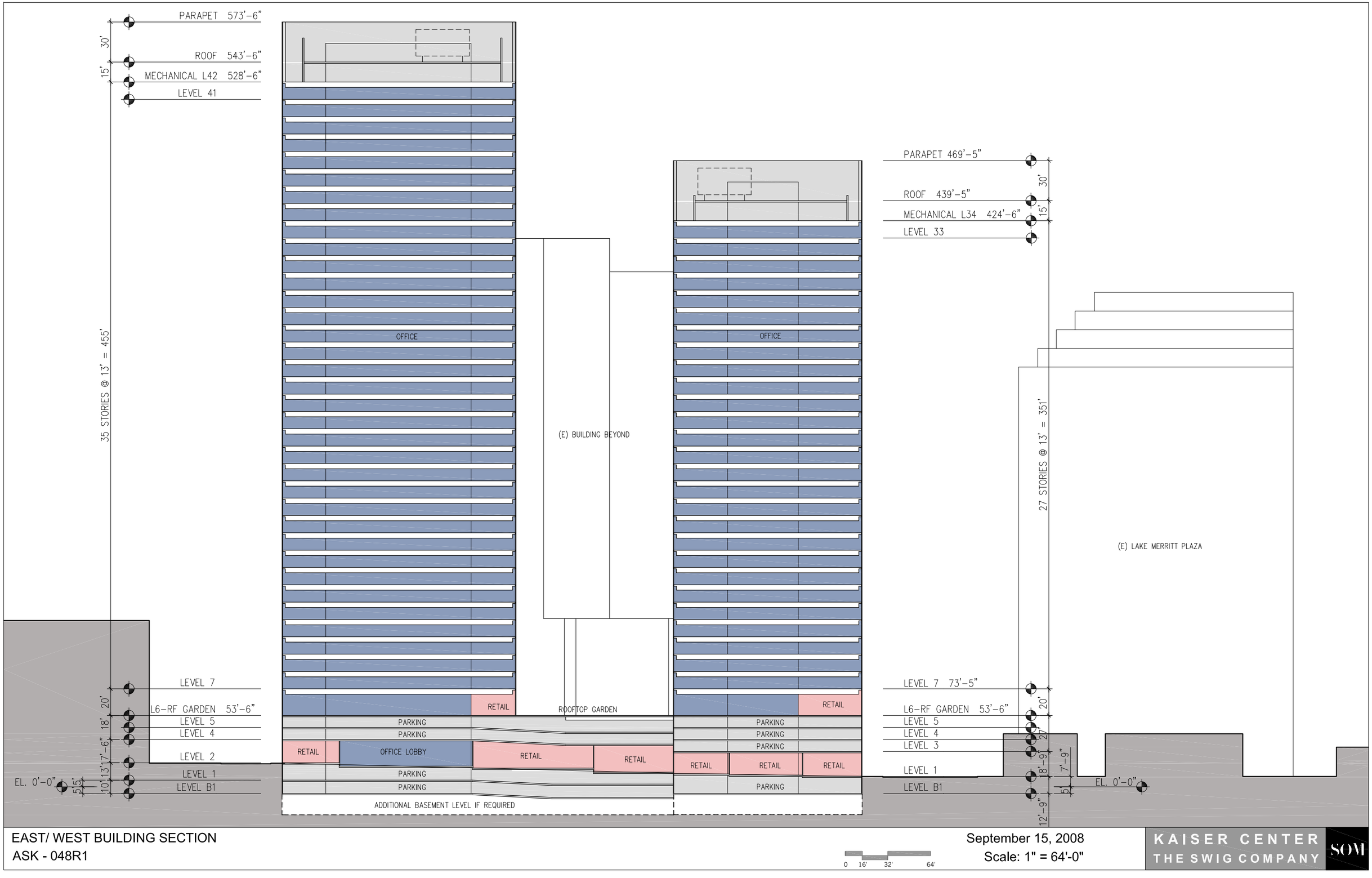
PROPOSED

PROJECT AND LOT INFORMATION
ASK - 047R2

May 29, 2009

NORTH

KAISER CENTER
THE SWIG COMPANY
SOM



EAST/ WEST BUILDING SECTION
ASK - 048R1

0 16' 32' 64'

September 15, 2008
Scale: 1" = 64'-0"

KAISER CENTER
THE SWIG COMPANY
SOM



SITE PLAN
ASK - 050R1

May 29, 2009
Scale: 1" = 100'-0"

0 20' 50' 100'

NORTH

KAISER CENTER
THE SWIG COMPANY

SOM



SIXTH LEVEL FLOOR PLAN
ASK - 057R2

0 16' 32' 64'

May 29, 2009
Scale: 1" = 64'-0"

NORTH

KAISER CENTER
THE SWIG COMPANY

SOM

APPENDIX A.2

NOP Mailing List: Agencies and Organizations

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CERTIFICATE OF MAIL DEPOSIT FOR PUBLIC NOTICES

I certify that on ___May 21, 2008___ *notices called under the Oakland Zoning and Subdivision Regulations for the following cases were placed into the U.S. Mail system:*

CASE FILE NOS:	*STREET ADDRESS:*
1. ER08-003/PUD08-103	*Mailed a Notice of Preparation (NOP) of a Draft Environmental*
2.	*Impact Report (EIR) – Kaiser Center Project to the attached*
3.	*mailing list.*
4.	
5.	
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19.	
20.	

FILE COPY

Celia Rivera

(NAME OF PERSON PLACING NOTICES IN MAIL)

May 21, 2008

(DATE)

FMC1 5CERTMAIL.GB

Agency Mailing Labels for Environmental Review Notices Revised 3/31/08

City of Alameda
Planning Department
2263 Santa Clara Avenue, Rm. 120
Alameda, CA 94501

City of Piedmont
Planning Department
120 Vista Avenue
Piedmont, CA 94611

County of Alameda
Planning Department
399 Elmhurst, Room 136
Hayward, CA 94544

Alameda County CMA
Attn: Saravana Suthanthira
1333 Broadway, Suite 220
Oakland, CA 94612

California Dept. of Water Resources
Attn: DPLA Environmental Review
P.O. Box 942836
Sacramento, CA 94236-0001

California Highway Patrol
3601 Telegraph Avenue
Oakland, CA 94609

Alameda Co. Dept. of Env. Health
Hazardous Materials Division
1131 Harbor Bay Parkway
Alameda, CA 94612

AC Transit Attn: Nathan Landau
Long Range Planning Division
1600 Franklin Street, Suite 700
Oakland, CA 94612

Alameda County Clerk-Recorder
1106 Madison Street
Oakland, CA 94607

Oakland Chamber of Commerce
475 14th Street
Oakland, CA 94612

City of Emeryville
Planning/Redevelopment Agency
1330 Park Avenue
Emeryville, CA 94608

City & County of San Francisco
Planning Department
1660 Mission Street, 5th Floor
San Francisco, CA 94103

EPA Region 9
75 Hawthorne Street
San Francisco, CA 94105

California Air Resources Board
Bob Fletcher
P.O. Box 2815
Sacramento, CA 95812

MTC
Attn: Environmental Staff
Metro Center
101 8th Street
Oakland, CA 94612

BCDC
Environmental Planning Departm
50 California Street, #260
San Francisco, CA 94111

Marianne Payne
Planning Department Manager
San Francisco BART District
300 Lakeside Drive, P.O. Box 12(
Oakland, CA 94604-2688

City of Berkeley
Planning Director
2118 Milvia Street
Berkeley, CA 94704

City of San Leandro
Planning Division
835 E. 14th Street
San Leandro, CA 94577

Agency Mailing Labels for Environmental Review Notices Revised 3/31/08 - Page 2

Oakland Tribune
c/o Laura Counts
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Oakland, CA 94621

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Oakland, CA 94623

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BPAC
409 45th Street
Oakland, CA 94609

State Lands Commission
Environ. Planning & Mgt. Division
100 Howe Avenue, Suite 100
South Sacramento, CA 95825-8202

East Bay News Service
c/o Sanjiv Handa
P.O. Box 11093
Oakland, CA 94611

Montclarion Newspaper
1516 Oak Street
Alameda, CA 94501

Oakland Unified School District
1025 Second Avenue, Room 301
Oakland, CA 94606

S. F. Bay Guardian
c/o Matthew Hirsch
135 Mississippi Street
San Francisco, CA 94107-2536

Pacific Gas & Electric Company
1919 Webster Street
Oakland, CA 94612

Oakland Heritage Alliance
446 17th Street, Suite 301
Oakland, CA 94612

East Bay Regional Park District
Attn: Brad Olson
P.O. Box 5381
Oakland, CA 94605-0381

EBMUD, Office of Water Recycling
Attn: Linda Hu
P.O. Box 24055, MS 702
Oakland, CA 94623-1055

CA Department of Fish & Game
Habitat Conservation
P.O. Box 47
Yountville, CA 94599

State Office of Historic Preservation
Attn: Ms. Cherilyn Widell
P.O. Box 942896
Sacramento, CA 94296

Governor's Office of Planning &
Research - State Clearinghouse U
1400 10th Street, Room 121
Sacramento, CA 95814

State Geologist
Attn: John Parrish
801 K Street, MS 12-30
Sacramento, CA 95814

Oakland Public Library
Social Science and Documents
125 14th Street
Oakland, CA 94612

Dept. of Toxic Substances Control
Attn: Manager
700 Heinz Ave., Bldg. F, Suite 200
Berkeley, CA 94710-2721

East Bay Express
c/o Bob Gammon
1335 Stanford Avenue
Emeryville, CA 94608

Staff Mailing Labels for EIR Notices
Page 1 of 2
Revised 3/10/08

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6155 Girvin Drive
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2708 Sunset Avenue
Oakland, CA 94601

Oakland Tribune
c/o Laura Counts
7677 Oakport Street, #950
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East Bay Express
c/o Bob Gammon
1335 Stanford Avenue
Emeryville, CA 94608

East Bay News Service
c/o Sanjiv Handa
P.O. Box 11093
Oakland, CA 94611

Montclarion Newspaper
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Alameda, CA 94501

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Emeryville, CA 94608

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Dyett & Bhatia
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San Francisco, CA 94111

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1611 Telegraph Avenue, Suite 450
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Dan Lindheim, Director
CEDA/Planning

Gary Patton
CEDA/Planning

Scott Miller
CEDA/Zoning

Margaret Stanzione
CEDA/Planning

Reference Copies for
Zoning Div., 2nd Floor
2 each

Planning Commission
Reference Copy for Zoning Div.
2nd Floor

Reference Copy
for Planning Div.
3rd Floor

Councilmember Jean Quan
(District 4)
Council Office, 2nd Fl.

Oraiu Amoni
Council Office, 2nd Fl.
City Hall

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Senior Vice President
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San Francisco, CA 94104

David Preiss
Wendel Rosen Black & Dean
1111 Broadway, 24th Floor
Oakland, CA 94607

Councilmember Nancy Nadel
(District 3)
Council Office, 2nd Floor

Landmarks Preservation Advisory Board Mailing List
Page 1 of 3
↓↓WHOLE PACKET↓↓ (20)

THOMAS BIGGS
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Kirk E. Peterson & Assoc. Architects
5253 College Avenue
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Port of Oakland
Maritime Division
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CEDA/Planning
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Dan Lindheim, Director
CEDA/Planning
3rd Floor

Joann Pavlinec
CEDA/Planning
3rd Floor

Betty Marvin
CEDA/Planning
3rd Floor

Mark Wald
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City Hall, 6th Floor
(Interoffice Mail)

Eric Angstadt
CEDA/Planning
3rd Floor

City Clerk's Office
City Hall, 1st Floor

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↓ ↓ ↓

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Landmarks Preservation Advisory Board Mailing List

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↓ ↓ ↓

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Mayor Ronald V. Dellums
Mayor's Office
City Hall, 3rd Floor
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Aliza Gallo
CEDA/Business Dev.
Suite 3315

Landmarks Preservation Advisory Board Mailing List
Page 3 of 3
AGENDA ONLY
↓ ↓ ↓

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Berkeley, California 94709

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Oakland, Ca 94601

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Express
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Oakland, California 94619

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Oakland, California 94604-1885

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Oakland, CA 94621

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Oakland, California 94607

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Oakland, CA 94601

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Oakland Museum
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Michele Morton
KTOP
5th Floor, Suite 5354
(Interoffice Mail)

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OPW - Real Estate, 4th Fl.
(Interoffice Mail)

Library - History Room
125 14th Street
(PLEASE POST)
(Interoffice Mail)

APPENDIX A.3

NOP Mailing List; 300' Radius


300 Lakeside Drive
ER08-003, PUD08-103
24TH ST
23RD ST
W GRAND AV
22ND ST
20TH ST
19TH ST
17TH ST
15TH ST
TELEGRAPH AV
VALLEY ST
WEBSTER ST
VALDEZ ST
ORIN DR
27TH ST
WAVERLY ST
VERNON ST
BAY PL
GRAND AV
KAISER PL
21ST ST
HARRISON ST
BROADWAY
FRANKLIN ST
ALICE ST
JACKSON ST
MADISON ST
LAKESIDE DR
008 065100101
008 065100301
008 065301903
008 065302400
008 065200105
008 063602008
008 063500100

2030 ASSOCIATES
2021 WEBSTER ST
OAKLAND CA 94612

22ND STREET PARTNERS LLC
N/AVAIL

22ND STREET PARTNERS LLC
N/AVAIL

22ND STREET PARTNERS LLC
N/AVAIL

22ND STREET PARTNERS LLC
N/AVAIL

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N/AVAIL

22ND STREET PARTNERS LLC
N/AVAIL

22ND STREET PARTNERS LLC
N/AVAIL

22ND STREET PARTNERS LLC
N/AVAIL

80 GRAND MC LLC
2250 BROADWAY
OAKLAND CA 94612

OPERATING PTSHP BRANDYWINE
N/AVAIL

ORDWAY LLC BRANDYWINE
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DALLAS TX 75204-2912

CALIFORNIA NURSES ASSOCIATION
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OAKLAND CA 94612-2908

CSHV 180 GRAND LLC
220
SANTA ANA CA 92707

CSHV 180 GRAND LLC
220
SANTA ANA CA 92707

SHAHLA DAVOUDI
23 LAGOON RD
SAN RAFAEL CA 94901-1522

EAST BAY STATE BUILDING AUTHORITY
1401 LAKESIDE DR
OAKLAND CA 94612-4305

PORTFOLIO ESSEX
925 E MEADOW DR
PALO ALTO CA 94303-4233

SUSAN B. JOHNSON
PO BOX 173
LEWISTON CA 96052-0173

ELENA LEON
115 LATHAM ST
PIEDMONT CA 94611-4141

MASRI FAMILY LP A
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OAKLAND CA 94612-3821

MASRI FAMILY LP A
290 27TH ST
OAKLAND CA 94612-3821

PACIFIC BELL 279-1-43-2
2600 CAMINO RAMON #IN05
SAN RAMON CA 94583-5000

PPD MERRITT I LLC
3993 HOWARD HUGHES PKWY #450
LAS VEGAS NV 89169-6759

PRENTISS PROPERTIES ACQUISITION
2711 N HASKELL AVE #2150
DALLAS TX 75204-2912

PRENTISS PROPERTIES ACQUISITION
2711 N HASKELL AVE #215
DALLAS TX 75204-2911

PRENTISS PROPERTIES ACQUISITION
2711 N HASKELL AVE #2150
DALLAS TX 75204-2912

PRENTISS PROPERTIES ACQUISITION
2711 N HASKELL AVE #2150
DALLAS TX 75204-2912

PRENTISS PROPERTIES WEBSTER
2711 N HASKELL AVE #2150
DALLAS TX 75204-2912

JOHN J. & GRACE E. SHANAHAN
450 TARAVAL ST
SAN FRANCISCO CA 94116-2530

LAKESIDE DRIVE LLC SIC
220 MONTGOMERY ST #20
SAN FRANCISCO CA 94104-3526

SODALITE
2711 N HASKELL AVE #2150
DALLAS TX 75204-2912

TWENTY THIRTY ASSOCIATES
2030 FRANKLIN ST #400
OAKLAND CA 94612-2948

PATRICIA WELD
101 N TRYON ST
CHARLOTTE NC 28255-0001

WEST COAST PROPERTY MANAGEMENT INC
400 VALLEY WAY
MILPITAS CA 95035-4136

RICK T. ZAWADSKI
982 TULARE AVE
ALBANY CA 94707-2540

300 foot radius

Lakeside Drive Llc Sic
220 Montgomery St Fl 20
San Francisco Ca 94104-3526
008-0652-001-05

22nd Street Partners Llc
360 22nd St
Oakland Ca 94612-3019
008-0679-001

22nd Street Partners Llc
360 22nd St
Oakland Ca 94612-3019
008-0685-001

22nd Street Partners Llc
360 22nd St
Oakland Ca 94612-3019
008-0681-001

22nd Street Partners Llc
360 22nd St
Oakland Ca 94612-3019
008-0682-001

22nd Street Partners Llc
360 22nd St
Oakland Ca 94612-3019
008-0687-001

22nd Street Partners Llc
360 22nd St
Oakland Ca 94612-3019
008-0680-001

22nd Street Partners Llc
360 22nd St
Oakland Ca 94612-3019
008-0684-001

Bank Of California National Association
Po Box 7788
Newport Beach Ca 92658-7788
008-0637-004-03

Lottie T. Blue
2828 Chestnut St
Oakland Ca 94608-4450
008-0650-003

Operating Ptshp Brandywine
155 Grand Ave
Oakland Ca 94612-3758
008-0653-023

Ordway Llc Brandywine
2711 N Haskell Ave Ste 2150
Dallas Tx 75204-2912
008-0653-019-03

Dana & Manuel Cabello
2120 Broadway
Oakland Ca 94612-2310
008-0650-004

California Bank & Trust
300 Lakeside Dr # 8wes
Oakland Ca 94612-3534
008-0650-016-04

Csa Property Management Llc
334 19th St
Oakland Ca 94612-3406
008-0636-013-01

East Bay State Building Authority
1401 Lakeside Dr
Oakland Ca 94612-4305
008-0653-021-02

Ronald A. Grant
60 98th Ave
Oakland Ca 94603-1000
008-0637-015

Susan B. Johnson
Po Box 173
Lewiston Ca 96052-0173
008-0653-011

Marvene Ltd
1230 Bennett Ln
Calistoga Ca 94515-9714
008-0650-007-01

Oakland Property Llc
1999 Harrison St
Oakland Ca 94612-3520
008-0636-020-08

P G & E Co 135-1-84a-1
Po Box 770000
San Francisco Ca 94177-0001
008-0637-008-08

Pacific Bell 279-1-43-2
2600 Camino Ramon # In05
San Ramon Ca 94583-5000
008-0653-014-01

Michael K. Park
119 Via Floreado
Orinda Ca 94563-192(
008-0636-018-01

Plaza Oakland Park
Po Box 13247
Kansas City Mo 64199
008-0636-010-01

Bernard S. Reynolds
3965 Washington St
San Francisco Ca 94118-1613
008-0650-008-01

Lakeside Drive Llc Si(
220 Montgomery St F]
San Francisco Ca 941(
008-0652-001-05

Sodalite
2711 N Haskell Ave Ste 2150
Dallas Tx 75204-2912
008-0717-002

Twenty Thirty Associates
2030 Franklin St # 400
Oakland Ca 94612-2948
008-0651-008-01

Two Thousand One W
Po Box 4900
Scottsdale Az 85261-4
008-0637-003-03

Vsf Of Ref Family Trust
Po Box 219
San Bruno Ca 94066-0219
008-0637-013-01

Patricia Weld
101 N Tryon St
Charlotte Nc 28255-0001
008-0651-018-01

Western Alliance Banc
1951 Webster St
Oakland Ca 94612-29(
008-0637-005

APPENDIX A.4

NOP Mailing List: Neighborhood Groups/Census Tract

NEIGHBORHOOD GROUPS CENSUS TRACT 4034:

B-19
JIM RATLIFF
725 HILLGIRT CIR
OAKLAND CA 94610

J-6
CHRISTINE ANDERSON
5095 DUBLIN AVE
OAKLAND CA 94602

O-15
ELLEN WYRICK PARKINSON
1420 MAGNOLIA ST
OAKLAND CA 94607

CENSUS TRACT 4034:

B-19, C-33, F-11,
J-6, L-4, L-14, O-15,
O-3-1, S-22,

C-33
FR TIMOTHY K JOHNSON
176 RIDGEWAY AVE
OAKLAND CA 94611

L-14
CAYREN M KING
1727 CLEMENS RD
OAKLAND CA 94602-1801

O-3-1
GORDON LINK
6510 RAYMOND ST
OAKLAND CA 94609

ER08-003
PUD08-103

F-11 *(& F-13)*
JOHN JAY
10700 MACARTHUR BLVD STE 200
OAKLAND CA 94605

L-4
MAUREEN DORSEY
4258 MACARTHUR BLVD
OAKLAND CA 94619

S-22
MARGARET ELIZARES
7501 SUNKIST DR
OAKLAND CA 94605-3022

APPENDIX A.5
NOP Posting Locations

POSTING LOCATIONS

Community & Economic Development Agency

The Swig Company LLC — APPLICANT

300 Lakeside Dr. — ADDRESS

ER08-003, PLN08-103 — CASE NO.

5/30/08 — DATE

TIME

Posting for the above case were made in the following locations:

1. At site
2. Kaiser / 21st
3. Webster / 21st
4. Webster
5. Webster / 20th
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.

Posted By: DMG/YPW

notice of
PLANNING COMMISSION
PUBLIC HEARING

3.	**Location:**	**300 Lakeside Drive (Kaiser Center)** Block bounded by 20th Street, Webster Street, 21st Street, and Harrison Street. APN: 008-0652-001-05
	Proposal:	**Scoping Session** for an Environmental Impact Report to receive comments regarding potential impacts related to the redevelopment of a portion of the Kaiser Center site. The Project would add approximately 1,474,992 square feet of net new development. The Project includes (1) demolition of 280,002 square feet of existing retail/commercial development along 20th and Webster Streets, (2) construction of one 34 story office tower (436 ft.) at the corner of 20th /Webster Streets, (3) construction of one 42 story office tower (566 ft.) at the corner of Webster/21st Street, (4) construction of 22,500 square feet of ground floor retail, and (5) addition of 828 parking spaces. The 122,606 s.f. rooftop garden will be reconfigured by removing approx. 18,369 s.f. in the Webster/21st Street corner and adding 22,933 s.f. along 20th Street.
	Applicant:	The Swig Company, LLC
	Contact Person/Phone Number:	Tomás Schoenberg, (415) 291-1100
	Owner:	SIC-Lakeside Drive, LLC
	Case File Number:	**ER 08-003, PUD 08-103**
	Planning Permits Required:	Vesting Tentative Parcel Map, Planned Development Permit, Preliminary Development Plan
	General Plan:	Central Business District
	Zoning:	C-55, Central Core Commercial; S-4, Design Review Combining Zone; S-17 Downtown Residential Open Space
	Environmental Determination:	An environmental review application was submitted on 3/25/08. A determination has been made that an EIR will be prepared that covers all environmental topic areas.
	Historic Status:	Kaiser Center Building & Rooftop Garden is a CEQA Historic Resource (Oakland Cultural Heritage Survey Rating A1+; listed on the Local Register of Historical Resources; appears eligible for the National Register individually and as part of the Lake Merritt District (code 3B))
	Service Delivery District:	1 – Downtown/West Oakland/Harbor
	City Council District:	3
	Status:	The Notice of Preparation was published and distributed on May 22, 2008 with comments due on June 23, 2008
	Action to be Taken:	Receive public and Planning Commission comments about what information and analysis should be included in the Environmental Impact Report
	For Further Information:	Contact project planner **Margaret Stanzione** at (510) 238-4932 or by email mstanzione@oaklandnet.com

The public hearing will be heard on **Wednesday, June 18, 2008, at Oakland City Hall, Hearing Room One, 1 Frank H. Ogawa Plaza, Oakland, California 94612**. The public hearing will be heard at 6:30 p.m.

If you challenge the public hearing in court, you may be limited to raising only those issues you or someone else raised at the public hearing described in this notice or in written correspondence delivered to the Community and Economic Development Agency on, or proper to, the public hearing. If you wish to be notified of the decision of this case, please indicate the **case number and submit a self-addressed stamped envelope for each** to the Community and Economic Development Agency/Zoning Division, 250 Frank H. Ogawa Plaza, 2nd floor, Oakland, California 94612-2031. Please telephone (510)238-3781 for further information.

AT SUCH HEARING, FACTS MAY BE PRESENTED FAVORING OR OPPOSING THIS PROPOSAL

IT IS UNLAWFUL TO ALTER OR REMOVE THIS NOTICE on or before the hearing date indicated above. Such an act is punishable by fine or imprisonment or by both fine and imprisonment.

SECRETARY, City Planning Commission
City Hall, Oakland, California 94612

APPENDIX A.6

Summary of Scoping Meeting and Responsive Comments

KAISER CENTER
SUMMARY OF NOP/SCOPING MEETING COMMENTS
Comment Period: May 22, 2008 to June 23, 2008
SCH# 2008052103

Date	Respondent	Organization/Address	Comment Summary
5/23	Scott Morgan Project Analyst, State Clearinghouse	State of California Governor's Office of Planning & Research 1400 10th Street P.O. Box 3044 Sacramento, CA 95812-3044	Transmittal to Reviewing Agencies (No specific comments)
5/23	Doug Johnson	WalkOaklandBikeOakland.com	• EIR to address bicycling and pedestrian circulation. • Reduce or eliminate additional auto parking.
5/29	Debbie Pilas-Treadway Assoc. Governmental Program Analyst	State of California Native American Heritage Commission 915 Capitol Mall, room 364 Sacramento, CA 95814	Standard comment letter: • Contact Information Center for records search. • Prepare archaeological inventory survey if none already prepared. • Contact NAHC. • Include appropriate mitigation in case unknown archaeological finds are encountered.
6/9	Chris Pattillo Co-Chair, HALS Northern California Chapter *(LPAB Scoping Session)*	Historic American Landscape Survey Northern California Chapter 444 17th Street, Oakland, CA 94612	• Letter supporting project and its responsible treatment of historic garden. • EIR to include wind and shadow studies and their effects on garden.
6/10	Diane Stark Senior Transportation Planner	Alameda County Congestion Management Agency 1333 Broadway, Suite 220 Oakland, CA 94612	Standard comment letter • Use of ACCMA Countywide model. • Impacts on MTS • Adequacy of Mitigation Measures; transit LOS • Use of Transit Demand Measures. • Bicycle routes. • Noise from traffic.
6/16	Lisa Carboni District Branch Chief Local Development – Intergovernmental Review	State of California Business, Transportation and Housing Agency Department of Transportation 111 Grand Avenue P.O. Box 23660 Oakland, CA 94623-0660	Standard comment letter • Prepare detailed traffic impact study. • Coordinate scoping with agency
6/18	William R. Kirkpatrick Manager of Water Distribution Planning	East Bay Municipal Utility District 375 Eleventh Street Oakland, CA 94607-4240	• Letter acknowledges agency's intent to serve project with water service. • Confirms adequate wastewater capacity to serve project. • Project to comply with water conservation measures (AB 325, etc.) and best management practices.

Date	Respondent	Organization/Address	Comment Summary
6/23	Jean Roggenkamp Deputy Air Pollution Control Officer	Bay Area Air Quality Management District 939 Ellis Street San Francisco, California 94109	Standard comment letter. • Include District's attainment status for criteria pollutants. • Evaluations of the project's construction, operational, and cumulative AQ impacts. • TACs • Project's potential to increase energy demand. • LEED or sustainable construction methods • Evaluation of parking within a transit-rich area. • Greenhouse gas emissions (AB32).
6/23	Val Joseph Nenotti Deputy Planning Manger, Stations	San Francisco Bay Area Rapid Transit (BART) District 300 Lakeside Drive, P.O. Box 12688 Oakland, CA 94612-3543	• Project's proximity to BART station. • Impacts on capacity of 19th Street BART station. • Evaluate need for parking supply. • Bicycle parking facilities at BART staton. • Pedestrian capacity/circulation on 20th Street, including during construction period. • Greenhouse gas emissions reduction due to BART use.
6/26	Nancy Skowbo Deputy General Manager for Service Development	AC Transit 1600 Franklin Street Oakland, CA 94612	• Impacts on transit operations. • Traffic impacts from changes on 20th and Harrison (Measure DD Lake Merritt program). • Key transit intersections in the vicinity. • Cumulative impacts on bus routes • Use of TDM to reduce number of parking spaces. • Bicycle facilities; "car share" parking.

Date	Respondent	Event	Comment Summary
6/9	Landmarks Preservation Advisory Board	NOP/EIR Scoping Meeting	• Cumulative traffic • Wind • Historic resources • Shadow on lake and open space • Pedestrian safety
6/18	Planning Commission	NOP/EIR Scoping Meeting	• Change to "Y" driveway at 20th Street intersection to improve pedestrian safety. • Luminous (i.e., glass) skin – glare. • Relocation of 24 Hour Fitnesss • Changes in retail square footage. • LEED certified? • Fiscal feasibility to enforce parking and conditions of approval. • Lack of pedestrian access. • Pedestrian experience (blank walls, safety) • Dust emissions from construction on park users. • Construction circulation and effects on nearby intersections (Webster @ 21st). • Density as mitigation; encourage public transit • Aesthetics with context from DT and Lake Merritt • Access to open space. • Skyline context (visual)

APPENDIX A.7

Comment Letters in Response to NOP

STATE OF CALIFORNIA

GOVERNOR'S OFFICE *of* PLANNING AND RESEARCH

STATE CLEARINGHOUSE AND PLANNING UNIT

ARNOLD SCHWARZENEGGER
GOVERNOR

CYNTHIA BRYANT
DIRECTOR

Notice of Preparation

May 23, 2008

To: Reviewing Agencies

Re: Kaiser Center Project
SCH# 2008052103

Attached for your review and comment is the Notice of Preparation (NOP) for the Kaiser Center Project draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Margaret Stazione
City of Oakland
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Project Analyst, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH# 2008052103
Project Title Kaiser Center Project
Lead Agency Oakland, City of

Type NOP Notice of Preparation

Description The project would result in two office towers of approximately 436 feet or 34 stories tall in place of the "20th Street Mall" and 566 feet or 42 stories tall in place of the "Webster Street Mall". Approximately 22,500 square feet of retail space would be constructed on the ground floor along the Webster and 20th Street frontages. The project would add approximately 852 net new parking spaces. The project would result in a net increase of public open space by approximately 4,500 square feet. All existing development on the 2.2-acre project site would be demolished and replaced as part of the proposed project.

Lead Agency Contact

Name Margaret Stazione
Agency City of Oakland
Phone (510) 238-4932 **Fax**
email mstanzione@oaklandnet.com
Address 250 Frank H. Ogawa Plaza, Suite 3315
City Oakland **State** CA **Zip** 94612

Project Location

County Alameda
City Oakland
Region
Cross Streets Webster and 20th Streets
Parcel No. 008-0652-00-105
Township **Range** **Section** **Base**

Proximity to:

Highways
Airports
Railways
Waterways
Schools
Land Use

Project Issues Aesthetic/Visual; Traffic/Circulation; Recreation/Parks; Air Quality; Archaeologic-Historic; Biological Resources; Geologic/Seismic; Soil Erosion/Compaction/Grading; Toxic/Hazardous; Water Quality; Landuse; Noise; Population/Housing Balance; Public Services; Cumulative Effects; Growth Inducing

Reviewing Agencies Resources Agency; Department of Conservation; Department of Parks and Recreation; San Francisco Bay Conservation and Development Commission; Department of Water Resources; Department of Fish and Game, Region 3; Native American Heritage Commission; California Highway Patrol; Caltrans, District 4; Integrated Waste Management Board; Department of Toxic Substances Control; Regional Water Quality Control Board, Region 2

Date Received 05/23/2008 **Start of Review** 05/23/2008 **End of Review** 06/23/2008

esources Agency

Resources Agency
Nadell Gayou

Dept. of Boating & Waterways
David Johnson

California Coastal Commission
Elizabeth A. Fuchs

Colorado River Board
Gerald R. Zimmerman

Dept. of Conservation
Sharon Howell

California Energy Commission
Dale Edwards

Cal Fire
Allen Robertson

Office of Historic Preservation
Wayne Donaldson

Dept of Parks & Recreation
Environmental Stewardship Section

Central Valley Flood Protection Board
Mark Herald

S.F. Bay Conservation & Dev't. Comm.
Steve McAdam

Dept. of Water Resources
Resources Agency
Nadell Gayou

_____
Conservancy

sh and Game

Depart. of Fish & Game
Scott Flint
Environmental Services Division

Fish & Game Region 1
Donald Koch

Fish & Game Region 1E
Laurie Harnsberger

Fish & Game Region 2
Jeff Drongesen

Fish & Game Region 3
Robert Floerke

Fish & Game Region 4
Julie Vance

Fish & Game Region 5
Don Chadwick
Habitat Conservation Program

Fish & Game Region 6
Gabrina Gatchel
Habitat Conservation Program

Fish & Game Region 6 I/M
Gabrina Getchel
Inyo/Mono, Habitat Conservation Program

Dept. of Fish & Game M
George Isaac
Marine Region

Other Departments

Food & Agriculture
Steve Shaffer
Dept. of Food and Agriculture

Depart. of General Services
Public School Construction

Dept. of General Services
Robert Sleppy
Environmental Services Section

Dept. of Health Services
Veronica Malloy
Dept. of Health/Drinking Water

Independent Commissions,Boards

Delta Protection Commission
Debby Eddy

Office of Emergency Services
Dennis Castrillo

Governor's Office of Planning & Research
State Clearinghouse

Native American Heritage Comm.
Debbie Treadway

Public Utilities Commission
Ken Lewis

Santa Monica Bay Restoration
Guangyu Wang

State Lands Commission
Marina Brand

Tahoe Regional Planning Agency (TRPA)
Cherry Jacques

Business, Trans & Housing

Caltrans - Division of Aeronautics
Sandy Hesnard

Caltrans - Planning
Terri Pencovic

California Highway Patrol
Shirley Kelly
Office of Special Projects

Housing & Community Development
Lisa Nichols
Housing Policy Division

Dept. of Transportation

Caltrans, District 1
Rex Jackman

Caltrans, District 2
Marcelino Gonzalez

Caltrans, District 3
Jeff Pulverman

Caltrans, District 4
Tim Sable

Caltrans, District 5
David Murray

Caltrans, District 6
Moses Stites

Caltrans, District 7
Vin Kumar

Caltrans, District 8
Dan Kopulsky

Caltrans, District 9
Gayle Rosander

Caltrans, District 10
Tom Dumas

Caltrans, District 11
Jacob Armstrong

Caltrans, District 12
Ryan P. Chamberlain

Cal EPA

Air Resources Board

Airport Projects
Jim Lerner

Transportation Projects
Ravi Ramalingam

Industrial Projects
Mike Tollstrup

California Integrated Waste Management Board
Sue O'Leary

State Water Resources Control Board
Regional Programs Unit
Division of Financial Assistance

State Water Resources Control Board
Student Intern, 401 Water Quality Certification Unit
Division of Water Quality

State Water Resouces Control Board
Steven Herrera
Division of Water Rights

Dept. of Toxic Substances Control
CEQA Tracking Center

Department of Pesticide Regulation

SCH# 2008052103

Regional Water Quality Control Board (RWQCB)

RWQCB 1
Cathleen Hudson
North Coast Region (1)

RWQCB 2
Environmental Document Coordinator
San Francisco Bay Region (2)

RWQCB 3
Central Coast Region (3)

RWQCB 4
Teresa Rodgers
Los Angeles Region (4)

RWQCB 5S
Central Valley Region (5)

RWQCB 5F
Central Valley Region (5)
Fresno Branch Office

RWQCB 5R
Central Valley Region (5)
Redding Branch Office

RWQCB 6
Lahontan Region (6)

RWQCB 6V
Lahontan Region (6)
Victorville Branch Office

RWQCB 7
Colorado River Basin Region (7)

RWQCB 8
Santa Ana Region (8)

RWQCB 9
San Diego Region (9)

Other _____

Last Updated on 03/03/2008

Stanzione, Margaret

From: Doug J. [doug@walkoaklandbikeoakland.org]
Sent: Friday, May 23, 2008 5:47 PM
To: Stanzione, Margaret
Cc: wobo FOUNDERS; Wlassowsky, Wlad; Patton, Jason; Patton, Gary
Subject: NOP: Kaiser Center Project 300 Lakeside

I submit the following comments on the need to address both bicycling and pedestrian circulation and the project description for the area around the enormous project planned for 300 Lakeside (Notice of Preparation May 22, 2008).

First, all planning for the site and adjoining streets must reference and address both the city's bicycle and its pedestrian master plan recommendations for this area. There are a number of critical bicycle routes and pedestrian improvements in this vicinity that must be developed along with this project.

In addition, given the building's two-three block distance from 19th St BART and dozens of high quality bus lines, it is entirely inappropriate to add auto parking at the proposed scale (900+ spaces). Transportation demand management strategies can move employees to the project area without clogging our streets and increasing carbon emissions.

We look forward to the study and additional opportunities to provide comments and we hope - support - when the project warrants it.

Kind regards,
Doug Johnson
WalkOaklandBikeOakland.org
President

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 - Fax

May 29, 2008

Margaret Stazione
City of Oakland
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

RE: SCH # 2008052103 – Kaiser Center project, Alameda County

Dear Ms. Stazione:

The Native American Heritage Commission has reviewed the above mentioned NOP. To adequately assess the project-related impact on archaeological resources, the Commission reccomends the following action be required:

1. Contact the appropriate Information Center for a records search. The record search will determine:
   - Whether a part or all of the project area has been previously surveyed for cultural resources.
   - Whether any known cultural resources have already been recorded on or adjacent to the project area.
   - Whether the probability is low, moderate, or high that cultural resources are located within the project area.
   - Whether a survey is required to determine whether previously unrecorded cultural resources are present.

2. The final stage of the archaeological inventory survey is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
   - Required the report containing site significance and mitigation be submitted immediately to the planning department.
   - Required site forms and final written report be submitted within 3 months after work has been completed to the Information Center.

3. Contact the Native American Heritage Commission for:
   - A Sacred Lands File Check.
   - A list of appropriate Native American Contacts for consultation concerning the project site and assist in the mitigation measures.

Lack of surface evidence of archeological resources does not preclude the existence of archeological resources. Lead agencies should include provisions for accidentally discovered archeological resources during construction per California Environmental Quality Act (CEQA) §15064.5 (f). Health and Safety Code §7050.5 and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery and should be included in all environmental documents. If you have any questions, please contact me at (916) 653-4038.

Sincerely,

Debbie Pilas-Treadway
Associate Governmental Program Analyst

CC: State Clearinghouse



HALS
Historic American Landscape Survey
Northern California Chapter
444 17th Street, Oakland, CA 94612
Telephone: 510/465-1284

June 9, 2008

Members of the Landmarks Board
250 Frank Ogawa
Oakland, CA 94612

RE: Kaiser Center Scoping

Dear Landmarks Board Member,

I write on behalf of the Northern California Chapter of the Historic American Landscapes Survey (HALS) regarding the proposed changes to the Henry J. Kaiser Center and its roof garden. For the past two years our members have been engaged in documenting this roof garden for HALS because we feel it is an important cultural resource. Designed in the 1960s by Osmundson and Staley, Landscape Architects this garden incorporates many innovative technologies.

I had the opportunity to meet with representatives of The SWIG Company and am pleased to see that their plans include retention of most of the garden area, reconstruction of the portion that will be impacted by construction, the addition of over 4000 square feet of new garden area in a design style similar to the original, and significantly improved public access to the garden via a new stairway off 20th Street.

We support the proposed development and its responsible treatment of this important historic garden. The Environmental Impact Report (EIR) should include detailed wind and shade studies that analyze the impacts on the garden. How will the new towers impact the plants viability to thrive, how will the new construction impact users comfort in the garden spaces, how will increased use due to the improved access impact the garden? These impacts can certainly be addressed in the design phase, but it is important to understand these impacts.

Sincerely,

Chris Pattillo

Chris Pattillo
Co-Chair, HALS Northern California Chapter

Co-chairs:

Betsy Flack
The Garden Conservancy
bflack@gardenconservancy.org

Cathy Garrett
PGAdesign inc.
garrett@pgadesign.com

Chris Pattillo
PGAdesign inc.
pattillo@pgadesign.com

ALAMEDA COUNTY
CONGESTION MANAGEMENT AGENCY

1333 BROADWAY, SUITE 220 • OAKLAND, CA 94612 • PHONE: (510) 836-2560 • FAX: (510) 836-2185
E-MAIL: mail@accma.ca.gov • WEB SITE: accma.ca.gov

AC Transit
Director
Greg Harper

Alameda County
Supervisors
Nate Miley
Scott Haggerty
Chair

City of Alameda
Mayor
Beverly Johnson

City of Albany
Councilmember
Farid Javandel

BART
Director
Thomas Blalock

City of Berkeley
Councilmember
Kriss Worthington

City of Dublin
Mayor
Janet Lockhart

City of Emeryville
Vice-Mayor
Ruth Atkin

City of Fremont
Vice-Mayor
Robert Wieckowski

City of Hayward
Mayor
Michael Sweeney

City of Livermore
Mayor
Marshall Kamena

City of Newark
Councilmember
Luis Freitas

City of Oakland
Councilmember
Larry Reid

City of Piedmont
Councilmember
John Chiang

City of Pleasanton
Mayor
Jennifer Hosterman

City of San Leandro
Councilmember
Joyce R. Starosciak

City of Union City
Mayor
Mark Green
Vice Chair

Executive Director
Dennis R. Fay

RECEIVED
JUN 20 2008
City of Oakland
Planning & Zoning Division

June 10, 2008

Mr. Gary V. Patton
Deputy Director
Planning and Zoning
City of Oakland
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612-2032
gpatton@oaklandnet.com

SUBJECT: Comments on the Notice of Preparation of a Draft Environmental Impact Report (DEIR) for Kaiser Center Project

Dear Mr. Patton:

Thank you for the opportunity to comment on the Notice of Preparation (NOP) for a Draft Environmental Impact Report (DEIR) for the Kaiser Center Project on 300 Lakeside Drive, at the northeast corner of Webster and 20th Streets in the City of Oakland. The 2.2.acre project site is a portion of the 7-acre Kaiser Center. The project would involve redeveloping the site to include approximately 1.47 million square feet of office, 22,500 square feet of ground-floor retail, 852 net new parking spaces, and a relocation and 4,500 square foot expansion of the rooftop garden open space. It would result in two office towers of approximately 34 stories (436 feet) tall in place of the "20th Street Mall" and 42 stories (566 feet) tall in place of the "Webster Street Mall." The project requires approvals for a subdivision and a Planned United Development.

The ACCMA respectfully submits the following comments:

- The City of Oakland adopted Resolution No. 69475 on November 19, 1992 establishing guidelines for reviewing the impacts of local land use decisions consistent with the Alameda County Congestion Management Program (CMP). Based on our review of the NOP, the proposed project appears to generate at least 100 p.m. peak hour trips over existing conditions. If this is the case, the CMP Land Use Analysis Program requires the City to conduct a traffic analysis of the project using the Countywide Transportation Demand Model for projection years 2015 and 2030 conditions. Please note the following paragraph as it discusses the responsibility for modeling.

  - The CMA Board amended the CMP on March 26th, 1998 so that local jurisdictions are responsible for conducting the model runs themselves or through a consultant. The ACCMA has a Countywide model that is available for this purpose. The City of Oakland and the ACCMA signed a Countywide Model Agreement on November 16, 2007. Before the model can be used for this project, a letter must be submitted to the

ACCMA requesting use of the model and describing the project. A copy of a sample letter agreement is available upon request.

- Potential impacts of the project on the Metropolitan Transportation System (MTS) need to be addressed. (See 2007 CMP Figures E-2 and E-3 and Figure 2). The DEIR should address all potential impacts of the project on the MTS roadway and transit systems. These include I-880, I-580, I-80, I-980, SR 24, Harrison Street, Webster Street, Grand Avenue, Broadway, San Pablo Avenue, Telegraph Avenue, 14th Street, as well as BART and AC Transit. Potential impacts of the project must be addressed for 2015 and 2030 conditions.
  - Please note that the ACCMA does not have a policy for determining a threshold of significance for Level of Service for the Land Use Analysis Program of the CMP. Professional judgment should be applied to determine the significance of project impacts (Please see chapter 6 of 2007 CMP for more information).

- The adequacy of any project mitigation measures should be discussed. On February 25, 1993, the CMA Board adopted three criteria for evaluating the adequacy of DEIR project mitigation measures:
  - Project mitigation measures must be adequate to sustain CMP service standards for roadways and transit;
  - Project mitigation measures must be fully funded to be considered adequate;
  - Project mitigation measures that rely on state or federal funds directed by or influenced by the CMA must be consistent with the project funding priorities established in the Capital Improvement Program (CIP) section of the CMP or the Regional Transportation Plan (RTP).

  The DEIR should include a discussion on the adequacy of proposed mitigation measures relative to these criteria. In particular, the DEIR should detail when proposed roadway or transit route improvements are expected to be completed, how they will be funded, and what would be the effect on LOS if only the funded portions of these projects were assumed to be built prior to project completion.

- Potential impacts of the project on CMP transit levels of service must be analyzed. (See 2007 CMP, Chapter 4). Transit service standards are 15-30 minute headways for bus service and 3.75-15 minute headways for BART during peak hours. The DEIR should address the issue of transit funding as a mitigation measure in the context of the CMA's policies as discussed above.

- The DEIR should also consider demand-related strategies that are designed to reduce the need for new roadway facilities over the long term and to make the most efficient use of existing facilities (see 2007 CMP, Chapter 5). The DEIR should consider the use of TDM measures, in conjunction with roadway and transit improvements, as a means of attaining acceptable levels of service. Whenever possible, mechanisms that encourage ridesharing, flextime, transit, bicycling, telecommuting and other means of reducing peak hour traffic trips should be considered. The Site Design Guidelines Checklist may be useful during the review of the development proposal. A copy of the checklist is enclosed.

- The EIR should consider opportunities to promote countywide bicycle routes identified in the Alameda Countywide Bicycle Plan, which was approved by the ACCMA Board on October 26, 2006. The approved Countywide Bike Plan is available at http://www.accma.ca.gov/pages/HomeBicyclePlan.aspx

- For projects adjacent to state roadway facilities, the analysis should address noise impacts of the project. If the analysis finds an impact, then mitigation measures (i.e., soundwalls) should be incorporated as part of the conditions of approval of the proposed project. It should not be assumed that federal or state funding is available.

Thank you for the opportunity to comment on this Notice of Preparation. Please do not hesitate to contact me at 510.836.2560 if you require additional information.

Sincerely,

Diane Stark

Diane Stark
Senior Transportation Planner

file: CMP - Environmental Review Opinions - Responses - 2008

DEPARTMENT OF TRANSPORTATION
111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 622-5491
FAX (510) 286-5559
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Flex your power!
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June 16, 2008

ALA980033
ALA-980-1.4
SCH#2008052103

Ms. Margaret Stazione
City of Oakland
Community and Economic Development Agency
Planning Division
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

Dear Ms. Stazione:

ER 08-003/PUD 08-103 Kaiser Center Project – Notice of Preparation

Thank you for including the California Department of Transportation (Department) in the environmental review process for the Kaiser Center Project. The following comments are based on the Notice of Preparation. As lead agency, the City of Oakland is responsible for all project mitigation, including any needed improvements to State highways. The project's fair share contribution, financing, scheduling, and implementation responsibilities as well as lead agency monitoring should be fully discussed for all proposed mitigation measures and the project's traffic mitigation fees should be specifically identified in the Draft Environmental Impact Report.

Traffic Impact Study (TIS)
The Department is primarily concerned with impacts to the State Highway System. Specifically, a detailed Traffic Impact Study (TIS) should identify impacts to the State Highway System. The TIS should include, but is not limited to the following:

1. Information on the project's traffic impacts in terms of trip generation, distribution, and assignment. The assumptions and methodologies used in compiling this information should be addressed.

2. Average Daily Traffic (ADT) and AM and PM peak hour volumes on all significantly affected streets and highways, including crossroads and controlling intersections.

3. Schematic illustration of the traffic conditions for: 1) existing, 2) existing plus project, and 3) cumulative for the intersections in the project area.

4. Calculation of cumulative traffic volumes should consider all traffic-generating developments, both existing and future, that would affect the State Highway facilities being evaluated.

5. Mitigation measures should consider highway and non-highway improvements and services. Special attention should be given to the development of alternate solutions to circulation problems that do not rely on increased highway construction.

6. All mitigation measures proposed should be fully discussed, including financing, scheduling, implementation responsibilities, and lead agency monitoring.

We encourage the City of Oakland to coordinate preparation of the study with our office, and we would appreciate the opportunity to review the scope of work. Please see the Caltrans' *"Guide for the Preparation of Traffic Impact Studies"* at the following website for more information: http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/reports/tisguide.pdf

We look forward to reviewing the TIS, including Technical Appendices, and environmental document for this project. Please send two copies to the address at the top of this letterhead, marked ATTN: Yatman Kwan, Mail Stop #10D.

Should you have any questions regarding this letter, please call Yatman Kwan of my staff at (510) 622-1670.

Sincerely,

Lisa Carboni

LISA CARBONI
District Branch Chief
Local Development - Intergovernmental Review

c: State Clearinghouse

EAST BAY
MUNICIPAL UTILITY DISTRICT

RECEIVED
JUN 23 2008
City of Oakland
Planning & Zoning Division

June 18, 2008

Margaret Stanzione, Planner IV
City of Oakland
Community and Economic Development Agency
250 Frank Ogawa Plaza, Suite 3315
Oakland, CA 94612

Re: Notice of Preparation of a Draft Environmental Impact Report – Kaiser Center Project, Oakland

Dear Ms. Stanzione:

East Bay Municipal Utility District (EBMUD) appreciates the opportunity to comment on the Notice of Preparation of a Draft Environmental Impact Report (EIR) for the Kaiser Center Project located in the City of Oakland. EBMUD has the following comments.

WATER SERVICE

EBMUD's Central Pressure Zone, with a service elevation between 0 and 100 feet, will serve the proposed development. When the development plans are finalized, the project sponsor should contact EBMUD's New Business Office and request a water service estimate to determine costs and conditions for providing water service to the proposed development. Engineering and installation of water services requires substantial lead-time, which should be provided for in the project sponsor's development schedule.

The project sponsor should be aware that EBMUD will not install piping or services in contaminated soil or groundwater (if groundwater is present at any time during the year at the depth piping is to be installed) that must be handled as a hazardous waste, or that may be hazardous to the health and safety of construction and maintenance personnel wearing Level D personal protective equipment. EBMUD will not install piping or services in areas where groundwater contaminant concentrations exceed specified limits for discharge to the sanitary sewer system and sewage treatment plants.

Applicants for EBMUD services requiring excavation in contaminated areas must submit copies of existing information regarding soil and groundwater quality within or adjacent to the project boundary. In addition, the applicant must provide a legally sufficient, complete and specific written remedial plan establishing the methodology, planning and design of all necessary systems for the removal, treatment, and disposal of

all identified contaminated soil and/or groundwater. EBMUD will not design the installation of pipelines until such time as soil and groundwater quality data and remediation plans are received and reviewed and will not install pipelines until remediation has been carried out and documentation of the effectiveness of the remediation has been received and reviewed. If no soil or groundwater quality data exists or the information supplied by the applicant is insufficient EBMUD may require the applicant to perform sampling and analysis to characterize the soil being excavated and groundwater that may be encountered during excavation or perform such sampling and analysis itself at the applicant's expense.

WASTEWATER PLANNING

EBMUD's Main Wastewater Treatment Plant is anticipated to have adequate dry weather capacity to treat the proposed wastewater flow from this project, provided this wastewater meets the standards of EBMUD's Environmental Services Division. However, the City of Oakland's Infiltration/Inflow (I/I) Correction Program set a maximum allowable peak wastewater flow from each subbasin within the City and EBMUD agreed to design and construct wet weather conveyance and treatment facilities to accommodate these flows. EBMUD prohibits discharge of wastewater flows above the allocated peak flow for a subbasin because conveyance and treatment capacity for wet weather flows may be adversely impacted by flows above this agreed limit. The developer for this project needs to confirm with the City of Oakland Public Works Department that there is available capacity within the subbasin flow allocation and that it has not been allocated to other developments. The projected peak wet weather wastewater flows from this project need to be determined to assess the available capacity within the subbasin and confirmation included in the EIR. Suggested language to include in the EIR is as follows: "The City of Oakland Public Works Department has confirmed that there is available wastewater capacity within Subbasin *(insert subbasin number here)* that is reserved for this project."

In general, the project should address the replacement or rehabilitation of the existing sanitary sewer collection system to prevent an increase in I/I. Please include a provision to control or reduce the amount of I/I in the environmental documentation for this project. The main concern is the increase in total wet weather flows, which could have an adverse impact if the flows are greater than the maximum allowable flows from this subbasin.

WATER CONSERVATION

The proposed project presents an opportunity to incorporate water conservation measures. EBMUD would request that the City include in its conditions of approval a requirement that the project sponsor comply with Assembly Bill 325, "Model Water

Efficient Landscape Ordinance," (Division 2, Title 23, California Code of Regulations, Chapter 2.7, Sections 490 through 495) of the Landscape Water Conservation Guidelines. EBMUD staff would appreciate the opportunity to meet with the project sponsor to discuss water conservation programs and best management practices applicable to the integrated projects. A key objective of this discussion will be to explore timely opportunities to expand water conservation via early consideration of EBMUD's conservation programs and best management practices applicable to the project.

If you have any questions concerning this response, please contact David J. Rehnstrom, Senior Civil Engineer, Water Service Planning at (510) 287-1365.

Sincerely,

FOR William R. Kirkpatrick
Manager of Water Distribution Planning

WRK:NJR:sb
sb08_166.doc

cc: The Swig Company, LLC
c/o Tomas Schoenberg
220 Montgomery Street, 20th Floor
San Francisco, CA 94104

BAY AREA
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Jack P. Broadbent
EXECUTIVE OFFICER/APCO

June 23, 2008

Margaret Stanzione, Planner IV
City of Oakland, Planning Division
Community and Economic Development Agency
250 Frank H. Ogawa Plaza Suite 3315
Oakland, CA 94612

Subject: Notice of Preparation of a Draft Environmental Impact Report for the Kaiser Center Project (Case No. ER 08-003/PUD 08-103)

Dear Ms. Stanzione:

Bay Area Air Quality Management District (District) staff has reviewed your agency's Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the Kaiser Center Project (Project). The Project is located in downtown Oakland at the northeast corner of Webster and 20th Streets. We understand that the Project would result in the development of two office towers, 34 and 42 stories tall, with 1.47 million square feet of office and retail, and 852 new parking spaces. The Project would also result in a net increase of 4,500 square feet of public open space.

The District has the following specific comments on the environmental analysis that should be included in the EIR.

1. The EIR should provide background information regarding the District's attainment status for all criteria pollutants and the implications for the region if these standards are not attained by statutory deadlines. Information should also be included on the implementation status of the U.S. Environmental Protection Agency's (EPA) recently adopted, more protective $PM_{2.5}$ and ozone standards. A discussion of the health effects of air pollution, especially on sensitive receptors, should be provided.

2. The *BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans (1999)* provide guidance on how to evaluate a project's construction, operational and cumulative air quality impacts. You may download a copy from the District's web site at: http://www.baaqmd.gov/pln/ceqa/index.htm. The EIR should provide a detailed analysis of the Project's potential effects on local and regional air quality from construction, operations and cumulative impacts for the Project and each of the alternatives analyzed. The EIR should estimate daily and annual volatile organic compounds (VOCs), nitrogen oxides (NOx), and particulate matter ($PM_{2.5}$ and PM_{10}) emissions from stationary, area and mobile sources resulting from long-term project operation. These estimates should be compared to the significance thresholds in the *BAAQMD CEQA Guidelines*. We recommend utilizing URBEMIS 2007, version 9.2.4, for estimating emissions.

Spare the Air
The Air District is a Certified Green Business
Printed using soy-based inks on 100% post-consumer recycled content paper

3. The EIR should estimate and evaluate the potential health risk to current and future sensitive populations within the Project area from toxic air contaminants (TACs) as a result of Project construction and operation. We recommend you refer to California Air Resources Board's (ARB) *Air Quality and Land Use Handbook: A Community Health Perspective,* (http://www.arb.ca.gov/ch/landuse.htm) for guidelines on siting sensitive land uses. We recommend that the EIR evaluate any risks with siting land uses near major transportation corridors and other emission sources.

4. Construction equipment generates fugitive dust emissions, exhaust emissions of criteria pollutants, and TACs, specifically diesel particulate matter (DPM), a known carcinogen. The EIR should require that all construction activities associated with the Project comply with the dust mitigation measures in the District's CEQA guidelines. The EIR should also include all feasible mitigation measures to reduce construction equipment exhaust emissions to reduce significant exposure to TAC for the existing community. Such measures could include but are not limited to: maintaining properly tuned engines; minimizing the idling time of diesel powered construction equipment to two minutes; using alternative powered construction equipment (i.e., CNG, biodiesel, electric); using add-on control devices such as diesel oxidation catalysts or particulate filters; using equipment that meets ARB's most recent certification standard for off-road heavy duty diesel engines; phasing project construction; and limiting the operating hours of heavy duty equipment.

5. The EIR should evaluate the Project's potential to increase the demand for energy. Increased demand for electricity, natural gas, and gasoline may result in an increase of criteria air pollutant emissions from combustion, as well as an increase in greenhouse gas emissions. We recommend that the EIR discuss energy demand of the Project at build-out, including any cumulative impacts, such as the need to build peaker power plants to provide power during peak demand. When identifying strategies to minimize the Project's impact on energy and air quality, the EIR should include feasible mitigation measures that require a minimum level of green building measures for new development. This minimum level could be based on the Leadership in Energy and Environmental Design (LEED) standards or by setting a target percentage reduction below California Building Code's Title 24 energy standards. Green building measures could include but are not limited to using: super-efficient heating, ventilation, and air conditioning (HVAC) systems; light-colored and reflective roofing materials, pavement treatments and other energy efficient building materials; shade trees adjacent to buildings and in parking areas; photovoltaic panels on buildings; and natural and energy-efficient lighting.

6. Parking is a prominent feature of the Project design, with net new parking for approximately 852 vehicles proposed in addition to existing parking lots and garages. We recommend that the EIR carefully evaluate the Project's design with respect to onsite parking. The Project's location in a particularly transit-rich location represents a significant opportunity to incentivize transit use and reduce vehicle miles traveled and traffic congestion. Pricing strategies for both on-street and off-street parking, based on the market-demand, can encourage the use of carpooling, walking, bicycling and transit. Such strategies may include unbundling the cost of parking (i.e. charge for off-street parking separately from rents). The

Metropolitan Transportation Commission (MTC) has developed the *Toolbox/Handbook: Parking Best Practices & Strategies For Supporting Transit Oriented Development In the San Francisco Bay Area* to assist local jurisdictions in designing parking policies that support smart growth principles. We recommend that the City of Oakland commit to utilizing and incorporating parking policies contained in the Toolbox into the Project design and operation: http://www.mtc.ca.gov/planning/smart_growth/parking_seminar/Toolbox-Handbook.pdf.

7. We recommend that the EIR analyze greenhouse gas (GHG) emissions associated with implementation of the Project. The California Air Pollution Control Officers Association (CAPCOA) recently released a resource document addressing GHG emissions from projects subject to CEQA. The resource document, *CEQA and Climate Change,* contains an overview of available tools and models for evaluating GHG emissions and strategies for mitigating potentially significant GHG emissions from projects. The report may be downloaded at http://www.capcoa.org. The Project should seek to minimize its contribution to climate change by implementing all feasible mitigation measures to reduce GHG emissions, especially those measures targeting the Project's vehicle miles traveled, as transportation represents approximately 50 percent of the Bay Area's GHG emissions.

If you have any questions regarding these comments, please contact Nadine Wilmot, Environmental Planner, at (415) 749-5074.

Sincerely,

Jean Roggenkamp
Deputy Air Pollution Control Officer

cc: BAAQMD Director Tom Bates
BAAQMD Director Scott Haggerty
BAAQMD Director Janet Lockhart
BAAQMD Director Nate Miley

SAN FRANCISCO BAY AREA RAPID TRANSIT DISTRICT
300 Lakeside Drive, P.O. Box 12688
Oakland, CA 94612-3534
(510) 464-6000

June 23, 2008

Raised

Margaret Stanzione
Planner IV
Community and Economic Development Agency
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

Re: Comments on the Notice of Preparation for a Draft Environmental Impact Report for the Kaiser Center Project

Dear Ms. Stanzione,

Thank you for the opportunity to comment on the Notice of Preparation (NOP) for the Draft Environmental Report (DEIR) for the Kaiser Center Project, case number ER 08-003, PUD 08-103. We have reviewed the NOP and BART respectfully submits the following comments:

Comment 1:
This project would provide 1.47 million square feet of office space and 22,500 square feet of retail space two blocks from the 19th Street BART Station. BART is very supportive of new urban infill development projects in downtown Oakland near BART stations. The Transit Oriented Development Policy adopted by the BART Board of Directors on July 14, 2005 identifies "promoting high quality, more intensive development on and near BART-owned property...(to) increase ridership" as a vision for BART. Additionally, one of the goals identified in the policy framework for sustainability under BART's Strategic Plan is to "Promote sustainable transit-oriented development in the communities BART services to maximize the use of BART as the primary mode of transportation." This project will assist in achieving the vision and goal identified above.

Comment 2:
The DEIR should identify and analyze the impact that this project will have on the capacity of the 19th Street Oakland BART Station, including the following impacts:

- Additional transit trips generated by the project, including peak hour trips;
- Faregate queues during the weekday peak travel hour at the 20th Street exit and whether the project will create queues at a faregate requiring a passenger to wait more than 60 seconds to process their ticket;
- Passenger flow during weekday AM & PM peak hour through station access portals. This is especially critical for the 19th Street Station portal located at the northeast corner of 20th Street. This analysis should also indicate the impact that a portal expansion, if necessary would have on the sidewalk footprint.

Gail Murray
PRESIDENT

Thomas M. Blalock
VICE-PRESIDENT

Dorothy W. Dugger
GENERAL MANAGER

DIRECTORS

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Joel Keller
2ND DISTRICT

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Zoyd Luce
5TH DISTRICT

Thomas M. Blalock
6TH DISTRICT

Lynette Sweet
7TH DISTRICT

James Fang
8TH DISTRICT

Tom Radulovich
9TH DISTRICT

- Vertical Circulation within the BART Station
- Station Platform Capacity

Comment 3:
The DEIR should identify ways to minimize the proposed 52% increase in parking provided for the Kaiser Center Project. Given the City's Transit First policy and the location of this project in a transit-rich environment, we would encourage City staff to consider requiring the developer to prepare a Transportation Demand Management (TDM) plan for the project. A TDM plan should consider a range of options to reduce vehicle trips, including discounted transit pass programs and the provision of dedicated carpool and carsharing spaces to reduce parking ratios for the project. As parking availability and pricing is an important determine of transit mode share, the TDM plan should also identify parking pricing strategies to encourage shifting trips to non-automobile modes of travel.

Comment 4:
Increased bicycle in Oakland has resulted in rapid growth in bicycle parking usage in downtown Oakland, including racks at the 19th Street BART Station. The project should meet the requirements for bicycle parking facilities, shower and locker facilities identified in the Oakland Bicycle Parking Ordinance proposed for adoption by the City Council in July 2008. The City should explore establishing a high-capacity bicycle parking facility or bikestation in the vicinity of the proposed project that could accommodate the long-term bicycle parking needs of this project and other proposed projects in the area.

Comment 5
The DEIR should also identify improvements to address pedestrian capacity issues along 20th Street and Broadway with the proposed project. These streets serve as primary pathways for BART patrons wishing to enter the 19th Street BART station. Pedestrian traffic along 20th Street during the weekday peak hour and in the mid-day (12 p.m. to 1 p.m.) period currently exceeds the available sidewalk width. Future growth and the proposed project will exacerbate this condition. It would be beneficial for the City, BART and the project applicant to work together to provide additional pedestrian capacity between Broadway and the Kaiser Center Project as part of the proposed project.

Comment 6
The increasing amount of infill development in downtown Oakland will result in more pedestrian traffic on city streets surrounding the proposed project. Many of these streets have roadway rights-of-way with significantly more capacity for automobile travel than needed. As part of the site design process, BART encourages the City to work with the project applicant to ensure that the full street right-of-way is allocated efficiently and adequately sized sidewalks are provided to accommodate future demand from this development and other projects in the surrounding area.

Comment 7
BART would like to work with the City and the project applicant to ensure that consideration is given to adding pedestrian and/or transit wayfinding elements to the project as part of any developer-funded enhancements. Such elements should incorporate BART's wayfinding standards for guidance to BART stations.

Comment 8
The proposed project site is located in an area well served by public transit and is located in close proximity to significant numbers of new residential units and other urban services. These factors should result in a lower level of Greenhouse Gas emissions per person than development in other parts of Alameda County or the Bay Area. The Air Quality/Climate Change impact should quantify these benefits of constructing more intense development in downtown Oakland.

Comment 9
The DEIR should address pedestrian access along 20th and Webster Streets during the construction period. As noted in Comment #4, the existing pedestrian demand both during the weekday peak hour and mid-day period currently exceeds the available sidewalk width along 20th Street. The City, BART and the project applicant should work together to ensure that an accessible pedestrian path is provided along these streets during the project's construction phase.

We look forward to working with the City of Oakland on this important project. If you have any questions, please contact F. Kenya Wheeler, Senior Planner at (510) 287-4782 or by e-mail at fwheele@bart.gov.

Thank you again for the opportunity to provide input on this project

Sincerely,



Val Joseph Menotti
Deputy Planning Manager, Stations

1600 Franklin Street, Oakland, CA 94612 - Ph. 510/891-4716 - Fax. 510/891-7157

Nancy Skowbo
Deputy General Manager - Service Development

June 26, 2008

Marge Stanzione
Planner IV
City of Oakland
Community and Economic Development Agency
Planning Division
250 Frank Ogawa Plaza, Suite 3315
Oakland, Ca. 94612

Subject: Notice of Preparation of an Environmental Impact Report - Kaiser Center Project

Dear Ms. Stanzione:

Thank you for the opportunity to comment on the Notice of Preparation of the Draft Environmental Impact Report for the Kaiser Center Project. The Project is proposed for the Kaiser Center block between 20th and 21st Streets, Harrison and Webster Streets. It would essentially double the floor area at the site, from 1.7 million square feet to over 3.2 million square feet. This would be achieved by building two office towers on the Webster Street side of the block. The taller of the two towers would be 42 stories tall. There would be 22,500 square feet of retail space in the new buildings. A net of 700 parking spaces would be added to the existing 1,340 parking spaces in the garage. However, the parking ratio - the number of parking spaces per 1,000 square feet of office and retail space - would decline.

AC Transit is generally supportive of adding employment opportunities in Downtown Oakland locations such as this. Downtown Oakland has the most extensive transit service - bus and BART - of any area in the East Bay. In addition, with residential growth in and around Downtown Oakland, increasing numbers of people have the opportunity to walk or bike to jobs in Downtown Oakland.

Potential for Impact on Transit Operations: It is the District's understanding that the circulation patterns on streets around the edge of the site would not be changed by the project. Therefore, the location of bus stops would not have to be moved. However, if any changes to circulation on bus routes are contemplated, these should be discussed as soon as possible with AC Transit.

Precisely because Downtown Oakland is such a major transit center, the project must be careful not to impact transit operations. Minimizing the traffic generated by the project, and managing that traffic appropriately, will be crucial. AC Transit operates 12 bus routes (exclusive of "allnighter" routes) within two blocks of the Kaiser Center site. The District has recently built the "Uptown Transit Center" on 20th Street between Broadway and Telegraph, which is served by 8 routes.

AC Transit is particularly concerned about impacts on existing and planned Rapid bus and Bus Rapid Transit routes. The District operates the 72R in this area on Broadway, 20th St., and San Pablo, and operates the 1R on Broadway, 20th St. and Telegraph. The 1R is proposed for conversion to fully Bus Rapid Transit (BRT) operation. AC Transit operates the NL to San Francisco on Grand, Harrison, 20th, and San Pablo - this route is proposed for upgrade to Rapid status.

The District also notes that the Measure DD Lake Merritt program proposes changes to the roadway at 20th & Harrison, which could affect the roads' capacity to absorb new traffic. The interaction of increased traffic volumes with the changed roadway must be analyzed.

Key Intersections: It is therefore critical that impacts be analyzed and any necessary mitigations identified for those streets, and the intersections in this area. The following intersections are particularly important:

- Grand & Harrison
- 20th & Harrison
- Grand & Broadway
- 20th & Broadway
- 20th & Telegraph

AC Transit is primarily concerned about changes in traffic volumes or patterns which could either cause delay for buses (and bus passengers) and/or disrupt the reliability of bus operations. As this analysis is done, it is important that the differential impacts of traffic congestion on bus operations be analyzed. Because most buses must repeatedly enter and exit travel lanes, traffic congestion can have a greater delaying impact on buses than on cars.

Cumulative Impacts on Bus Routes: The potential for cumulative impacts to bus routes must be considered and analyzed. For example, changes to MacArthur Boulevard would likely cause bus delays in that corridor, and potentially result in cumulative delays on bus routes in Downtown Oakland.

Transportation Demand Management (TDM), Ecopasses and Parking: AC Transit strongly urges that measures to mitigate traffic and parking impacts be seriously considered in the EIR. Kaiser Center, with its access to buses and BART, is ideally situated for a strong Transportation Demand Management (TDM) program. Purchase of AC Transit Ecopasses for Kaiser Center tenants should be seriously considered.

Under the Ecopass program, the Center would buy passes at a deeply discounted rate for all employees in the Center. Any employee could use the pass for unlimited free East Bay and Transbay bus rides. The District would be happy to provide further details on this program.

Kaiser Center should provide safe and accessible bicycle parking. The project should also include a carshare "pod". This would allow employees to commute on transit and use a car at midday, rather than forcing them to drive to work in order to have midday car access.

The addition of 850 parking spaces will inevitably attract additional traffic. However, with a strong TDM program, Kaiser Center can reduce the number of additional parking spaces (therefore also reducing project cost). In effect, parking spaces could be traded off for transit access.

Thank you for your interest. If you have any questions about this letter, please contact Nathan Landau in the Long Range Planning unit at 891-4792.

Yours Truly,

Nancy Skowbo
Deputy General Manager for Service Development

Cc: Tina Spencer
Jim Cunradi
Nathan Landau
Nichele Ayers

APPENDIX B
Wind Study Test Data

Kaiser Center
OAKLAND, CALIFORNIA

Wind Hazard Analysis

Existing
Wind Test Date: 27 April 2009

The ratios of pedestrian-level wind speeds to the reference height wind speeds at the old Alameda NAS meteorological station are shown in the first line of output for each location.

The second line of the output shows the pedestrian level wind speeds, in mph, which would be exceeded one hour per year (0.01141552512% of the time) for each measurement location. This assumes that a wi hazard occurs if a one-minute average speed of 36 mph is reached or exceeded a total of one hour per y

The third line of output for each location shows the criterion speed and the percentage of the time th criterion would be exceeded. The rows labeled CONTRIB tabulate the percentage contribution to the total or the exceedance from each wind direction. The SUMs are the equivalent number of events.

Location	0.011414% Exc. Ground Speed	Criterion Speed Exc.	Criterion % Time Exc.		NNW	W	SSE	OTHER	SUM
				Profile Ratios:	1.9040	1.9040	1.9040	1.9040	
1				RATIOS	0.8124	0.7654	1.0874	0.8884	
	35.3			CONTRIB	0.32%	1.10%	98.38%	0.21%	5
		36.0	0.0069457	CONTRIB	0.41%	1.44%	97.94%	0.21%	3
2				RATIOS	0.7932	0.4623	0.9781	0.7445	
	31.9			CONTRIB	1.27%	0.00%	98.71%	0.02%	5
		36.0	0.0002900	CONTRIB	6.63%	0.00%	93.35%	0.02%	0
3				RATIOS	0.5691	0.5110	1.1034	0.7278	
	36.0			CONTRIB	0.00%	0.00%	100.00%	0.00%	5
		36.0	0.0106097	CONTRIB	0.00%	0.00%	100.00%	0.00%	5
4				RATIOS	0.6323	0.5596	1.0371	0.7430	
	33.8			CONTRIB	0.00%	0.00%	100.00%	0.00%	5
		36.0	0.0016108	CONTRIB	0.00%	0.00%	100.00%	0.00%	1
5				RATIOS	1.1845	0.5556	0.7987	0.8463	
	36.2			CONTRIB	99.97%	0.00%	0.00%	0.03%	5
		36.0	0.0111580	CONTRIB	99.97%	0.00%	0.00%	0.03%	5
6				RATIOS	0.7176	0.4284	0.8202	0.6554	
	26.7			CONTRIB	4.12%	0.00%	95.78%	0.10%	5
		36.0	0.0000051	CONTRIB	74.77%	0.00%	25.23%	0.00%	0
7				RATIOS	0.7448	0.4842	0.3955	0.5415	
	22.8			CONTRIB	94.10%	0.89%	0.00%	5.01%	5
		36.0	0.0000069	CONTRIB	100.00%	0.00%	0.00%	0.00%	0
8				RATIOS	0.7599	0.7117	0.3873	0.6196	
	25.4			CONTRIB	25.64%	66.55%	0.00%	7.81%	5
		36.0	0.0000421	CONTRIB	22.76%	77.24%	0.00%	0.00%	0
9				RATIOS	0.8638	1.1220	0.7509	0.9123	
	39.2			CONTRIB	0.19%	95.91%	0.00%	3.91%	5
		36.0	0.0372354	CONTRIB	0.21%	99.71%	0.00%	0.09%	16
10				RATIOS	0.8208	0.7405	0.9008	0.8207	
	29.8			CONTRIB	7.19%	11.12%	71.09%	10.60%	4
		36.0	0.0001169	CONTRIB	28.68%	51.32%	18.90%	1.11%	0
11				RATIOS	0.8136	1.2745	0.6272	0.9051	
	44.4			CONTRIB	0.00%	99.50%	0.00%	0.50%	5
		36.0	0.1529660	CONTRIB	0.02%	95.80%	0.00%	4.18%	67
12				RATIOS	0.4821	1.0843	0.7306	0.7657	
	37.8			CONTRIB	0.00%	100.00%	0.00%	0.00%	5
		36.0	0.0218831	CONTRIB	0.00%	100.00%	0.00%	0.00%	10
13				RATIOS	0.2588	0.9910	0.7113	0.6537	
	34.5			CONTRIB	0.00%	100.00%	0.00%	0.00%	5
		36.0	0.0054420	CONTRIB	0.00%	100.00%	0.00%	0.00%	2
14				RATIOS	0.7151	0.7884	0.5558	0.6865	
	27.5			CONTRIB	2.70%	97.11%	0.00%	0.19%	5
		36.0	0.0001619	CONTRIB	2.21%	97.79%	0.00%	0.00%	0

Kaiser Center
OAKLAND, CALIFORNIA

Wind Hazard Analysis

Existing
Wind Test Date: 27 April 2009

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Location	0.011414% Exc. Ground Speed	Criterion Speed Exc.	Criterion % Time Exc.		NNW	W	SSE	OTHER	SUM
			Profile Ratios:		1.9040	1.9040	1.9040	1.9040	
15				RATIOS	1.1858	0.6974	1.0165	0.9666	
	36.7			CONTRIB	90.44%	0.00%	4.81%	4.75%	5
		36.0	0.0128545	CONTRIB	87.69%	0.18%	6.81%	5.31%	6
16				RATIOS	1.1308	0.6173	1.1540	0.9674	
	37.9			CONTRIB	22.89%	0.00%	76.75%	0.36%	5
		36.0	0.0483687	CONTRIB	12.58%	0.00%	85.99%	1.43%	21
17				RATIOS	0.2900	0.5682	0.8684	0.5755	
	28.2			CONTRIB	0.00%	0.35%	99.65%	0.00%	5
		36.0	0.0000072	CONTRIB	0.00%	0.00%	100.00%	0.00%	0
18				RATIOS	0.5442	1.0649	0.4501	0.6864	
	37.1			CONTRIB	0.00%	100.00%	0.00%	0.00%	5
		36.0	0.0165465	CONTRIB	0.00%	100.00%	0.00%	0.00%	7
19				RATIOS	0.3553	0.8861	0.5194	0.5869	
	30.7			CONTRIB	0.00%	100.00%	0.00%	0.00%	5
		36.0	0.0009642	CONTRIB	0.00%	100.00%	0.00%	0.00%	0
20				RATIOS	0.6365	1.0666	0.6656	0.7896	
	37.2			CONTRIB	0.00%	99.05%	0.00%	0.95%	5
		36.0	0.0171257	CONTRIB	0.00%	99.05%	0.00%	0.95%	7
21				RATIOS	1.2511	0.9202	1.1148	1.0954	
	39.2			CONTRIB	73.02%	4.29%	10.06%	12.63%	5
		36.0	0.0408253	CONTRIB	45.59%	4.23%	35.56%	14.62%	18
22				RATIOS	0.8330	0.8465	1.1559	0.9451	
	37.8			CONTRIB	0.19%	2.16%	97.44%	0.21%	5
		36.0	0.0447084	CONTRIB	0.10%	1.06%	97.81%	1.04%	20
23				RATIOS	0.6875	1.2081	1.0282	0.9746	
	42.0			CONTRIB	0.00%	99.88%	0.10%	0.02%	5
		36.0	0.0918169	CONTRIB	0.00%	97.79%	1.35%	0.86%	40
24				RATIOS	0.9019	0.5594	0.7991	0.7535	
	27.9			CONTRIB	81.12%	0.35%	11.97%	6.56%	5
		36.0	0.0001554	CONTRIB	99.57%	0.00%	0.37%	0.06%	0
25				RATIOS	1.0026	0.9394	0.7182	0.8868	
	33.4			CONTRIB	26.33%	68.59%	0.00%	5.07%	5
		36.0	0.0032572	CONTRIB	26.51%	73.07%	0.00%	0.42%	1
26				RATIOS	0.4695	0.6428	0.7028	0.6050	
	23.3			CONTRIB	0.04%	46.23%	53.18%	0.56%	5
		36.0	0.0000000	CONTRIB	0.00%	0.00%	100.00%	0.00%	0
27				RATIOS	0.7249	0.9042	0.6544	0.7612	
	31.4			CONTRIB	0.37%	99.55%	0.00%	0.08%	5
		36.0	0.0014142	CONTRIB	0.31%	93.19%	0.00%	6.49%	1
28				RATIOS	0.6555	1.3756	0.5091	0.8468	
	47.9			CONTRIB	0.00%	100.00%	0.00%	0.00%	5
		36.0	0.2980480	CONTRIB	0.00%	98.83%	0.00%	1.17%	131

Kaiser Center
OAKLAND, CALIFORNIA

Wind Hazard Analysis

Project
Wind Test Date: 27 April 2009

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Location	0.011414% Exc. Ground Speed	Criterion Speed Exc.	Criterion % Time Exc.		NNW	W	SSE	OTHER	SUM
				Profile Ratios:	1.9040	1.9040	1.9040	1.9040	
1				RATIOS	0.7862	0.7844	1.1144	0.8950	
	36.3			CONTRIB	0.13%	1.13%	98.61%	0.12%	5
		36.0	0.0145485	CONTRIB	0.11%	1.01%	98.75%	0.12%	6
2				RATIOS	0.7589	0.5716	1.0495	0.7933	
	34.2			CONTRIB	0.20%	0.00%	99.78%	0.02%	5
		36.0	0.0023210	CONTRIB	0.40%	0.00%	99.58%	0.02%	1
3				RATIOS	0.6218	0.6196	1.1089	0.7834	
	36.2			CONTRIB	0.00%	0.00%	100.00%	0.00%	5
		36.0	0.0123513	CONTRIB	0.00%	0.00%	100.00%	0.00%	5
4				RATIOS	0.7018	0.5931	1.0261	0.7737	
	33.4			CONTRIB	0.08%	0.00%	99.90%	0.02%	5
		36.0	0.0011656	CONTRIB	0.23%	0.00%	99.76%	0.02%	1
5				RATIOS	1.1555	0.5367	0.6171	0.7698	
	35.4			CONTRIB	97.81%	0.00%	0.00%	2.19%	5
		36.0	0.0086603	CONTRIB	99.86%	0.00%	0.00%	0.14%	4
6				RATIOS	0.7117	0.5451	1.3298	0.8622	
	43.4			CONTRIB	0.00%	0.00%	100.00%	0.00%	5
		36.0	0.1723540	CONTRIB	0.00%	0.00%	98.17%	1.82%	75
7				RATIOS	0.8362	0.6614	0.5914	0.6964	
	25.8			CONTRIB	79.25%	14.68%	0.01%	6.05%	5
		36.0	0.0000477	CONTRIB	95.13%	0.00%	0.00%	4.87%	0
8				RATIOS	0.7357	0.4844	0.5466	0.5889	
	22.5			CONTRIB	94.78%	1.11%	0.08%	4.02%	5
		36.0	0.0000057	CONTRIB	100.00%	0.00%	0.00%	0.00%	0
9				RATIOS	1.0287	1.2087	0.8431	1.0268	
	42.1			CONTRIB	0.98%	98.93%	0.00%	0.09%	5
		36.0	0.0934429	CONTRIB	1.40%	96.51%	0.00%	2.08%	41
10				RATIOS	1.1571	0.8178	0.6070	0.8606	
	35.8			CONTRIB	90.64%	2.92%	0.00%	6.44%	5
		36.0	0.0097278	CONTRIB	90.83%	2.86%	0.00%	6.31%	4
11				RATIOS	1.3153	1.2189	0.7894	1.1079	
	43.8			CONTRIB	27.03%	59.41%	0.00%	13.56%	5
		36.0	0.1344230	CONTRIB	22.10%	72.49%	0.00%	5.41%	59
12				RATIOS	0.7199	0.9905	0.5946	0.7683	
	34.5			CONTRIB	0.07%	98.00%	0.00%	1.93%	5
		36.0	0.0055039	CONTRIB	0.07%	98.00%	0.00%	1.93%	2
13				RATIOS	0.4968	0.8855	0.9535	0.7786	
	31.9			CONTRIB	0.00%	55.27%	44.64%	0.09%	5
		36.0	0.0010797	CONTRIB	0.00%	88.42%	11.56%	0.02%	0
14				RATIOS	0.6894	0.7106	0.6986	0.6995	
	25.2			CONTRIB	6.30%	76.94%	4.88%	11.87%	4
		36.0	0.0000317	CONTRIB	0.00%	99.94%	0.03%	0.03%	0

Kaiser Center
OAKLAND, CALIFORNIA

Wind Hazard Analysis

Project
Wind Test Date: 27 April 2009

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Location	0.011414% Exc. Ground Speed	Criterion Speed Exc.	Criterion % Time Exc.		NNW	W	SSE	OTHER	SUM
			Profile Ratios:		1.9040	1.9040	1.9040	1.9040	
15				RATIOS	1.1047	0.6753	0.9726	0.9175	
	34.3			CONTRIB	84.54%	0.28%	9.24%	5.94%	5
		36.0	0.0044321	CONTRIB	93.99%	0.00%	5.14%	0.87%	2
16				RATIOS	0.8846	0.6317	0.9836	0.8333	
	32.1			CONTRIB	6.44%	0.27%	92.69%	0.60%	5
		36.0	0.0004363	CONTRIB	25.89%	0.00%	73.64%	0.47%	0
17				RATIOS	0.2875	0.5855	0.8781	0.5837	
	28.5			CONTRIB	0.00%	0.47%	99.53%	0.00%	5
		36.0	0.0000102	CONTRIB	0.00%	0.00%	100.00%	0.00%	0
18				RATIOS	0.4589	0.4891	0.6144	0.5208	
	20.0			CONTRIB	0.30%	6.99%	89.50%	3.21%	5
		36.0	0.0000000	CONTRIB	0.00%	0.00%	0.00%	0.00%	0
19				RATIOS	0.3010	0.7414	0.4215	0.4880	
	25.7			CONTRIB	0.00%	100.00%	0.00%	0.00%	5
		36.0	0.0000612	CONTRIB	0.00%	100.00%	0.00%	0.00%	0
20				RATIOS	0.6531	0.7709	0.7795	0.7345	
	27.2			CONTRIB	0.72%	79.76%	12.50%	7.02%	5
		36.0	0.0001122	CONTRIB	0.00%	99.72%	0.24%	0.04%	0
21				RATIOS	1.1432	0.8895	0.6215	0.8847	
	35.6			CONTRIB	78.84%	11.03%	0.00%	10.14%	5
		36.0	0.0092256	CONTRIB	78.71%	11.09%	0.00%	10.20%	4
22				RATIOS	0.8117	0.8054	0.7005	0.7725	
	28.2			CONTRIB	12.19%	79.67%	0.14%	7.99%	5
		36.0	0.0002482	CONTRIB	11.26%	88.66%	0.00%	0.08%	0
23				RATIOS	0.7844	1.2045	0.8400	0.9430	
	41.8			CONTRIB	0.00%	99.99%	0.00%	0.01%	5
		36.0	0.0878265	CONTRIB	0.02%	99.47%	0.00%	0.51%	38
24				RATIOS	0.8378	0.6277	0.6950	0.7202	
	25.9			CONTRIB	81.16%	6.50%	1.60%	10.73%	5
		36.0	0.0000507	CONTRIB	92.10%	0.00%	0.00%	7.90%	0
25				RATIOS	1.0030	1.2146	0.9250	1.0475	
	42.2			CONTRIB	0.60%	99.24%	0.00%	0.16%	5
		36.0	0.0979598	CONTRIB	0.89%	96.25%	0.05%	2.81%	43
26				RATIOS	0.5419	1.1116	0.7675	0.8070	
	38.7			CONTRIB	0.00%	100.00%	0.00%	0.00%	5
		36.0	0.0321155	CONTRIB	0.00%	100.00%	0.00%	0.00%	14
27				RATIOS	0.6892	1.0249	1.3461	1.0201	
	43.9			CONTRIB	0.00%	3.84%	96.14%	0.02%	5
		36.0	0.2002600	CONTRIB	0.00%	4.57%	94.56%	0.87%	88
28				RATIOS	1.5207	1.4752	0.4492	1.1484	
	52.0			CONTRIB	17.73%	80.60%	0.00%	1.67%	5
		36.0	0.6850750	CONTRIB	16.54%	81.49%	0.00%	1.98%	300

Kaiser Center
OAKLAND, CALIFORNIA

Wind Hazard Analysis

Cumulative
Wind Test Date: 27 April 2009

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0.011414% Exc. Location	Ground Speed	---Criterion--- Speed Exc.	% Time Exc.		NNW	W	SSE	OTHER	SUM
				Profile Ratios:	1.9040	1.9040	1.9040	1.9040	
1				RATIOS	0.8143	0.7850	1.0874	0.8956	
	35.4			CONTRIB	0.33%	1.64%	97.76%	0.27%	5
		36.0	0.0069987	CONTRIB	0.42%	2.12%	97.20%	0.26%	3
2				RATIOS	0.7645	0.5247	1.0940	0.7944	
	35.7			CONTRIB	0.11%	0.00%	99.88%	0.01%	5
		36.0	0.0082045	CONTRIB	0.13%	0.00%	99.87%	0.01%	4
3				RATIOS	0.6361	0.5988	1.1144	0.7831	
	36.4			CONTRIB	0.00%	0.00%	100.00%	0.00%	5
		36.0	0.0143677	CONTRIB	0.00%	0.00%	100.00%	0.00%	6
4				RATIOS	0.7146	0.5758	1.0624	0.7843	
	34.6			CONTRIB	0.06%	0.00%	99.93%	0.01%	5
		36.0	0.0033605	CONTRIB	0.10%	0.00%	99.89%	0.01%	1
5				RATIOS	1.1725	0.5266	0.7062	0.8018	
	35.9			CONTRIB	99.99%	0.00%	0.00%	0.01%	5
		36.0	0.0101423	CONTRIB	99.99%	0.00%	0.00%	0.01%	4
6				RATIOS	0.7458	0.5051	1.3322	0.8611	
	43.3			CONTRIB	0.00%	0.00%	100.00%	0.00%	5
		36.0	0.1752360	CONTRIB	0.00%	0.00%	98.22%	1.77%	77
7				RATIOS	0.8579	0.6432	0.8067	0.7693	
	27.3			CONTRIB	52.48%	4.19%	29.83%	13.50%	5
		36.0	0.0000697	CONTRIB	98.64%	0.00%	1.10%	0.26%	0
8				RATIOS	0.7313	0.3877	0.6605	0.5932	
	22.6			CONTRIB	76.49%	0.00%	19.83%	3.68%	5
		36.0	0.0000051	CONTRIB	100.00%	0.00%	0.00%	0.00%	0
9				RATIOS	1.0508	1.1875	0.6605	0.9663	
	41.4			CONTRIB	1.76%	94.36%	0.00%	3.89%	5
		36.0	0.0792712	CONTRIB	2.33%	96.81%	0.00%	0.86%	35
10				RATIOS	1.2566	0.7759	0.6066	0.8797	
	38.6			CONTRIB	96.80%	0.40%	0.00%	2.80%	5
		36.0	0.0203786	CONTRIB	95.17%	0.61%	0.00%	4.23%	9
11				RATIOS	1.3037	1.1367	0.5815	1.0073	
	41.9			CONTRIB	51.03%	42.43%	0.00%	6.54%	5
		36.0	0.0741237	CONTRIB	36.89%	61.23%	0.00%	1.88%	32
12				RATIOS	0.7496	0.9872	0.5137	0.7502	
	34.3			CONTRIB	0.15%	98.44%	0.00%	1.41%	5
		36.0	0.0052086	CONTRIB	0.15%	98.44%	0.00%	1.41%	2
13				RATIOS	0.5061	0.9015	0.5575	0.6550	
	31.3			CONTRIB	0.00%	99.29%	0.00%	0.71%	5
		36.0	0.0012591	CONTRIB	0.00%	100.00%	0.00%	0.00%	1
14				RATIOS	0.6496	0.6951	0.5988	0.6479	
	24.2			CONTRIB	4.08%	90.20%	0.14%	5.58%	5
		36.0	0.0000000	CONTRIB	0.00%	0.00%	0.00%	0.00%	0

Kaiser Center
OAKLAND, CALIFORNIA

Wind Hazard Analysis

Cumulative
Wind Test Date: 27 April 2009

The ratios of pedestrian-level wind speeds to the reference height wind speeds at the old Alameda NAS meteorological station are shown in the first line of output for each location.

The second line of the output shows the pedestrian level wind speeds, in mph, which would be exceeded one hour per year (0.01141552512% of the time) for each measurement location. This assumes that a wi hazard occurs if a one-minute average speed of 36 mph is reached or exceeded a total of one hour per y

The third line of output for each location shows the criterion speed and the percentage of the time th criterion would be exceeded. The rows labeled CONTRIB tabulate the percentage contribution to the total or the exceedance from each wind direction. The SUMs are the equivalent number of events.

Location	0.011414% Exc. Ground Speed	Criterion Speed Exc.	Criterion % Time Exc.		NNW	W	SSE	OTHER	SUM
			Profile Ratios:		1.9040	1.9040	1.9040	1.9040	
15				RATIOS	1.0523	0.7393	0.7938	0.8618	
	32.4			CONTRIB	91.73%	2.77%	0.11%	5.39%	5
		36.0	0.0019584	CONTRIB	96.69%	2.99%	0.02%	0.29%	1
16				RATIOS	0.8810	0.6462	0.9149	0.8140	
	30.0			CONTRIB	16.71%	1.00%	75.56%	6.72%	5
		36.0	0.0001421	CONTRIB	74.36%	0.00%	24.92%	0.71%	0
17				RATIOS	0.2911	0.5849	0.6306	0.5022	
	21.1			CONTRIB	0.00%	55.83%	44.13%	0.04%	5
		36.0	0.0000000	CONTRIB	0.00%	0.00%	0.00%	0.00%	0
18				RATIOS	0.5268	0.4514	0.5038	0.4940	
	17.1			CONTRIB	34.66%	22.24%	24.18%	18.92%	5
		36.0	0.0000000	CONTRIB	0.00%	0.00%	0.00%	0.00%	0
19				RATIOS	0.2999	0.8671	0.3795	0.5155	
	30.1			CONTRIB	0.00%	100.00%	0.00%	0.00%	5
		36.0	0.0006890	CONTRIB	0.00%	100.00%	0.00%	0.00%	0
20				RATIOS	0.6300	0.6681	0.6561	0.6514	
	23.5			CONTRIB	4.14%	79.66%	5.62%	10.58%	5
		36.0	0.0000000	CONTRIB	0.00%	0.00%	0.00%	0.00%	0
21				RATIOS	1.1262	0.8324	0.5878	0.8488	
	34.9			CONTRIB	86.88%	5.58%	0.00%	7.54%	5
		36.0	0.0065600	CONTRIB	86.86%	5.59%	0.00%	7.55%	3
22				RATIOS	0.8042	0.7808	0.7675	0.7842	
	27.7			CONTRIB	14.44%	66.91%	4.10%	14.54%	5
		36.0	0.0001608	CONTRIB	14.96%	84.73%	0.10%	0.20%	0
23				RATIOS	0.8025	1.2096	0.6934	0.9019	
	42.1			CONTRIB	0.00%	98.94%	0.00%	1.05%	5
		36.0	0.0970516	CONTRIB	0.02%	93.59%	0.00%	6.38%	42
24				RATIOS	0.8178	0.6350	0.6428	0.6985	
	25.4			CONTRIB	79.86%	10.78%	0.27%	9.08%	5
		36.0	0.0000340	CONTRIB	92.82%	0.00%	0.00%	7.18%	0
25				RATIOS	0.9901	1.1460	0.9638	1.0333	
	40.0			CONTRIB	1.24%	98.12%	0.07%	0.58%	5
		36.0	0.0545477	CONTRIB	1.29%	94.41%	0.32%	3.98%	24
26				RATIOS	0.5503	1.0346	0.9726	0.8525	
	36.1			CONTRIB	0.00%	97.96%	2.01%	0.04%	4
		36.0	0.0108241	CONTRIB	0.00%	97.86%	2.10%	0.04%	5
27				RATIOS	0.7732	0.6635	1.5211	0.9860	
	49.7			CONTRIB	0.00%	0.00%	100.00%	0.00%	5
		36.0	0.5349980	CONTRIB	0.00%	0.00%	99.82%	0.18%	234
28				RATIOS	1.4946	1.4756	0.5712	1.1805	
	51.9			CONTRIB	13.84%	83.51%	0.00%	2.65%	5
		36.0	0.6763130	CONTRIB	14.48%	82.74%	0.00%	2.78%	296

Kaiser Center
OAKLAND, CALIFORNIA

Wind Comfort Analysis

Existing
Wind Test Date: 27 April 2009

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The third line of output for each location shows the criterion speed and the percentage of the time th criterion would be exceeded. The rows labeled CONTRIB tabulate the percentage contribution to the total or the exceedance from each wind direction. The SUMs are the equivalent number of events.

Location	10.0% Exc. Ground Speed	Criterion Speed	Criterion % Time Exc.		NNW	W	SSE	OTHER	SUM
			Profile Ratios:		*1.9040*	*1.9040*	*1.9040*	*1.9040*	
1				RATIOS	0.8124	0.7654	1.0874	0.8884	
	13.9			CONTRIB	9.62%	47.13%	32.29%	10.96%	4,380
		11.0	20.21	CONTRIB	11.74%	54.96%	20.28%	13.02%	8,852
2				RATIOS	0.7932	0.4623	0.9781	0.7445	
	10.2			CONTRIB	28.94%	12.93%	39.73%	18.40%	4,380
		11.0	7.91	CONTRIB	27.33%	8.78%	46.63%	17.25%	3,464
3				RATIOS	0.5691	0.5110	1.1034	0.7278	
	10.2			CONTRIB	7.98%	30.20%	44.88%	16.94%	4,380
		11.0	7.59	CONTRIB	7.79%	21.03%	54.76%	16.41%	3,326
4				RATIOS	0.6323	0.5596	1.0371	0.7430	
	10.8			CONTRIB	9.42%	36.64%	39.64%	14.30%	4,380
		11.0	9.55	CONTRIB	9.35%	35.54%	40.94%	14.17%	4,183
5				RATIOS	1.1845	0.5556	0.7987	0.8463	
	12.0			CONTRIB	46.03%	15.12%	22.98%	15.88%	4,380
		11.0	13.66	CONTRIB	39.70%	23.42%	20.21%	16.67%	5,983
6				RATIOS	0.7176	0.4284	0.8202	0.6554	
	9.2			CONTRIB	29.57%	16.52%	37.05%	16.87%	4,380
		11.0	5.55	CONTRIB	26.37%	6.32%	52.54%	14.78%	2,429
7				RATIOS	0.7448	0.4842	0.3955	0.5415	
	8.7			CONTRIB	35.41%	47.61%	7.43%	9.55%	4,380
		11.0	3.21	CONTRIB	52.68%	31.78%	4.11%	11.43%	1,406
8				RATIOS	0.7599	0.7117	0.3873	0.6196	
	11.3			CONTRIB	16.46%	76.80%	0.85%	5.88%	4,380
		11.0	11.08	CONTRIB	16.51%	76.60%	0.98%	5.91%	4,851
9				RATIOS	0.8638	1.1220	0.7509	0.9123	
	17.4			CONTRIB	4.50%	84.55%	5.99%	4.96%	4,380
		11.0	31.06	CONTRIB	9.71%	73.60%	7.84%	8.86%	13,604
10				RATIOS	0.8208	0.7405	0.9008	0.8207	
	13.0			CONTRIB	12.69%	52.21%	24.91%	10.18%	4,380
		11.0	17.71	CONTRIB	13.95%	55.48%	19.19%	11.38%	7,756
11				RATIOS	0.8136	1.2745	0.6272	0.9051	
	19.1			CONTRIB	1.22%	95.18%	0.57%	3.03%	4,380
		11.0	32.68	CONTRIB	7.30%	79.23%	5.17%	8.31%	14,315
12				RATIOS	0.4821	1.0843	0.7306	0.7657	
	16.5			CONTRIB	0.02%	90.47%	6.76%	2.75%	4,380
		11.0	26.09	CONTRIB	0.59%	84.73%	8.83%	5.85%	11,428
13				RATIOS	0.2588	0.9910	0.7113	0.6537	
	15.1			CONTRIB	0.00%	89.07%	9.02%	1.91%	4,380
		11.0	23.24	CONTRIB	0.00%	87.12%	9.39%	3.49%	10,178
14				RATIOS	0.7151	0.7884	0.5558	0.6865	
	12.5			CONTRIB	8.88%	78.17%	6.96%	5.99%	4,380

Kaiser Center
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Wind Comfort Analysis

Existing
Wind Test Date: 27 April 2009

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Location	10.0% Exc. Ground Speed	Criterion Speed Exc.	Criterion % Time Exc.		NNW	W	SSE	OTHER	SUM
		11.0	16.10	CONTRIB	8.96%	76.99%	7.92%	6.13%	7,052
15				RATIOS	1.1858	0.6974	1.0165	0.9666	
	14.2			CONTRIB	34.12%	25.19%	26.77%	13.92%	4,380
		11.0	20.17	CONTRIB	26.94%	39.02%	19.00%	15.03%	8,833
16				RATIOS	1.1308	0.6173	1.1540	0.9674	
	13.5			CONTRIB	34.15%	13.60%	35.34%	16.91%	4,380
		11.0	17.37	CONTRIB	28.69%	28.82%	25.03%	17.47%	7,610
17				RATIOS	0.2900	0.5682	0.8684	0.5755	
	9.8			CONTRIB	0.02%	55.73%	36.63%	7.62%	4,380
		11.0	7.44	CONTRIB	0.00%	49.48%	43.97%	6.55%	3,260
18				RATIOS	0.5442	1.0649	0.4501	0.6864	
	15.8			CONTRIB	0.17%	97.89%	0.01%	1.93%	4,380
		11.0	23.57	CONTRIB	1.81%	92.16%	1.84%	4.18%	10,323
19				RATIOS	0.3553	0.8861	0.5194	0.5869	
	13.3			CONTRIB	0.00%	95.01%	2.86%	2.12%	4,380
		11.0	19.60	CONTRIB	0.05%	92.58%	4.68%	2.69%	8,585
20				RATIOS	0.6365	1.0666	0.6656	0.7896	
	16.2			CONTRIB	0.60%	91.27%	4.60%	3.53%	4,380
		11.0	26.30	CONTRIB	3.48%	82.71%	7.24%	6.56%	11,521
21				RATIOS	1.2511	0.9202	1.1148	1.0954	
	17.0			CONTRIB	23.18%	43.41%	22.32%	11.10%	4,380
		11.0	32.75	CONTRIB	18.28%	57.49%	12.82%	11.40%	14,347
22				RATIOS	0.8330	0.8465	1.1559	0.9451	
	15.0			CONTRIB	7.77%	50.94%	31.09%	10.21%	4,380
		11.0	26.02	CONTRIB	10.06%	61.99%	16.74%	11.22%	11,396
23				RATIOS	0.6875	1.2081	1.0282	0.9746	
	19.0			CONTRIB	0.28%	79.97%	15.23%	4.53%	4,380
		11.0	32.76	CONTRIB	3.78%	75.01%	11.83%	9.38%	14,348
24				RATIOS	0.9019	0.5594	0.7991	0.7535	
	11.2			CONTRIB	31.84%	28.49%	26.49%	13.18%	4,380
		11.0	10.89	CONTRIB	30.37%	31.10%	25.38%	13.15%	4,768
25				RATIOS	1.0026	0.9394	0.7182	0.8868	
	15.3			CONTRIB	14.73%	69.21%	8.80%	7.26%	4,380
		11.0	28.07	CONTRIB	14.27%	68.46%	7.92%	9.35%	12,294
26				RATIOS	0.4695	0.6428	0.7028	0.6050	
	10.5			CONTRIB	1.76%	68.01%	23.18%	7.04%	4,380
		11.0	8.66	CONTRIB	1.43%	67.14%	24.56%	6.87%	3,795
27				RATIOS	0.7249	0.9042	0.6544	0.7612	
	14.2			CONTRIB	5.67%	80.67%	8.24%	5.42%	4,380
		11.0	23.36	CONTRIB	6.51%	79.23%	7.88%	6.38%	10,233
28				RATIOS	0.6555	1.3756	0.5091	0.8468	
	20.4			CONTRIB	0.09%	98.38%	0.00%	1.54%	4,380

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Wind Comfort Analysis

Project
Wind Test Date: 27 April 2009

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Location	10.0% Exc. Ground Speed	Criterion Speed Exc.	Criterion % Time Exc.		NNW	W	SSE	OTHER	SUM
			Profile Ratios:		*1.9040*	*1.9040*	*1.9040*	*1.9040*	
1				RATIOS	0.7862	0.7844	1.1144	0.8950	
	14.1			CONTRIB	7.95%	48.64%	32.83%	10.59%	4,380
		11.0	21.12	CONTRIB	9.89%	57.61%	19.89%	12.62%	9,249
2				RATIOS	0.7589	0.5716	1.0495	0.7933	
	11.4			CONTRIB	15.92%	30.49%	38.24%	15.35%	4,380
		11.0	11.30	CONTRIB	16.10%	33.32%	35.01%	15.57%	4,949
3				RATIOS	0.6218	0.6196	1.1089	0.7834	
	11.7			CONTRIB	6.64%	40.76%	39.40%	13.20%	4,380
		11.0	11.76	CONTRIB	7.11%	43.15%	35.52%	14.22%	5,153
4				RATIOS	0.7018	0.5931	1.0261	0.7737	
	11.4			CONTRIB	11.56%	37.52%	37.25%	13.67%	4,380
		11.0	11.12	CONTRIB	12.06%	38.84%	34.79%	14.31%	4,870
5				RATIOS	1.1555	0.5367	0.6171	0.7698	
	11.2			CONTRIB	49.89%	20.13%	15.65%	14.33%	4,380
		11.0	10.78	CONTRIB	48.10%	22.28%	15.16%	14.47%	4,721
6				RATIOS	0.7117	0.5451	1.3298	0.8622	
	11.5			CONTRIB	12.01%	19.24%	48.01%	20.73%	4,380
		11.0	11.61	CONTRIB	12.20%	23.53%	43.13%	21.14%	5,084
7				RATIOS	0.8362	0.6614	0.5914	0.6964	
	11.5			CONTRIB	22.43%	55.08%	13.72%	8.78%	4,380
		11.0	11.67	CONTRIB	22.77%	55.44%	12.84%	8.95%	5,110
8				RATIOS	0.7357	0.4844	0.5466	0.5889	
	9.2			CONTRIB	31.51%	39.33%	18.31%	10.85%	4,380
		11.0	4.35	CONTRIB	37.08%	23.55%	27.07%	12.29%	1,903
9				RATIOS	1.0287	1.2087	0.8431	1.0268	
	19.0			CONTRIB	7.14%	80.40%	6.86%	5.60%	4,380
		11.0	35.22	CONTRIB	11.92%	69.81%	8.75%	9.52%	15,424
10				RATIOS	1.1571	0.8178	0.6070	0.8606	
	14.3			CONTRIB	32.28%	53.72%	5.46%	8.53%	4,380
		11.0	23.40	CONTRIB	22.20%	60.64%	6.75%	10.41%	10,251
11				RATIOS	1.3153	1.2189	0.7894	1.1079	
	19.6			CONTRIB	16.33%	73.28%	3.75%	6.64%	4,380
		11.0	37.85	CONTRIB	17.33%	65.49%	7.12%	10.06%	16,578
12				RATIOS	0.7199	0.9905	0.5946	0.7683	
	15.1			CONTRIB	3.15%	89.44%	3.07%	4.35%	4,380
		11.0	24.78	CONTRIB	5.98%	81.66%	6.11%	6.25%	10,853
13				RATIOS	0.4968	0.8855	0.9535	0.7786	
	14.4			CONTRIB	0.18%	71.15%	23.04%	5.63%	4,380
		11.0	23.56	CONTRIB	0.84%	76.97%	15.26%	6.93%	10,321
14				RATIOS	0.6894	0.7106	0.6986	0.6995	
	11.8			CONTRIB	9.43%	64.47%	18.14%	7.96%	4,380

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Location	10.0% Exc. Ground Speed	Criterion Speed Exc.	Criterion % Time Exc.		NNW	W	SSE	OTHER	SUM
		11.0	12.85	CONTRIB	9.73%	65.63%	16.36%	8.28%	5,628
15				RATIOS	1.1047	0.6753	0.9726	0.9175	
	13.6			CONTRIB	32.42%	27.48%	26.69%	13.40%	4,380
		11.0	18.21	CONTRIB	26.24%	38.36%	20.14%	15.25%	7,975
16				RATIOS	0.8846	0.6317	0.9836	0.8333	
	12.4			CONTRIB	20.50%	33.56%	32.83%	13.11%	4,380
		11.0	14.50	CONTRIB	22.01%	37.63%	25.58%	14.77%	6,350
17				RATIOS	0.2875	0.5855	0.8781	0.5837	
	10.1			CONTRIB	0.01%	56.62%	36.10%	7.27%	4,380
		11.0	7.95	CONTRIB	0.00%	51.81%	41.70%	6.49%	3,480
18				RATIOS	0.4589	0.4891	0.6144	0.5208	
	8.5			CONTRIB	7.12%	55.93%	27.62%	9.34%	4,380
		11.0	3.13	CONTRIB	3.25%	35.44%	51.69%	9.62%	1,372
19				RATIOS	0.3010	0.7414	0.4215	0.4880	
	11.1			CONTRIB	0.01%	95.72%	2.20%	2.08%	4,380
		11.0	10.33	CONTRIB	0.01%	95.60%	2.30%	2.10%	4,523
20				RATIOS	0.6531	0.7709	0.7795	0.7345	
	12.7			CONTRIB	5.80%	67.24%	19.65%	7.31%	4,380
		11.0	16.34	CONTRIB	6.20%	69.81%	16.08%	7.91%	7,156
21				RATIOS	1.1432	0.8895	0.6215	0.8847	
	15.0			CONTRIB	26.57%	60.88%	4.76%	7.79%	4,380
		11.0	27.57	CONTRIB	18.44%	66.07%	6.01%	9.48%	12,076
22				RATIOS	0.8117	0.8054	0.7005	0.7725	
	13.3			CONTRIB	11.35%	66.79%	14.42%	7.45%	4,380
		11.0	19.47	CONTRIB	12.14%	68.88%	10.86%	8.12%	8,529
23				RATIOS	0.7844	1.2045	0.8400	0.9430	
	18.5			CONTRIB	1.17%	86.86%	7.59%	4.38%	4,380
		11.0	32.54	CONTRIB	6.36%	75.30%	9.40%	8.94%	14,251
24				RATIOS	0.8378	0.6277	0.6950	0.7202	
	11.4			CONTRIB	23.36%	46.86%	19.38%	10.40%	4,380
		11.0	11.28	CONTRIB	23.72%	47.25%	18.44%	10.59%	4,940
25				RATIOS	1.0030	1.2146	0.9250	1.0475	
	19.2			CONTRIB	6.14%	77.99%	10.11%	5.76%	4,380
		11.0	35.67	CONTRIB	11.24%	69.26%	9.78%	9.72%	15,622
26				RATIOS	0.5419	1.1116	0.7675	0.8070	
	16.9			CONTRIB	0.08%	89.32%	7.50%	3.10%	4,380
		11.0	27.49	CONTRIB	1.50%	82.39%	9.26%	6.85%	12,042
27				RATIOS	0.6892	1.0249	1.3461	1.0201	
	17.4			CONTRIB	0.64%	60.17%	31.47%	7.72%	4,380
		11.0	30.56	CONTRIB	4.09%	68.47%	16.58%	10.85%	13,383
28				RATIOS	1.4946	1.4756	0.5712	1.1805	
	23.1			CONTRIB					4,381

Kaiser Center
OAKLAND, CALIFORNIA

Wind Comfort Analysis

Cumulative
Wind Test Date: 27 April 2009

The ratios of pedestrian-level wind speeds to the reference height wind speeds at the old Alameda NAS meteorological station are shown in the first line of output for each location.

The second line of the output shows the pedestrian level wind speeds, in mph, which would be exceeded 10% of the time for each measurement location. This assumes wind comfort criteria of 11 mph for areas of substantial public pedestrian use and 7 mph for public seating areas. These criteria are not to be exceeded more than 10% of the time.

The third line of output for each location shows the criterion speed and the percentage of the time th criterion would be exceeded. The rows labeled CONTRIB tabulate the percentage contribution to the total or the exceedance from each wind direction. The SUMs are the equivalent number of events.

Location	10.0% Exc. Ground Speed	Criterion Speed	Criterion % Time Exc.		NNW	W	SSE	OTHER	SUM
			Profile Ratios:		*1.9040*	*1.9040*	*1.9040*	*1.9040*	
1				RATIOS	0.8143	0.7850	1.0874	0.8956	
	14.1			CONTRIB	9.15%	48.91%	31.30%	10.65%	4,380
		11.0	21.36	CONTRIB	11.21%	57.11%	19.19%	12.49%	9,355
2				RATIOS	0.7645	0.5247	1.0940	0.7944	
	10.9			CONTRIB	19.23%	21.07%	41.52%	18.18%	4,380
		11.0	9.75	CONTRIB	19.19%	20.40%	42.27%	18.13%	4,272
3				RATIOS	0.6361	0.5988	1.1144	0.7831	
	11.5			CONTRIB	7.71%	38.06%	40.21%	14.03%	4,380
		11.0	11.26	CONTRIB	8.12%	39.74%	37.30%	14.84%	4,931
4				RATIOS	0.7146	0.5758	1.0624	0.7843	
	11.3			CONTRIB	12.78%	33.47%	38.86%	14.89%	4,380
		11.0	10.99	CONTRIB	13.09%	35.20%	36.43%	15.28%	4,814
5				RATIOS	1.1725	0.5266	0.7062	0.8018	
	11.4			CONTRIB	49.60%	14.84%	19.86%	15.71%	4,380
		11.0	11.36	CONTRIB	46.87%	18.06%	18.92%	16.16%	4,975
6				RATIOS	0.7458	0.5051	1.3322	0.8611	
	11.2			CONTRIB	15.78%	12.38%	49.22%	22.62%	4,380
		11.0	10.61	CONTRIB	16.02%	13.67%	47.29%	23.01%	4,645
7				RATIOS	0.8579	0.6432	0.8067	0.7693	
	11.9			CONTRIB	21.47%	43.32%	23.93%	11.29%	4,380
		11.0	13.14	CONTRIB	22.34%	44.38%	21.44%	11.84%	5,754
8				RATIOS	0.7313	0.3877	0.6605	0.5932	
	8.4			CONTRIB	36.74%	14.88%	32.34%	16.05%	4,380
		11.0	4.14	CONTRIB	38.02%	3.39%	45.30%	13.28%	1,814
9				RATIOS	1.0508	1.1875	0.6605	0.9663	
	18.4			CONTRIB	8.79%	84.88%	1.33%	5.00%	4,380
		11.0	33.43	CONTRIB	13.05%	72.28%	5.61%	9.06%	14,643
10				RATIOS	1.2566	0.7759	0.6066	0.8797	
	14.1			CONTRIB	38.30%	46.17%	5.77%	9.76%	4,380
		11.0	21.88	CONTRIB	27.59%	53.37%	7.21%	11.83%	9,585
11				RATIOS	1.3037	1.1367	0.5815	1.0073	
	18.3			CONTRIB	20.65%	73.05%	0.32%	5.98%	4,380
		11.0	34.30	CONTRIB	18.82%	67.50%	4.22%	9.47%	15,023
12				RATIOS	0.7496	0.9872	0.5137	0.7502	
	15.0			CONTRIB	4.67%	90.50%	0.85%	3.98%	4,380
		11.0	24.18	CONTRIB	7.17%	83.42%	3.59%	5.82%	10,591
13				RATIOS	0.5061	0.9015	0.5575	0.6550	
	13.6			CONTRIB	0.35%	92.08%	4.33%	3.25%	4,380
		11.0	20.80	CONTRIB	1.12%	88.73%	6.22%	3.93%	9,111
14				RATIOS	0.6496	0.6951	0.5988	0.6479	
	11.3			CONTRIB	8.84%	69.72%	14.48%	6.96%	4,380

Kaiser Center
OAKLAND, CALIFORNIA

Wind Comfort Analysis

Cumulative
Wind Test Date: 27 April 2009

The ratios of pedestrian-level wind speeds to the reference height wind speeds at the old Alameda NAS meteorological station are shown in the first line of output for each location.

The second line of the output shows the pedestrian level wind speeds, in mph, which would be exceeded 10% of the time for each measurement location. This assumes wind comfort criteria of 11 mph for areas of substantial public pedestrian use and 7 mph for public seating areas. These criteria are not to be exceeded more than 10% of the time.

The third line of output for each location shows the criterion speed and the percentage of the time th criterion would be exceeded. The rows labeled CONTRIB tabulate the percentage contribution to the total or the exceedance from each wind direction. The SUMs are the equivalent number of events.

Location	10.0% Exc. Ground Speed	Criterion Speed Exc.	Criterion % Time Exc.		NNW	W	SSE	OTHER	SUM
		11.0	11.09	CONTRIB	8.95%	70.13%	13.86%	7.06%	4,856
15				RATIOS	1.0523	0.7393	0.7938	0.8618	
	13.6			CONTRIB	28.09%	43.97%	17.59%	10.35%	4,380
		11.0	19.32	CONTRIB	22.64%	50.56%	14.11%	12.68%	8,461
16				RATIOS	0.8810	0.6462	0.9149	0.8140	
	12.4			CONTRIB	20.63%	38.47%	28.68%	12.22%	4,380
		11.0	14.50	CONTRIB	21.84%	40.91%	23.80%	13.45%	6,352
17				RATIOS	0.2911	0.5849	0.6306	0.5022	
	9.5			CONTRIB	0.04%	71.61%	23.18%	5.16%	4,380
		11.0	6.06	CONTRIB	0.01%	67.68%	28.17%	4.14%	2,654
18				RATIOS	0.5268	0.4514	0.5038	0.4940	
	7.9			CONTRIB	15.82%	53.19%	21.12%	9.87%	4,380
		11.0	1.91	CONTRIB	17.02%	29.59%	41.33%	12.06%	838
19				RATIOS	0.2999	0.8671	0.3795	0.5155	
	12.9			CONTRIB	0.00%	98.82%	0.03%	1.14%	4,380
		11.0	18.01	CONTRIB	0.00%	97.91%	0.50%	1.59%	7,886
20				RATIOS	0.6300	0.6681	0.6561	0.6514	
	11.1			CONTRIB	8.56%	65.41%	18.25%	7.78%	4,380
		11.0	10.24	CONTRIB	8.59%	65.53%	18.07%	7.81%	4,486
21				RATIOS	1.1262	0.8324	0.5878	0.8488	
	14.3			CONTRIB	30.36%	57.12%	4.48%	8.04%	4,380
		11.0	23.89	CONTRIB	20.71%	63.45%	6.19%	9.65%	10,464
22				RATIOS	0.8042	0.7808	0.7675	0.7842	
	13.1			CONTRIB	11.49%	62.38%	17.81%	8.32%	4,380
		11.0	18.46	CONTRIB	12.36%	64.76%	13.79%	9.10%	8,087
23				RATIOS	0.8025	1.2096	0.6934	0.9019	
	18.3			CONTRIB	1.58%	92.51%	2.18%	3.73%	4,380
		11.0	31.63	CONTRIB	7.15%	77.77%	6.55%	8.53%	13,856
24				RATIOS	0.8178	0.6350	0.6428	0.6985	
	11.3			CONTRIB	22.28%	51.11%	16.95%	9.66%	4,380
		11.0	10.83	CONTRIB	22.49%	51.35%	16.39%	9.77%	4,742
25				RATIOS	0.9901	1.1460	0.9638	1.0333	
	18.5			CONTRIB	6.80%	72.71%	14.11%	6.38%	4,380
		11.0	34.28	CONTRIB	11.42%	68.09%	10.60%	9.88%	15,013
26				RATIOS	0.5503	1.0346	0.9726	0.8525	
	16.4			CONTRIB	0.13%	76.90%	18.24%	4.72%	4,380
		11.0	27.60	CONTRIB	1.70%	76.51%	13.29%	8.50%	12,088
27				RATIOS	0.7732	0.6635	1.5211	0.9860	
	13.5			CONTRIB	8.85%	25.81%	46.74%	18.60%	4,380
		11.0	17.36	CONTRIB	11.27%	37.71%	32.97%	18.05%	7,602
28				RATIOS	1.4946	1.4756	0.5712	1.1805	
	23.1			CONTRIB					4,380

APPENDIX C
Air Quality and GHG Data

AIR QUALITY EMISSIONS DATA

Averging of Construction Emissions **2012**

Frrom URBEMIS2007 Output

Time Slice	Days	ROG	Nox	CO	PM10	PM25	So2	CO2
1	218	1.65	16.47	8.66	0.85	0.78	0.02	2469

Averages =	218	1.65	16.47	8.66	0.85	0.78	0.02	2469.00
BAAQMD Threshold =		54	54	None	82	54	None	None
Significant?		No	No		No	No		NA

Averging of Construction Emissions **2013**

Frrom URBEMIS2007 Output

Time Slice	Days	ROG	Nox	CO	PM10	PM25	So2	CO2
1	43	5.48	55.76	26.95	2.47	2.27	0.05	8719
2	20	3.95	40.76	18.76	1.71	1.58	0.04	6250
3	196	2.29	12.58	41.38	0.65	0.59	0.05	5621
Averages =	259	2.95	21.92	37.24	1.03	0.95	0.05	6183.91
BAAQMD Threshold =		54	54	None	82	54	None	NA
Significant?		No	No		No	No		

Averging of Construction Emissions **2014**

Frrom URBEMIS2007 Output

Time Slice	Days	ROG	Nox	CO	PM10	PM25	So2	CO2
1	108	2.1	11.44	38.35	0.58	0.53	0.05	5623
2	153	51.09	21.09	47.02	1.36	1.24	0.05	6839
Averages =	261	30.82	17.10	43.43	1.04	0.95	0.05	6335.83
BAAQMD Threshold =		54	54	None	82	54	None	NA
Significant?		No	No		No	No		

Averging of Construction Emissions **2015**

Frrom URBEMIS2007 Output

Time Slice	Days	ROG	Nox	CO	PM10	PM25	So2	CO2
1	108	50.82	19.34	44.08	1.26	1.15	0.05	6841

Averages =	108	50.82	19.34	44.08	1.26	1.15	0.05	6841.00
BAAQMD Threshold =		54	54	None	82	54	None	
Significant?		No	No		No	No		

Averging of Construction Emissions **2015**

Frrom URBEMIS2007 Output

Time Slice	Days	ROG	Nox	CO	PM10	PM25	So2	CO2
1	219	0.9	6.84	5.48	0.4	0.37	0	1124
2								
Averages =	219	0.90	6.84	5.48	0.40	0.37	0.00	1124.00
BAAQMD Threshold =		54	54	None	82	54	None	None
Significant?		No	No	No	No			NA

Averging of Construction Emissions **2016**

Frrom URBEMIS2007 Output

Time Slice	Days	ROG	Nox	CO	PM10	PM25	So2	CO2
1	42	5.11	33.05	59.58	1.66	1.51	0.07	10788
2	23	4.27	26.78	54.27	1.31	1.19	0.06	9663
3	195	2.12	10.68	43.47	0.56	0.5	0.06	7314
Averages =	260	2.79	15.72	47.03	0.80	0.72	0.06	8082.98
BAAQMD Threshold =		54	54	None	82	54	None	NA
Significant?		No	No		No	No		

Averging of Construction Emissions **2017**

Frrom URBEMIS2007 Output

Time Slice	Days	ROG	Nox	CO	PM10	PM25	So2	CO2
1	108	1.95	9.6	40.44	0.51	0.45	0.06	7315
2	152	67.57	17.48	48.68	1.09	0.99	0.06	8551
Averages =	260	40.31	14.21	45.26	0.85	0.77	0.06	8037.58
BAAQMD Threshold =		54	54	None	82	54	None	NA
Significant?		No	No		No	No		

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Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\cls\Application Data\Urbemis\Version9a\Projects\Kaiser Phase 2 Construction.urb924

Project Name: Kaiser Constructin Phase 2

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2015 TOTALS (lbs/day unmitigated)	0.90	6.84	5.48	0.00	2.43	0.40	2.84	0.51	0.37	0.88	1,124.34
2015 TOTALS (lbs/day mitigated)	0.90	6.84	5.48	0.00	2.43	0.40	2.84	0.51	0.37	0.88	1,124.34
2016 TOTALS (lbs/day unmitigated)	5.11	33.05	59.58	0.07	8.34	1.66	10.00	1.79	1.51	3.30	10,787.65
2016 TOTALS (lbs/day mitigated)	5.11	33.05	59.58	0.07	5.90	1.66	7.57	1.28	1.51	2.79	10,787.65
2017 TOTALS (lbs/day unmitigated)	80.21	17.48	48.78	0.06	0.31	1.09	1.41	0.11	0.99	1.10	8,566.15
2017 TOTALS (lbs/day mitigated)	37.72	17.48	48.78	0.06	0.31	1.09	1.41	0.11	0.99	1.10	8,566.15
2018 TOTALS (lbs/day unmitigated)	79.95	16.00	45.86	0.06	0.31	0.99	1.31	0.11	0.90	1.01	8,567.05
2018 TOTALS (lbs/day mitigated)	37.78	16.00	45.86	0.06	0.31	0.99	1.31	0.11	0.90	1.01	8,567.05

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Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\cls\Application Data\Urbemis\Version9a\Projects\Kaiser Center Existing 2014.urb924

Project Name: Kaiser Center

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Strip mall	21.99	35.00	258.33	0.30	61.30	11.89	33,195.83
TOTALS (lbs/day, unmitigated)	21.99	35.00	258.33	0.30	61.30	11.89	33,195.83

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2014 Temperature (F): 70 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Strip mall		104.21	1000 sq ft	48.00	5,002.08	35,514.77
					5,002.08	35,514.77

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.4	0.4	99.4	0.2
Light Truck < 3750 lbs	12.3	0.8	97.6	1.6

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	19.8	0.5	99.5	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	0.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	51.7	48.3	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	7.1	7.1	7.1	7.1	7.1	7.1
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Strip mall				2.0	1.0	97.0

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Operational Changes to Defaults

Ambient summer temperature changed from 85 degrees F to 70 degrees F

Ambient winter temperature changed from 40 degrees F to 50 degrees F

Home-based work average speed changed from 35 mph to 30 mph

Home-based work urban trip length changed from 10.8 miles to 7.1 miles

Home-based shop average speed changed from 35 mph to 30 mph

Home-based shop urban trip length changed from 7.3 miles to 7.1 miles

Home-based other average speed changed from 35 mph to 30 mph

Home-based other urban trip length changed from 7.5 miles to 7.1 miles

Commercial-based commute average speed changed from 35 mph to 30 mph

Commercial-based commute urban trip length changed from 9.5 miles to 7.1 miles

Commercial-based non-work average speed changed from 35 mph to 30 mph

Commercial-based non-work urban trip length changed from 7.35 miles to 7.1 miles

Commercial-based customer average speed changed from 35 mph to 30 mph

Commercial-based customer urban trip length changed from 7.35 miles to 7.1 miles

6/9/2010 3:43:05 PM

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\cls\Application Data\Urbemis\Version9a\Projects\Kaiser Center Existing 2014.urb924

Project Name: Kaiser Center

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2009 TOTALS (lbs/day unmitigated)	4.98	65.90	24.61	0.06	48.84	2.78	51.62	10.19	2.56	12.74	7,578.50
2010 TOTALS (lbs/day unmitigated)	51.43	9.77	7.48	0.00	0.01	0.60	0.61	0.00	0.55	0.55	1,169.93

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.43	0.48	1.94	0.00	0.01	0.01	559.61

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	21.99	35.00	258.33	0.30	61.30	11.89	33,195.83

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SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	22.42	35.48	260.27	0.30	61.31	11.90	33,755.44

6/9/2010 3:41:49 PM

Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\cls\Application Data\Urbemis\Version9a\Projects\Kaiser ALt 1 Operational.urb924

Project Name: Kaiser Alt 1

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
General office building	19.41	21.55	209.32	0.27	48.45	9.26	27,720.07
TOTALS (lbs/day, unmitigated)	19.41	21.55	209.32	0.27	48.45	9.26	27,720.07

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2015 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General office building		6.30	1000 sq ft	552.00	3,477.60	28,177.25
					3,477.60	28,177.25

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.4	0.2	99.6	0.2
Light Truck < 3750 lbs	12.3	0.8	97.6	1.6

6/9/2010 3:41:49 PM

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	19.8	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	0.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	48.3	51.7	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
General office building				35.0	17.5	47.5

Operational Changes to Defaults

6/9/2010 3:40:33 PM

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\cls\Application Data\Urbemis\Version9a\Projects\Kaiser ALt 1 Operational.urb924

Project Name: Kaiser Alt 1

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	3.62	3.70	4.64	0.00	0.02	0.02	4,418.81

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	19.41	21.55	209.32	0.27	48.45	9.26	27,720.07

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	23.03	25.25	213.96	0.27	48.47	9.28	32,138.88

6/9/2010 3:38:52 PM

Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\cls\Application Data\Urbemis\Version9a\Projects\Kaiser 2010 revise Project Operation.urb924

Project Name: Kaiser 2010 Project Operation

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
General office building	33.88	31.88	340.22	0.63	110.91	21.09	63,420.84
TOTALS (lbs/day, unmitigated)	33.88	31.88	340.22	0.63	110.91	21.09	63,420.84

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2020 Temperature (F): 85 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General office building		6.04	1000 sq ft	1,320.00	7,972.80	64,599.61
					7,972.80	64,599.61

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.4	0.0	100.0	0.0
Light Truck < 3750 lbs	12.2	0.0	99.2	0.8

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Truck 3751-5750 lbs	19.9	0.0	100.0	0.0
Med Truck 5751-8500 lbs	6.4	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	23.1	76.9
Heavy-Heavy Truck 33,001-60,000 lbs	0.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	37.9	62.1	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
General office building				35.0	17.5	47.5

Operational Changes to Defaults

6/9/2010 3:37:29 PM

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\cls\Application Data\Urbemis\Version9a\Projects\Kaiser 2010 revise Project Operation.urb924

Project Name: Kaiser 2010 Project Operation

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	8.49	8.82	8.94	0.00	0.03	0.03	10,562.81

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	33.88	31.88	340.22	0.63	110.91	21.09	63,420.84

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	42.37	40.70	349.16	0.63	110.94	21.12	73,983.65

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Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\cls\Application Data\Urbemis\Version9a\Projects\kaiser with TDM 2010.urb924

Project Name: Kaiser 2010 Project Operation

Project Location: Alameda County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	8.49	8.82	8.94	0.00	0.03	0.03	10,562.81

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	31.36	28.66	305.86	0.56	99.71	18.96	57,015.75

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	39.85	37.48	314.80	0.56	99.74	18.99	67,578.56

APPENDIX D
Biological Resources Data

Appendix D Contents:

D.1 Lists of Special Status Species within Study Area –CDFG
D.2 Lists of Special Status Species within Study Area –USFWS
D.3 Lists of Special Status Species within Study Area –CNPS
D.4 Tree Removal Plan

APPENDIX D.1

Lists of Special Status Species within Study Area – CDFG

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Scientific Name - Landscape
Query for Oaland East and Oakland West USGS 7.5 Minute Topographic Quadrangles

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	CDFG
1	Accipiter cooperii	Cooper's hawk	ABNKC12040			G5	S3		
2	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3		SC
3	Amsinckia lunaris	bent-flowered fiddleneck	PDBOR01070			G2	S2.2	1B.2	
4	Antrozous pallidus	pallid bat	AMACC10010			G5	S3		SC
5	Aquila chrysaetos	golden eagle	ABNKC22010			G5	S3		
6	Arctostaphylos pallida	pallid manzanita	PDERI04110	Threatened	Endangered	G1	S1	1B.1	
7	Astragalus tener var. tener	alkali milk-vetch	PDFAB0F8R1			G1T1	S1.1	1B.2	
8	Atriplex joaquiniana	San Joaquin spearscale	PDCHE041F3			G2	S2	1B.2	
9	California macrophylla	round-leaved filaree	PDGER01070			G2	S2	1B.1	
10	Carex comosa	bristly sedge	PMCYP032Y0			G5	S2?	2.1	
11	Chorizanthe cuspidata var. cuspidata	San Francisco Bay spineflower	PDPGN04081			G2T2	S2.2	1B.2	
12	Chorizanthe robusta var. robusta	robust spineflower	PDPGN040Q2	Endangered		G2T1	S1.1	1B.1	
13	Cicindela hirticollis gravida	sandy beach tiger beetle	IICOL02101			G5T2	S1		
14	Circus cyaneus	northern harrier	ABNKC11010			G5	S3		SC
15	Clarkia concinna ssp. automixa	Santa Clara red ribbons	PDONA050A1			G5?T3	S3.3	4.3	
16	Clarkia franciscana	Presidio clarkia	PDONA050H0	Endangered	Endangered	G1	S1.1	1B.1	
17	Cordylanthus maritimus ssp. palustris	Point Reyes bird's-beak	PDSCR0J0C3			G4?T2	S2.2	1B.2	
18	Dipodomys heermanni berkeleyensis	Berkeley kangaroo rat	AMAFD03061			G3G4T1	S1		
19	Dirca occidentalis	western leatherwood	PDTHY03010			G2G3	S2S3	1B.2	
20	Elanus leucurus	white-tailed kite	ABNKC06010			G5	S3		
21	Emys marmorata	western pond turtle	ARAAD02030			G3G4	S3		SC
22	Eriogonum luteolum var. caninum	Tiburon buckwheat	PDPGN083S1			G5T3	S3.2	1B.2	
23	Eucyclogobius newberryi	tidewater goby	AFCQN04010	Endangered		G3	S2S3		SC
24	Euphydryas editha bayensis	Bay checkerspot butterfly	IILEPK4055	Threatened		G5T1	S1		
25	Fritillaria liliacea	fragrant fritillary	PMLIL0V0C0			G2	S2.2	1B.2	
26	Geothlypis trichas sinuosa	saltmarsh common yellowthroat	ABPBX1201A			G5T2	S2		SC
27	Gilia capitata ssp. chamissonis	blue coast gilia	PDPLM040B3			G5T2	S2.1	1B.1	
28	Helianthella castanea	Diablo helianthella	PDAST4M020			G3	S3.2	1B.2	
29	Helminthoglypta nickliniana bridgesi	Bridges' coast range shoulderband	IMGASC2362			G2T1	S1		
30	Hemizonia congesta ssp. congesta	seaside tarplant	PDAST4R065			G5T2T3	S2S3	1B.2	
31	Hoita strobilina	Loma Prieta hoita	PDFAB5Z030			G2	S2.1	1B.1	
32	Holocarpha macradenia	Santa Cruz tarplant	PDAST4X020	Threatened	Endangered	G1	S1.1	1B.1	
33	Horkelia cuneata ssp. sericea	Kellogg's horkelia	PDROS0W043			G4T1	S1.1	1B.1	

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	CDFG
34	Lasionycteris noctivagans	silver-haired bat	AMACC02010			G5	S3S4		
35	Lasiurus cinereus	hoary bat	AMACC05030			G5	S4?		
36	Laterallus jamaicensis coturniculus	California black rail	ABNME03041		Threatened	G4T1	S1		
37	Layia carnosa	beach layia	PDAST5N010	Endangered	Endangered	G2	S2.1	1B.1	
38	Leptosiphon rosaceus	rose leptosiphon	PDPLM09180			G1	S1.1	1B.1	
39	Masticophis lateralis euryxanthus	Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2		
40	Meconella oregana	Oregon meconella	PDPAP0G030			G2G3	S1.1	1B.1	
41	Melospiza melodia pusillula	Alameda song sparrow	ABPBXA301S			G5T2?	S2?		SC
42	Microcina leei	Lee's micro-blind harvestman	ILARA47040			G1	S1		
43	Monardella villosa ssp. globosa	robust monardella	PDLAM180P7			G5T2	S2.2	1B.2	
44	Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2		
45	Northern Maritime Chaparral	Northern Maritime Chaparral	CTT37C10CA			G1	S1.2		
46	Nyctinomops macrotis	big free-tailed bat	AMACD04020			G5	S2		SC
47	Phalacrocorax auritus	double-crested cormorant	ABNFD01020			G5	S3		
48	Plagiobothrys chorisianus var. chorisianus	Choris' popcorn-flower	PDBOR0V061			G3T2Q	S2.2	1B.2	
49	Plagiobothrys diffusus	San Francisco popcorn-flower	PDBOR0V080		Endangered	G1Q	S1.1	1B.1	
50	Potamogeton filiformis	slender-leaved pondweed	PMPOT03090			G5	S1S2	2.2	
51	Rallus longirostris obsoletus	California clapper rail	ABNME05016	Endangered	Endangered	G5T1	S1		
52	Rana boylii	foothill yellow-legged frog	AAABH01050			G3	S2S3		SC
53	Rana draytonii	California red-legged frog	AAABH01022	Threatened		G4T2T3	S2S3		SC
54	Reithrodontomys raviventris	salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2		
55	Sanicula maritima	adobe sanicle	PDAPI1Z0D0		Rare	G2	S2.2	1B.1	
56	Scapanus latimanus parvus	Alameda Island mole	AMABB02031			G5T1Q	S1		SC
57	Serpentine Bunchgrass	Serpentine Bunchgrass	CTT42130CA			G2	S2.2		
58	Sternula antillarum browni	California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3		
59	Streptanthus albidus ssp. peramoenus	most beautiful jewel-flower	PDBRA2G012			G2T2	S2.2	1B.2	
60	Taxidea taxus	American badger	AMAJF04010			G5	S4		SC
61	Trachusa gummifera	A leaf-cutter bee	IIHYM80010			G1	S1		
62	Trifolium depauperatum var. hydrophilum	saline clover	PDFAB400R5			G5T2?	S2.2?	1B.2	
63	Tryonia imitator	mimic tryonia (=California brackishwater snail)	IMGASJ7040			G2G3	S2S3		

APPENDIX D.2

Lists of Special Status Species within Study Area – USFWS

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

July 26, 2010

Document Number: 100726095448

Martha Lowe
Environmental Science Associates
350 Frank H. Ogawa Plaza
Suite 300
Oakland, CA 94612

Subject: Species List for Kaiser Center

Dear: Ms. Lowe

We are sending this official species list in response to your July 26, 2010 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be October 24, 2010.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at www.fws.gov/sacramento/es/branches.htm.

Endangered Species Division

TAKE PRIDE IN AMERICA

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 100726095448

Database Last Updated: April 29, 2010

Quad Lists

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Speyeria callippe callippe
callippe silverspot butterfly (E)

Fish

Acipenser medirostris
green sturgeon (T) (NMFS)

Eucyclogobius newberryi
tidewater goby (E)

Hypomesus transpacificus
delta smelt (T)

Oncorhynchus kisutch
coho salmon - central CA coast (E) (NMFS)

Oncorhynchus mykiss
Central California Coastal steelhead (T) (NMFS)
Central Valley steelhead (T) (NMFS)
Critical habitat, Central California coastal steelhead (X) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
Critical habitat, winter-run chinook salmon (X) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Rana draytonii
California red-legged frog (T)

Reptiles

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)
Critical habitat, Alameda whipsnake (X)

Birds

Charadrius alexandrinus nivosus
western snowy plover (T)

Pelecanus occidentalis californicus

California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Mammals

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Plants

Arctostaphylos pallida
pallid manzanita (=Alameda or Oakland Hills manzanita) (T)

Clarkia franciscana
Presidio clarkia (E)

Suaeda californica
California sea blite (E)

Quads Containing Listed, Proposed or Candidate Species:

OAKLAND EAST (465C)

OAKLAND WEST (466D)

County Lists

No county species lists requested.

Key:

(E) *Endangered* - Listed as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, **or may be affected by** projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these

lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be October 24, 2010.

APPENDIX D.3

Lists of Special Status Species within Study Area – CNPS

CNPS Inventory of Rare and Endangered Plants						
ECOLOGICAL REPORT						
scientific	**family**	**life form**	**blooming**	**communities**	**elevation**	**CNPS**
Amsinckia lunaris	Boraginaceae	annual herb	Mar-Jun	•Coastal bluff scrub (CBScr) •Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)	3 - 500 meters	List 1B.2
Arctostaphylos pallida	Ericaceae	perennial evergreen shrub	Dec-Mar	•Broadleafed upland forest (BUFrs) •Closed-cone coniferous forest (CCFrs) •Chaparral (Chprl) •Cismontane woodland (CmWld) •Coastal scrub (CoScr)/siliceous shale, sandy or gravelly	185 - 465 meters	List 1B.1
Astragalus tener var. tener	Fabaceae	annual herb	Mar-Jun	•Playas (Plyas) •Valley and foothill grassland (VFGrs)(adobe clay) •Vernal pools (VnPls)/alkaline	1 - 60 meters	List 1B.2
Atriplex joaquiniana	Chenopodiaceae	annual herb	Apr-Oct	•Chenopod scrub (ChScr) •Meadows and seeps (Medws) •Playas (Plyas) •Valley and foothill grassland (VFGrs)/alkaline	1 - 835 meters	List 1B.2
Balsamorhiza macrolepis var. macrolepis	Asteraceae	perennial herb	Mar-Jun	•Chaparral (Chprl) •Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/sometimes serpentinite	90 - 1555 meters	List 1B.2
California macrophylla	Geraniaceae	annual herb	Mar-May	•Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/clay	15 - 1200 meters	List 1B.1

CNPS Inventory of Rare and Endangered Plants

ECOLOGICAL REPORT

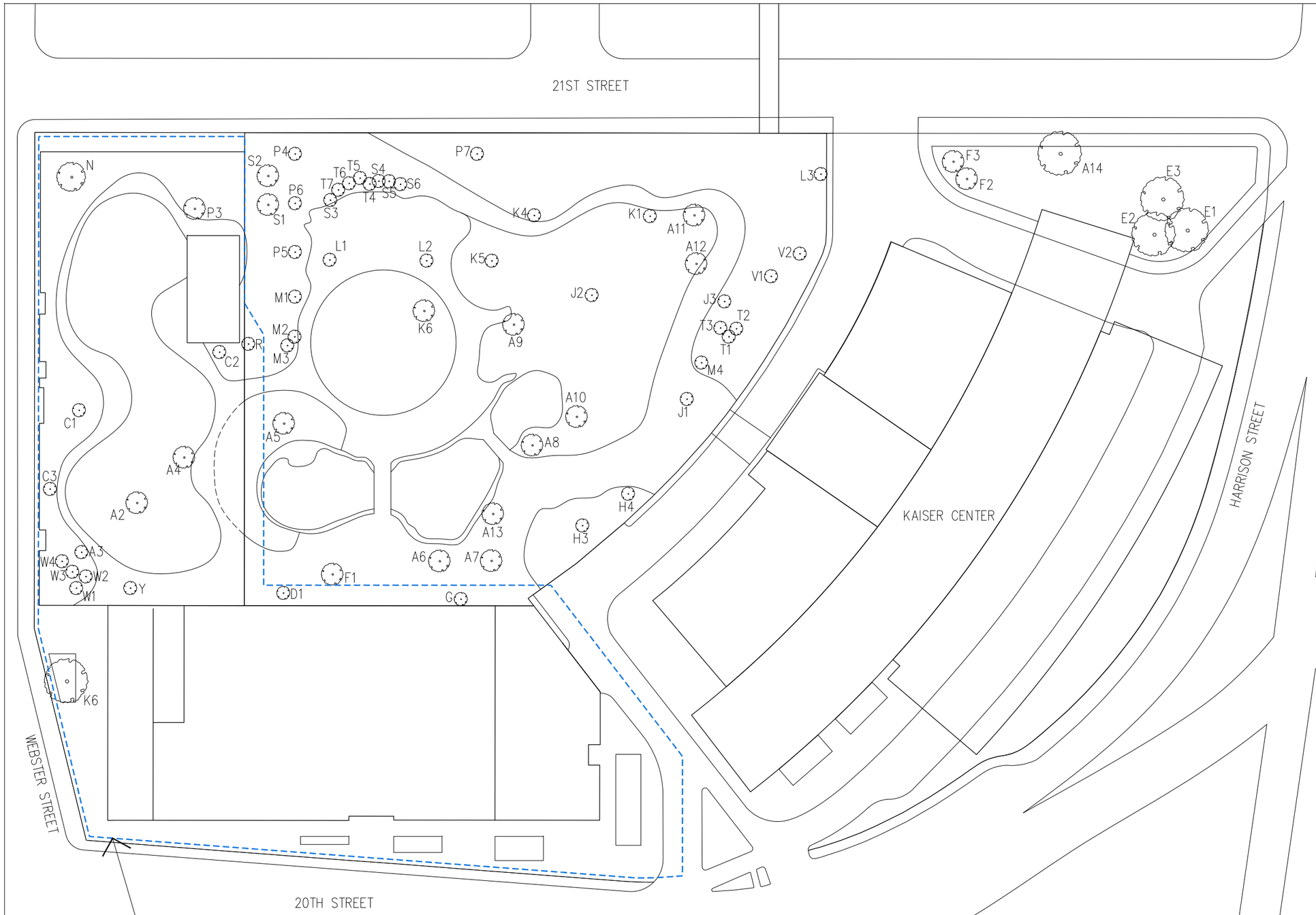
scientific	family	life form	blooming	communities	elevation	CNPS
Chorizanthe cuspidata var. cuspidata	Polygonaceae	annual herb	Apr-Jul(Aug) Months in parentheses are uncommon.	•Coastal bluff scrub (CBScr) •Coastal dunes (CoDns) •Coastal prairie (CoPrr) •Coastal scrub (CoScr)/sandy	3 - 215 meters	List 1B.2
Chorizanthe robusta var. robusta	Polygonaceae	annual herb	Apr-Sep	•Chaparral (Chprl)(maritime) •Cismontane woodland (CmWld)(openings) •Coastal dunes (CoDns) •Coastal scrub (CoScr)/sandy or gravelly	3 - 300 meters	List 1B.1
Clarkia franciscana	Onagraceae	annual herb	May-Jul	•Coastal scrub (CoScr) •Valley and foothill grassland (VFGrs)(serpentinite)	25 - 335 meters	List 1B.1
Cordylanthus maritimus ssp. palustris	Scrophulariaceae	annual herb hemiparasitic	Jun-Oct	•Marshes and swamps (MshSw)(coastal salt)	0 - 10 meters	List 1B.2
Dirca occidentalis	Thymelaeaceae	perennial deciduous shrub	Jan-Mar(Apr) Months in parentheses are uncommon.	•Broadleafed upland forest (BUFrs) •Closed-cone coniferous forest (CCFrs) •Chaparral (Chprl) •Cismontane woodland (CmWld) •North Coast coniferous forest (NCFrs) •Riparian forest (RpFrs) •Riparian woodland (RpWld)/mesic	50 - 395 meters	List 1B.2
Eriogonum luteolum var. caninum	Polygonaceae	annual herb	May-Sep	•Chaparral (Chprl) •Cismontane woodland (CmWld) •Coastal prairie (CoPrr) •Valley and foothill grassland (VFGrs)/serpentinite, sandy to gravelly	0 - 700 meters	List 1B.2

CNPS Inventory of Rare and Endangered Plants						
ECOLOGICAL REPORT						
scientific	**family**	**life form**	**blooming**	**communities**	**elevation**	**CNPS**
Fritillaria liliacea	Liliaceae	perennial bulbiferous herb	Feb-Apr	•Cismontane woodland (CmWld) •Coastal prairie (CoPrr) •Coastal scrub (CoScr) •Valley and foothill grassland (VFGrs)/often serpentinite	3 - 410 meters	List 1B.2
Gilia capitata ssp. chamissonis	Polemoniaceae	annual herb	Apr-Jul	•Coastal dunes (CoDns) •Coastal scrub (CoScr)	2 - 200 meters	List 1B.1
Helianthella castanea	Asteraceae	perennial herb	Mar-Jun	•Broadleafed upland forest (BUFrs) •Chaparral (Chprl) •Cismontane woodland (CmWld) •Coastal scrub (CoScr) •Riparian woodland (RpWld) •Valley and foothill grassland (VFGrs)	60 - 1300 meters	List 1B.2
Hoita strobilina	Fabaceae	perennial herb	May-Jul(Aug-Oct) Months in parentheses are uncommon.	•Chaparral (Chprl) •Cismontane woodland (CmWld) •Riparian woodland (RpWld)/usually serpentinite, mesic	30 - 860 meters	List 1B.1
Holocarpha macradenia	Asteraceae	annual herb	Jun-Oct	•Coastal prairie (CoPrr) •Coastal scrub (CoScr) •Valley and foothill grassland (VFGrs)/often clay, sandy	10 - 220 meters	List 1B.1
Horkelia cuneata ssp. sericea	Rosaceae	perennial herb	Apr-Sep	•Closed-cone coniferous forest (CCFrs) •Chaparral (Chprl)(maritime) •Coastal dunes (CoDns) •Coastal scrub (CoScr)/sandy or gravelly, openings	10 - 200 meters	List 1B.1
Meconella oregana	Papaveraceae	annual herb	Mar-Apr	•Coastal prairie (CoPrr) •Coastal scrub (CoScr)	250 - 620 meters	List 1B.1

CNPS Inventory of Rare and Endangered Plants						
ECOLOGICAL REPORT						
scientific	**family**	**life form**	**blooming**	**communities**	**elevation**	**CNPS**
Micropus amphibolus	Asteraceae	annual herb	Mar-May	•Broadleafed upland forest (BUFrs) •Chaparral (Chprl) •Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/rocky	45 - 825 meters	List 3.2
Monardella villosa ssp. globosa	Lamiaceae	perennial rhizomatous herb	Jun-Jul(Aug) Months in parentheses are uncommon.	•Broadleafed upland forest (BUFrs)(openings) •Chaparral (Chprl)(openings) •Cismontane woodland (CmWld) •Coastal scrub (CoScr) •Valley and foothill grassland (VFGrs)	100 - 915 meters	List 1B.2
Monolopia gracilens	Asteraceae	annual herb	Mar-Jul	•Broadleafed upland forest (BUFrs)openings •Chaparral (Chprl)openings •Cismontane woodland (CmWld) •North Coast coniferous forest (NCFrs)openings •Valley and foothill grassland (VFGrs)/serpentine	100 - 1200 meters	List 1B.2
Plagiobothrys chorisianus var. chorisianus	Boraginaceae	annual herb	Mar-Jun	•Chaparral (Chprl) •Coastal prairie (CoPrr) •Coastal scrub (CoScr)/mesic	15 - 160 meters	List 1B.2
Plagiobothrys diffusus	Boraginaceae	annual herb	Mar-Jun	•Coastal prairie (CoPrr) •Valley and foothill grassland (VFGrs)	60 - 360 meters	List 1B.1
Potamogeton filiformis	Potamogetonaceae	perennial rhizomatous herb aquatic	May-Jul	•Marshes and swamps (MshSw)(assorted shallow freshwater)	300 - 2150 meters	List 2.2
Sanicula maritima	Apiaceae	perennial herb	Feb-May	•Chaparral (Chprl) •Coastal prairie (CoPrr)	30 - 240 meters	List 1B.1

CNPS Inventory of Rare and Endangered Plants						
ECOLOGICAL REPORT						
scientific	**family**	**life form**	**blooming**	**communities**	**elevation**	**CNPS**
				•Meadows and seeps (Medws) •Valley and foothill grassland (VFGrs)/clay, serpentinite		
Streptanthus albidus ssp. peramoenus	Brassicaceae	annual herb	(Mar)Apr-Sep(Oct) Months in parentheses are uncommon.	•Chaparral (Chprl) •Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/serpentinite	94 - 1000 meters	List 1B.2
Trifolium depauperatum var. hydrophilum	Fabaceae	annual herb	Apr-Jun	•Marshes and swamps (MshSw) •Valley and foothill grassland (VFGrs)(mesic, alkaline) •Vernal pools (VnPls)	0 - 300 meters	List 1B.2

APPENDIX D.4
Tree Removal Plan



TREE	SPECIES	COMMON NAME	TRUNK DIAMETER
A2	OLEA EUROPEA	EUROPEAN OLIVE	30.1"
A3	OLEA EUROPEA	EUROPEAN OLIVE	11.5"
A4	OLEA EUROPEA	EUROPEAN OLIVE	43.3"
A5	OLEA EUROPEA	EUROPEAN OLIVE	24.4"
A6	OLEA EUROPEA	EUROPEAN OLIVE	34.1"
A7	OLEA EUROPEA	EUROPEAN OLIVE	22.9"
A8	OLEA EUROPEA	EUROPEAN OLIVE	36.0"
A9	OLEA EUROPEA	EUROPEAN OLIVE	45.5"
A10	OLEA EUROPEA	EUROPEAN OLIVE	35.0"
A11	OLEA EUROPEA	EUROPEAN OLIVE	33.9"
A12	OLEA EUROPEA	EUROPEAN OLIVE	32.0"
A13	OLEA EUROPEA	EUROPEAN OLIVE	27.3"
A14	OLEA EUROPEA	EUROPEAN OLIVE	33.6"
B	RHUS LANCEA	AFRICAN SUMAC	14.0"
C1	PITTOSPORUM UNDULATUM	VICTORIAN BOX	16.2"
C2	PITTOSPORUM UNDULATUM	VICTORIAN BOX	23.3"
C3	PITTOSPORUM UNDULATUM	VICTORIAN BOX	23.9"
D1	ACER PALMATUM	JAPANESE MAPLE	35.1"
E1	LIQUIDAMBAR STRYACIFLUA	SWEETGUM	14.3"
E2	LIQUIDAMBAR STRYACIFLUA	SWEETGUM	15.8"
E3	LIQUIDAMBAR STRYACIFLUA	SWEETGUM	15.9"
F1	MAGNOLIA GRANDIFLORA	SOUTHERN MAGNOLIA	23.3"
F2	MAGNOLIA GRANDIFLORA	SOUTHERN MAGNOLIA	18.5"
F3	MAGNOLIA GRANDIFLORA	SOUTHERN MAGNOLIA	17.4"
G	PODOCARPUS MACROPHYLIA	JAPANESE YEW PINE	11.3"
H3	MALUS FLORIBUNDA	JAPANESE FLOWERING CRABAPPLE	11.9"
H4	MALUS FLORIBUNDA	JAPANESE FLOWERING CRABAPPLE	9.2"
J1	QUERCUS SUBER	CORK OAK	29.0"
J2	QUERCUS SUBER	CORK OAK	16.0"
J3	QUERCUS SUBER	CORK OAK	31.5"
K1	RHUS LANCEA	AFRICAN SUMAC	14.3"
K4	RHUS LANCEA	AFRICAN SUMAC	21.2"
K5	RHUS LANCEA	AFRICAN SUMAC	18.5"
K6	RHUS LANCEA	AFRICAN SUMAC	14.0"
L1	PINUS MUGO	SWISS MOUNTAIN PINE	19.1"
L2	PINUS MUGO	SWISS MOUNTAIN PINE	21.0"
L3	PINUS MUGO	SWISS MOUNTAIN PINE	19.0"
M1	ARBUTUS UNEDO	STRAWBERRY TREE	32.4"
M2	ARBUTUS UNEDO	STRAWBERRY TREE	29.5"
M3	ARBUTUS UNEDO	STRAWBERRY TREE	21.7"
M4	ARBUTUS UNEDO	STRAWBERRY TREE	30.3"
N	BETULA PENDULA	EUROPEAN WHITE BIRCH	24.0"
P3	QUERCUS ILEX	HOLLY OAK	9.1"
P4	QUERCUS ILEX	HOLLY OAK	17.2"
P5	QUERCUS ILEX	HOLLY OAK	12.7"
P6	QUERCUS ILEX	HOLLY OAK	15.3"
P7	QUERCUS ILEX	HOLLY OAK	18.6"
R	PRUNUS CAROLINIANA	CAROLINA CHERRY LAUREL	19.4"
S1	GRISELINA LITTORALIS	KAPUKA	32.2"
S2	GRISELINA LITTORALIS	KAPUKA	18.5"
S3	GRISELINA LITTORALIS	KAPUKA	16.6"
S4	GRISELINA LITTORALIS	KAPUKA	29.3"
S5	GRISELINA LITTORALIS	KAPUKA	26.1"
S6	GRISELINA LITTORALIS	KAPUKA	26.1"
T1	FEIJOA SELLOWIANA	PINAPPLE GUAVA	25.5"
T2	FEIJOA SELLOWIANA	PINAPPLE GUAVA	29.3"
T3	FEIJOA SELLOWIANA	PINAPPLE GUAVA	8.4"
T4	FEIJOA SELLOWIANA	PINAPPLE GUAVA	21.0"
T5	FEIJOA SELLOWIANA	PINAPPLE GUAVA	24.2"
T6	FEIJOA SELLOWIANA	PINAPPLE GUAVA	19.8"
T7	FEIJOA SELLOWIANA	PINAPPLE GUAVA	16.6"
V1	MAGNOLIA SOULANGIANA	SAUCER MAGNOLIA	26.3"
V2	MAGNOLIA SOULANGIANA	SAUCER MAGNOLIA	22.8"
W1	ILEX ALTACLARENSIS "WILSONII"	WILSON'S HOLLY	13.3"
W2	ILEX ALTACLARENSIS "WILSONII"	WILSON'S HOLLY	16.3"
W3	ILEX ALTACLARENSIS "WILSONII"	WILSON'S HOLLY	12.1"
W4	ILEX ALTACLARENSIS "WILSONII"	WILSON'S HOLLY	14.5"

NOTE : ONLY PROTECTED TREES ARE SHOWN ON THIS DRAWING.

EXISTING TREE DESCRIPTION
ASK - 060R1

0 16' 32' 64'

June 24, 2009
Scale: 1" = 64'-0"

NORTH

KAISER CENTER
THE SWIG COMPANY

SOM

APPENDIX E
Cultural Resources Correspondence

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E.1 Historic Resources Evaluation
E.2 Native American Heritage Commission Communication
E.3 Exterior Façade Feasibility Analysis

APPENDIX E.1
Historic Resources Evaluation



Historic Resource Evaluation

Final Draft

Kaiser Center

300 Lakeside Drive
Oakland, California

February 2009

Prepared for
City of Oakland
Community & Economic Development Agency

Prepared by
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I. INTRODUCTION

This Historic Resource Evaluation (HRE) has been prepared at the request of the Swig Company for a project affecting the Kaiser Center, located at 300 Lakeside Drive (also 312-348 20th Street, 2000-2040 Webster Street, and 2059 Harrison Street), Oakland, California. The complex is on a large, irregularly shaped block bounded by 20th, Harrison, 21st, and Webster Streets. The Kaiser Center complex consists of a twenty-eight-story Office Tower, the three-story and basement 20th Street Mall Building, the two-and-three-story Webster Street Mall Building, a three-and-four-story parking garage, and the Roof Garden on the top level of the parking garage. The complex was designed by Welton Becket & Associates and completed in 1959. The Roof Garden was designed by the landscape architecture firm Osmundson & Staley and completed in 1960.

The current owner of the Kaiser Center has proposed to demolish the Mall Buildings and replace them with two office towers, a thirty-four-story tower at the northeast corner of Webster and 20th streets and a forty-two-story tower at the southeast corner of Webster and 21st streets. The roof garden will be reconfigured, removing approximately 18,369 square feet in the Webster and 21st street corner and adding 22,933 square feet along 20th Street. The garden would have a net gain of 4,564 square feet, and the proposed project provides for the inclusion of a grand staircase accessing the roof garden from 20th Street, which would improve public access to the garden. The project sponsor is also considering providing increased access to the roof garden through the new office towers.

This report provides a detailed description and historical context for the Kaiser Center, as well as an examination of the property's existing historical status. Included in this report is an evaluation of the building's eligibility for the California Register of Historical Resources (California Register) and an evaluation of the proposed project under the provisions of the California Environmental Quality Act (CEQA).

The primary author of this report was architectural historian, Cora Palmer, who meets the Secretary of the Interior's Standards for Professional Qualifications in Architectural History. Portions of this report were completed by Cultural Landscape Specialist Gretchen Hilyard and Cultural Resource Specialist, Cara Bertron. The project architects, Skidmore Owings & Merrill, have provided architectural drawings of the Proposed Project for inclusion in this report.

Page & Turnbull prepared this report using research collected at various local repositories, including the Oakland Cultural Heritage Survey, Kaiser Center Archives, the Oakland Public Library, and the University of California, Berkeley Environmental Design Archives.

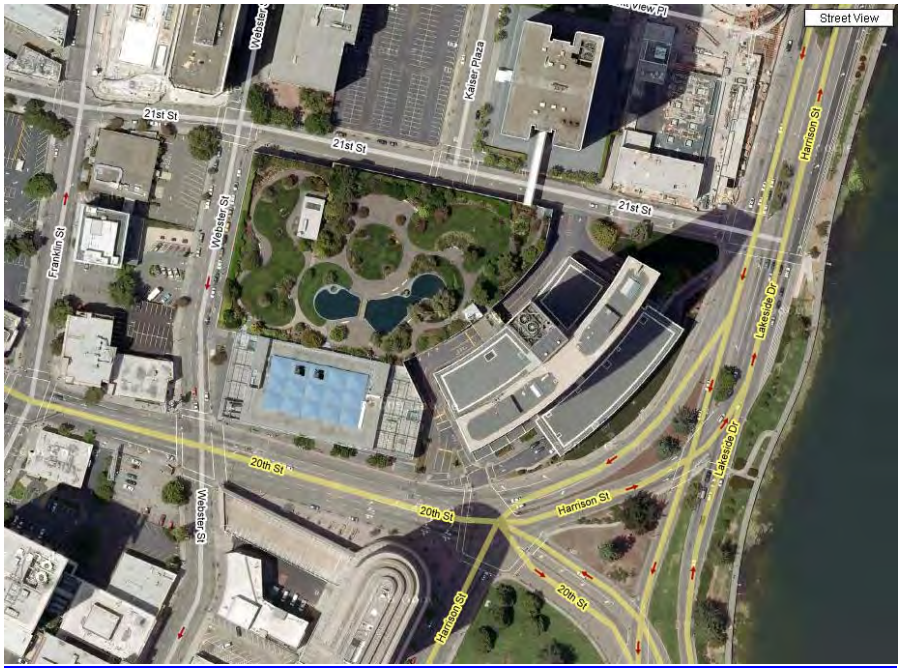


Figure 1. Aerial of subject property. Google Maps



Figure 2. Site Plan of subject property. SOM, altered by author.
Note that hatched area represents the Roof Garden.

II. SUMMARY OF DETERMINATION

According to the Oakland Cultural Heritage Survey, the Kaiser Center and Roof Garden appears to be individually eligible for listing in the National Register of Historical Places (National Register). The analysis in this report finds the complex to be individually eligible for listing in the California Register of Historical Resources (California Register) under Criteria 1 (Events), 2 (Persons), and 3 (Architecture). Therefore, the Kaiser Center complex is considered a historic resource under the California Environmental Quality Act (CEQA).

According to CEQA, a "project with an effect that may cause a substantial adverse change in the significance of an historic resource is a project that may have a significant effect on the environment." The significance of a historic resource is materially impaired when a project materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in the California Register. This report determines that the proposed project may cause a change to a historic resource and may have an adverse effect on the environment. However, if suggested mitigation measures were incorporated into the design, the impacts on a historic resource could be reduced to a less than significant level.

III. CURRENT HISTORIC STATUS

A. National Register of Historic Places

The National Register of Historic Places is the nation's most comprehensive inventory of historic resources. The National Register is administered by the National Park Service and includes buildings, structures, sites, objects, and districts that possess historic, architectural, engineering, archaeological, or cultural significance at the national, state, or local level. Typically, resources over fifty years of age are eligible for listing in the National Register if they meet any one of the four criteria of significance and if they sufficiently retain historic integrity. However, resources under fifty years of age can be listed or determined eligible if it can be demonstrated that they are of "exceptional importance," or if they are contributors to a potential historic district. National Register criteria are defined in depth in *National Register Bulletin Number 15: How to Apply the National Register Criteria for Evaluation.* A resource can be considered significant on a national, state, or local level to American history, architecture, archaeology, engineering, and culture.

The Kaiser Center is not listed in the National Register of Historic Places. However, according to the Oakland Cultural Heritage Survey, the Kaiser Center appears to be potentially eligible for listing in the National Register both individually and as a contributor to a potential Lake Merritt Historic District.[1]

B. Oakland Cultural Heritage Survey

The Oakland Cultural Heritage Survey (OCHS) was established in 1981. Since that time, the OCHS has been evaluating resources according to a system adapted from both the San Francisco Downtown Inventory, and Harold Kalman's *The Evaluation of Historic Buildings* (Parks Canada, 1980). The categories, ratings, and guidelines for interpretation closely parallel those of *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*, Sections IV, "How to Identify the Type of Significance of a Property;" and V, "How to Determine if a Property has Integrity". Properties are evaluated under seventeen headings in four general areas: Visual Quality/Design, History/Association, Continuity, and Integrity/Reversibility. Buildings are rated on a scale from "A": Highest Importance to "E": Of no particular interest; buildings less than 45 years old or modernized are classified "*" or "F."

[1] Please note that OCHS staff is currently re-examining the boundaries of the Lake Merritt Historic District.

The survey also identifies historic districts. Historic districts are classified in two categories: Areas of Primary Importance (API) and Areas of Secondary Importance (ASI). Both types of districts are historically or visually cohesive areas in which a high proportion of properties contribute to or reflect the area's principal historical or architectural themes. APIs appear eligible for the National Register as districts or historically related complexes while ASIs do not, although they are considered to warrant city preservation efforts. In addition, seriously altered properties that appear restorable may be counted as contributors in an ASI but not in an API. District ratings range from 1 to 3. A rating of 1 means the property is in an Area of Primary Importance (API) or National Register quality district. A rating of 2 means the property is in an Area of Secondary Importance (ASI) or district of local interest. A rating of 3 means the property is not in a historic district.

The Kaiser Center is listed in the OCHS with a rating of A1+, which indicates that the property has an "A"-rating, defined as a property of "Highest Importance." "A" buildings are labeled as buildings with "exceptional historical or architectural value which are clearly eligible individually for the National Register of Historic Places." The building's "1"rating signifies that the property is located within an API, and the "+" rating indicates the property is a contributor to the API.

Lake Merritt District, Area of Primary Importance (API)

The Lake Merritt District was surveyed as part of the OCHS in 1986. The District is considered an Area of Primary Importance (API), a district that appears eligible for the National Register of Historic Places. According to the OCHS Lake Merritt Historic District inventory form, "the district consists of Lake Merritt itself, the parklands on its shores, the buildings within those parks, and all buildings fronting on the lake which were constructed over 50 years ago and are now reasonably intact. Some newer structures, compatible with the older ones, are also within district boundaries." (See **Appendix A** for a district boundary map and representative photographs of the Lake Merritt Historic District). The Kaiser Center was not over the fifty-year threshold at the time of the survey and therefore was not included as a contributor. However, due to its historic and architectural significance and relation to the lake, currently the Kaiser Center is considered a contributor to the Lake Merritt Historic District. It should be noted that OCHS Staff is currently re-examining the boundaries of the Lake Merritt Historic District.

C. City of Oakland Landmark Status

Like most cities, Oakland has a program for designating historic Landmarks and Preservation Districts. These are considered the most prominent historic properties in the city. They are

nominated by their owners, the City, or the public, and are designated after public hearings by the Landmarks Board, Planning Commission, and City Council. These landmarks and historic districts are called "Designated Historic Properties." Since the program began in 1973, about 140 individual landmarks and nine districts have been designated, out of a total of nearly 100,000 buildings in the city.[2] The city has forty individual buildings and the Downtown district listed on the National Register of Historic Places, and a small group of State and National Historic Landmarks. These major landmarks have various legal protections against demolition or changes that would impair their significance.

The Kaiser Center has never been formally designated a City of Oakland Landmark. However, in 2003, members of the City of Oakland's Landmarks Preservation Advisory Board particularly interested in Modern design began the process of pursuing a Landmark nomination for the Kaiser Center. While the process was never completed, it likely indicates that the Kaiser Center would be determined eligible for listing as a City of Oakland Landmark.

[2] City of Oakland, CEDA, Oakland General Plan, Historic Preservation Element, Appendix C, Oakland Cultural Heritage Survey Evaluation Methods (Oakland: City of Oakland, Sept. 1993), C-3.

IV. DESCRIPTION[3]

A. Site

The Kaiser Center is located on a large irregularly shaped lot on the west side of Lakeside Drive bounded by Harrison, Webster, 20th, and 21st streets. The complex is located adjacent to Lake Merritt and is part of a group of high-rise commercial office buildings designed in the Modern style at the northwest shore of the lake. The Kaiser Center complex is made up of four elements: Mall Buildings that form a strong horizontal base, a curving high-rise Office Tower, a utilitarian parking lot, and a roof garden. The Office Tower's facade interprets the arc of Harrison Street which curves between 21st and 20th Street. The immediate area is composed of high-rise commercial office towers, mid-rise commercial buildings, the Cathedral of Christ the Light, parking lots and Snow Park. The area has a mid- and high-rise character and is made up of historic and non-historic buildings. The site slopes up from south to north; as a result, the building at the south end of the lot (20th Street Mall) is approximately one story lower than the building at the north end of the lot (Webster Street Mall). The site features planting beds and capitalizes on views to Lake Merritt to the southeast.

B. Office Tower Exterior



Figure 3. Kaiser Center Office Tower. View from southeast. Page & Turnbull, 2008

Completed in 1959, the Kaiser Center Office Tower is a twenty-eight-story office tower with three basements that features a T-shaped plan, and a curved main façade. The building is made up of two basic components: a T-shaped tower with a straight stem and curved wings; and an asymmetrically located two-story podium supported by square piers at the first floor that extends beyond the plane of the T-shaped tower and follows the curve of the main façade.

[3] See Appendix A for additional photographs of the Kaiser Center.

The main façade of the tower features fourteen bays separated by burnished aluminum piers. Each bay includes six windows surrounded by gold toned and natural aluminum frames. The side facades of the curved plane feature concrete panels with dolomite, a rock-like mineral product, aggregate. Other than the penthouse floor which features a higher ceiling height, all floors and bays on the main façade are identical. The straight vertical portion or stem of the tower features the same fenestration pattern as the main façade at the east and west façade and the same concrete panels with dolomite aggregate at the north and south façades. The north façade features signage reading, "Kaiser."

The first floor of the podium is supported by square piers, effectively creating a *porte cochere* at the front facade, and features a space which is occupied by the auditorium and tenant office space. The building's *porte cochere* features square piers with metal cladding, dolomite panels, and stucco walls and ceilings with recessed incandescent lighting at the recessed portion. The first floor lobby includes an aluminum storefront with glazed aluminum doors featuring rectangular aluminum hardware that reads, "Kaiser Center." To the left of the *porte cochere* are retail spaces which feature glazed aluminum storefronts capped by a cantilevered canopy clad in stucco which features recessed incandescent lighting.

To the rear of the main façade is a two-story podium that is supported by square piers with metal cladding. This portion of the podium parallels the curve of the main façade and includes office space and features a skybridge with access to the parking garage. This podium features a glazed curtain wall with burnished aluminum panels, similar to but simpler than the main façade.

<u>Parking Garage</u>

The parking garage is a three-and-four-story reinforced concrete rectangular plan building with a curved east façade that parallels the tower. The building is utilitarian and the only ornamentation present on



Figure 4. Parking Garage, north façade. View from northwest.
Page & Turnbull, 2008

the parking garage is a grid of narrow aluminum ribs and aluminum signage reading, "Kaiser Center Garage." The top level of the building is occupied by the Kaiser Center Roof Garden.

C. Office Tower Interior

Lobby

The first floor lobby is a one-story and mezzanine space that features terrazzo floors, marble walls, oversize round piers, and two escalators. The escalators have been enclosed with marble cladding and a circular fountain has been installed in the escalator enclosure. The lobby features round raised planters, a seating area, and a coffee kiosk. Many of the lobby features were replaced in a renovation designed by Charles Jennings that took place in the mid-1990s.

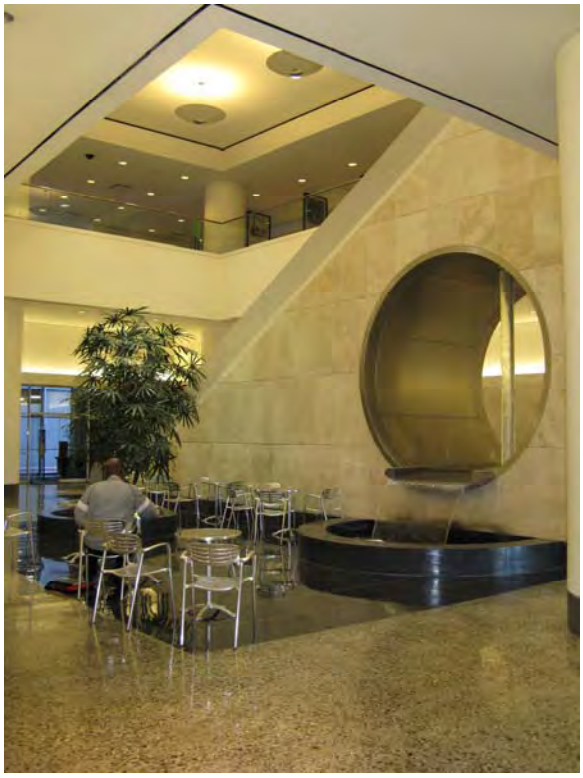


Figure 5. Lobby, view from southeast.
Page & Turnbull, 2008

First Floor Retail

The first floor of the tower includes a single level of retail with mixed use commercial space on a mezzanine level. This portion of the complex features terrazzo floors and walls, square piers, glazed aluminum storefronts with clear and frosted glass, spray acoustical ceilings, large replacement pendant light fixtures, and glazed aluminum doors with decorative aluminum door handles, some exterior door hardware features cut outs reading, "Kaiser Center."

Second Floor Lobby

The second floor lobby features plaster walls and ceilings, oversize round piers, and terrazzo floors. The second floor functions as a mezzanine and a glass half wall with metal handrail surrounds the central opening which is occupied by the central lobby escalators. The opening includes oversize replacement pendant lights and the remainder of the ceiling includes recessed incandescent lighting. The second floor lobby features interpretive plaques, a bust of Henry J. Kaiser, a film on Kaiser, and comics celebrating Kaiser's legacy.

Auditorium

The corridor leading to the auditorium features polished stone wall panels, decorative aluminum wall cladding, and hanging incandescent light fixtures. The auditorium was occupied and not available during the time of the site visit.



Figure 6. Tenant space, showing original aluminum door. Page & Turnbull, 2008

Office Spaces

Typical office spaces include a curving corridor with offices flanking the central lobby space. The majority of offices have undergone multiple tenant improvements and feature partition walls, carpeted floors, recessed fluorescent lighting, and hollow-core wood doors. However, some offices retain original details such as aluminum partition systems, aluminum doors in a variety of finishes, and suspended ceilings with original perforated aluminum ceiling tiles.

D. Mall Buildings, Exterior

The Mall Buildings appear as a strong horizontal base that is contrasted by the verticality of the Office Tower. Constructed in 1959, the 20th Street Mall Building is a three-story and basement building located at the corner of 20th and Webster streets with a rectangular plan and flat roof. The building features oversize circular piers and glazed aluminum storefronts at the first floor giving the main mass of the building the appearance of floating. The first floor features stucco and white brick veneer cladding. The second floor has no fenestration but feature dolomite concrete panels with aluminum cantilevered canopies and vertical granite panels and aluminum fins above the entrances. The penthouse level occupies approximately three-quarters of the floor plate and is set back from the plane of the lower floors. The penthouse level features stucco cladding and closely arranged aluminum sash windows. The remainder of the penthouse level features an aluminum pergola. As of the date of this evaluation, a portion of this floor is vacant, but has traditionally been occupied by a restaurant that accesses the roof garden.

Constructed in 1959, the Webster Street Mall Building is a two-and-three-story building located at the corner of 21st and Webster streets with a rectangular plan and a flat roof covered by the roof garden. The first floor features stucco cladding and fixed full-height aluminum windows. The upper two floors feature slightly protruding dolomite concrete panels with no fenestration. Similar to the 20th Street Mall Building, the main mass of the building appears to float above the first floor.



Figure 7. 20th Street Mall Building, view from southeast.
Page & Turnbull, 2008

E. Mall Buildings, Interior

The first floor of the 20th Street Mall Building includes terrazzo floors, gypsum board walls, some clad with brick veneer, a projecting paneled frieze, and spray acoustical ceiling. Lighting fixtures include recessed fluorescent and incandescent lights. Storefronts are glazed aluminum with glazed aluminum doors. The central space includes narrow, free-standing escalators. Other unique finishes, such as the

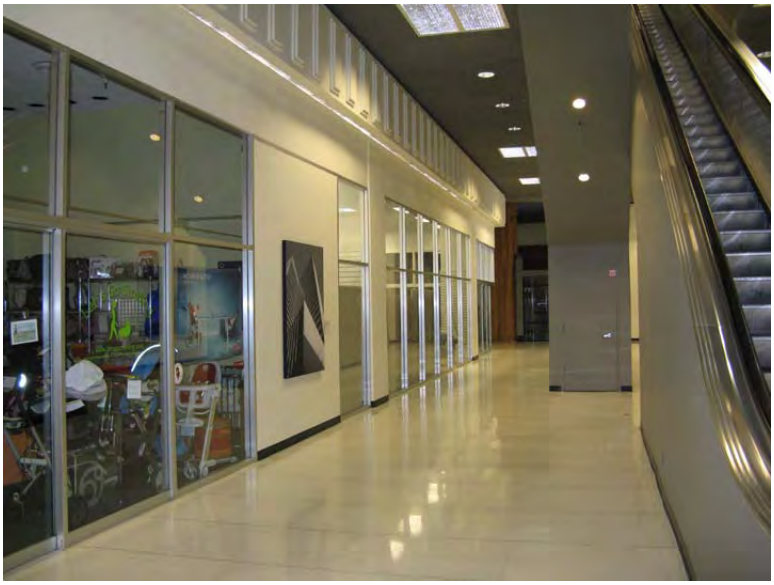


Figure 8. 20th Street Mall Building, interior. View of escalator lobby.
Page & Turnbull, 2008

wood-clad column at the 20th Street lobby, were tenant improvements. The interior of the 20th Street Mall Building retains few original finishes, limited to terrazzo floors. The second and third floors include escalators, gypsum board walls and ceilings, carpeted floors, rubber base, and recessed fluorescent and incandescent lighting. Office spaces have been significantly altered over time and include partition walls, carpeted floors, rubber base, suspended ceilings, and recessed fluorescent lighting.

The Webster Street Mall has also undergone similar alterations and the first floor features gypsum board walls with dolomite panels, terrazzo and rubber base, fully glazed aluminum storefronts, glazed aluminum doors, metal doors, spray acoustical ceilings, and recessed fluorescent lighting. The original finishes include terrazzo floors and dolomite panels. The Webster Street Mall is situated slightly above the 20th Street Mall due to the change in grade.

The staircase connecting the two sections of the Mall features terrazzo treads and risers, and aluminum handrails. The corridor features display cases with aluminum surrounds. The main entrance to the 24 Hour Fitness is recessed and features a marble surround with a replacement aluminum storefront. The northern section of the corridor features polychrome asphalt tiles in a random pattern and stairs with tubular aluminum handrails up to a secondary entry to the gym. This northern section of the Mall includes a glazed aluminum storefront with glazed aluminum door and sidelight. This portion of the corridor features a suspended ceiling, recessed fluorescent lighting, and access to the parking garage.

F. Roof Garden

The Kaiser Center roof garden was constructed between 1959 and 1960 and is located on the top level of the parking garage at the northwest corner of the complex. The roof garden is rectangular in plan, except at the eastern edge, where the garden parallels the arc of the tower's main façade. The

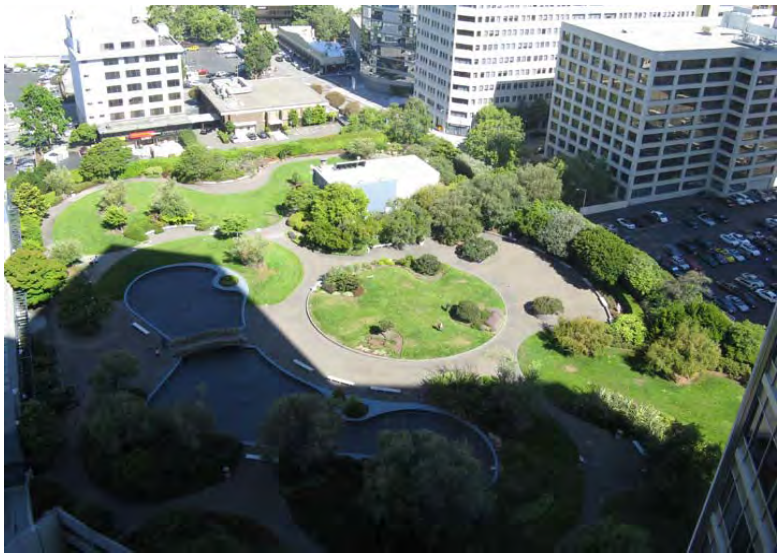


Figure 9. Roof Garden, view from tower. Page & Turnbull, 2008

garden features curvilinear aggregate pathways, a series of irregularly-shaped undulating lawns, a circular lawn located in the center of the garden, low concrete curbing, specimen trees, shrub plantings, concrete benches and related site furnishings, and an 8,800 square foot reflecting pool. The pool features a wood bridge which was added between 1973 and 1975. A visual axis begins at the main entrance to the garden at the 20th Street Mall Building and runs through the reflecting pool and central circular lawn. A concrete HVAC building is located in the northwest corner of the garden. The building is approximately eighteen feet in height, clad in stucco and capped by a flat roof. The HVAC building is screened by specimen trees to alleviate the visual intrusion of this building within the garden.

V. HISTORIC CONTEXT

This historic context statement contains three sections; an overview of the history of Oakland since its incorporation, a brief history of the Kaiser Center site including a construction chronology, and an account of individual persons and trends significant to the development of the Kaiser Center.

A. Oakland History

On March 25, 1852, the town of Oakland was incorporated.[4] Named for an oak grove that stretched from Lake Merritt to the bay, the city encompassed the present-day downtown and West Oakland to 22nd Street.[5] It had less than one hundred citizens, who elected Horace W. Carpentier, a graduate of Columbia University's law school and early developer, as the city's first mayor.[6]

Oakland saw rapid growth and improvement after transportation connections were established with other communities.[7] Ferry service to San Francisco began in 1854, and San Antonio and Clinton were connected with Oakland by a bridge built in 1856. Commercial and industrial businesses were established near the wharves, and a railroad ran through downtown Oakland by 1863.[8]

In 1868, Oakland was chosen as the western terminus for the Transcontinental Railroad. Beginning in 1869, the train, a "great 'Iron Horse' with tireless lungs," brought tourists and workers to California and made Oakland a major port city and manufacturing center.[9] West Oakland became a shipping hub for western U.S. factories and a processing and manufacturing center for raw commodities such as agricultural products and lumber. As Oakland became an increasingly popular industrial core, residential and commercial communities expanded in the city limits. In 1873, Oakland became the county seat of Alameda County.[10] By 1880, the city's population rose to 34,555, more than twenty times what it was in 1860.[11] Many of the new residents were San Francisco commuters drawn by Oakland's relatively low density and the ferry service across the bay and railroad workers, many of whom were African Americans.[12]

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[4] *Ibid.*, 27.
[5] Historic Preservation Element, 1-4.
[6] Bagwell, 27.
[7] Historic Preservation Element, 1-4.
[8] *Ibid.*, 1-5.
[9] Rather, 53-54.
[10] Historic Preservation Element, 1-5.
[11] Bagwell, 59.
[12] Historic Preservation Element, 1-5.

Promotional materials advertised Oakland's "world-renowned" climate, the prosperity of its citizens, its paved streets and extensive streetcar lines, and the culture found in "the Athens of America."[13] It was home to several colleges, including the College of California (the precursor of the University of California), Mills Seminary (later Mills College), and St. Mary's College. By 1895, the city held four daily newspapers in English, fifty churches, fourteen schools, and four theaters or opera houses. Hospitals, literary societies, and a public library rounded out Oakland's cultural offerings.

The city expanded by annexing existing settlements and developing new districts.[14] Clinton, San Antonio, and Lynn (or Brooklyn) were annexed in 1872, pushing Oakland's city limits out to 36th Street.[15] Fruit Vale (later Fruitvale) and Jingletown grew around fruit orchards to the east, and Melrose, Fitchburg, and Elmhurst developed around railroad stations.[16] The small Temescal community expanded in the 1860s with the installation of a telegraph line down present-day Telegraph Avenue and the establishment of a streetcar line to the University of California Berkeley. Klinknerville, later Golden Gate, developed around Stanford and San Pablo avenues. Recreational facilities like the Tubbs Hotel and Idora Park spurred expansion into areas such as East Oakland and North Oakland. Neighborhoods north of Lake Merritt were annexed in 1891, and Temescal, Golden Gate, and other North Oakland neighborhoods were annexed in 1897.[17] By 1900, Oakland's population numbered almost 67,000.

The 1906 Earthquake and Fire sent thousands of San Francisco residents to the East Bay for temporary and permanent housing. Oakland continued to grow geographically, increasing nearly to its present size in 1909, with the annexation of the hills area, Fruitvale, Melrose, Elmhurst, and the area south to San Leandro.[18] With that move, the city's area increased from 22.9 to 60.25 square miles. Meanwhile, private developers saw an opportunity to plan communities for both the affluent and working classes in North Oakland, West Oakland, and East Oakland neighborhoods.

Post-earthquake development reinforced the city center at 14th Street and Broadway. The First National Bank of Oakland (now the Broadway Building), the Oakland Bank of Savings, the Security Bank Building, the Oakland Hotel, and the Federal Realty Building (now Cathedral Building) were constructed in this area between 1907 and 1914. Oakland's City Hall was the first city hall in the

[13] Rather, 63.
[14] Bagwell, 59.
[15] Historic Preservation Element, 1-5.
[16] *Ibid.*, 1-6.
[17] *Ibid.*, 1-7.
[18] *Ibid.*, 1-7.

United States designed as a skyscraper. Other civic projects included the Civic Auditorium, new fire stations, and parks around the city.[19]

In 1910, the City of Oakland assumed control of its waterfront, which was previously held by private entities. The change of ownership prompted the expansion of the Port of Oakland. The increased presence of the port, combined with the rail network and its geographic position, boosted the city to a leading industrial and warehousing center.[20] During World War I, Oakland's shipyards provided a "fleet of steel and concrete ships that…within the short space of a year put the Oakland estuary in the national limelight."[21] By 1918, at least 50,000 people were employed by the shipyards.

The 1920s saw continuing prosperity in Oakland.[22] Civic works abounded, including a new lighting system turned on by Charles Lindbergh, and land for an airport was purchased. Several automobile manufacturers located assembly plants in East Oakland, making Oakland "the Detroit of the West."[23] The city was proclaimed "One of the Nation's Richest, Greatest Communities" in 1929.

Development slowed during the Great Depression, but Oakland grew into a major shipbuilding center during World War II.[24] Henry J. Kaiser, the developer of the Kaiser Center, was influential in shipbuilding in area. In fact, the Kaiser Shipyards in Richmond were responsible for constructing more ships during World War II than any other shipyard in the United States.[25] The city expanded with wartime workers, including many African Americans who migrated from the south. The Bay Bridge, which opened in 1936, eased the commute to San Francisco and likely attracted more Oakland residents. In 1945, the city's population was 405,301.

After the war, the Port continued to grow, largely because of its ability to capitalize on the rise of containerized shipping. This shipping method favored the Port's large landholdings, spacious waterfront, and access to rail and truck transportation routes over the older, more crowded Port of San Francisco.[26] By the late 1960s, Oakland had the second largest container port in the world.[27]

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[19] Ibid., 1-8.
[20] Ibid.
[21] Florence B. Crocker, *Who Made Oakland?* (Oakland: Clyde Dalton, 1925), quoted in Rather, 87.
[22] Rather, 89.
[23] Historic Preservation Element, 1-8.
[24] *Ibid.*, 1-9.
[25] For more information on Henry Kaiser, please see **V. Historic Context, *F: Henry J. Kaiser, page 32.***
[26] Michael Corbett with Marjorie Dobkin and William Kostura. "National Register of Historic Places Registration Form: Port of San Francisco Embarcadero Historic District" (January 2006), 21.
[27] Corbett, 43.

Transportation has directly impacted Oakland's physical development. The postwar emphasis on the automobile led to the development of suburbs and new freeways to reach these outlying areas.[28] Freeway construction and redevelopment enticed or forced businesses and residents away from the city center and destroyed historic fabric in downtown and West Oakland.

In the 1970s, Oakland became the headquarters of the Bay Area Rapid Transit (BART) system.[29] A tight real estate market in San Francisco in the early 1980s sparked new development and preservation projects in Oakland, especially downtown.[30] Homebuyers began seriously considering Oakland neighborhoods, many of which retained strong local character.[31]

Although the 1989 Loma Prieta earthquake damaged many of Oakland's historically significant buildings, in recent years there has been an effort to attract residents to downtown, redevelopment projects have been undertaken around the city, crime has decreased, and homeownership has increased.[32]

B. Site History

Lake Merritt

Lake Merritt was originally a wide, tidal estuary known as Laguna Peralta. At low tide, the marsh would turn into a mud flat and due to its location on the Pacific Flyway; it was (and remains) a stopping place for thousands of migratory birds. In 1867, Dr. Samuel Merritt, then Mayor of Oakland, donated 155 acres of tidal water from the headwaters of Indian Slough to the City. It became known as Merritt's Lake and later Lake Merritt. In 1870 the area was declared a National Wildlife Refuge, said to be the first in North America. Merritt envisioned the estuary as a regular level lake, and proposed a dam at what is now 12th Street to reduce the tidal flow. Merritt had the dam constructed mostly with his own money, and later the lake was deepened by dredging and a retaining wall was built around the lake's perimeter. The road around the lake was paved some time between 1907 and 1915.

After the lake was dammed its shores became an attractive real estate location. By the 1860s to 1870s, the perimeter of the lake was home to the city's wealthy residents who had large houses and boat

[28] Historic Preservation Element, 1-9.
[29] Annalee Allen, *Oakland* (San Francisco: Arcadia Publishing, 2005), 109.
[30] Bagwell, 260-262.
[31] *Ibid*., 263.
[32] Historic Preservation Element, 1-9; Mayor Jerry Brown, "Oakland Now: State of the City Report 1999-2005" (Oakland: City of Oakland, 2006), 6, 8, 11.

houses on the lakeshore. The Camron-Stanford House was constructed in 1876 by Merritt and was one of the first of many stately homes that lined the lake.

College of the Holy Names

The subject property was first developed when the Convent of the Sacred Heart was constructed in 1868. Father Michael King, the priest of the Church of the Immaculate Conception, purchased the five-acre campus site in 1866 for $4,922.[33] Though the site on Lake Merritt was considered "far out in the country, wild and brush-covered," King envisioned a large convent and novitiate that would not fit on the city blocks near the church. Two years later, the two-and-a-half-story convent was built in time for the arrival of the Sisters of the Holy Names. An addition to the convent was constructed later that year; it likely contained additional living quarters and classrooms. In 1873, a four-story multi-purpose building was built to house the sisters' growing school, and a chapel was constructed in 1885.[34] An auditorium and music hall building was constructed in 1909.[35]



Figure 10. Sanborn Fire Insurance Map, 1899
Altered by author to show approximate boundaries of subject property

According to the 1889 Sanborn Fire Insurance Maps, the area surrounding the subject property was sparsely developed with residential buildings. The blocks to the south included one and two-story single family dwellings, the larger more ornate homes were located near the lake and included guest houses and boat houses. The blocks to the north included a three-story single family dwelling, a one-story dwelling, and three one-story shed buildings.

In 1903, the area surrounding the subject property remained sparsely developed. The 1903 Sanborn Fire Insurance Map indicates the proposed Harrison Street at the edge of Lake Merritt. The blocks to

[33] "Site of College of the Holy Names" (n.d.), 1.
[34] One article puts the construction date of the four-story building at 1871. ("Negotiations Start for Purchase of Holy Names College Lakeside Campus" (*Oakland Tribune*, n.d.))
[35] *Ibid.*

the north included an old water tankhouse and a two-story dwelling. The blocks to the south include elaborate single-family residences. The block to the east of Alice Street included a large parcel with a two-story single family dwelling, outhouse and servants building, playhouse, boat house, outbuildings, arbor, and ornamental gardens. The block to the west of Alice Street included one- and two-story single-family dwellings.

In 1912, the area surrounding the subject property was primarily residential, with some industrial uses west of Franklin Street. The blocks to the north included a three-story apartment building on Harrison Street, one and two-story single family dwellings, and a Home for the Aged of the Little Sisters of the Poor. The blocks to the south of the subject property were occupied by apartment buildings and single family homes.

According to the 1950 Sanborn Fire Insurance Maps, the area surrounding the subject property was occupied by a mixture of commercial and residential buildings. The block to the north included a Buick car dealership and car-related businesses including a gas station, and auto repair. The block also included a Federal government building, small offices, a store, and multiple family apartment buildings as well as single family homes and a boarding house.[36]

Purchase of the Kaiser Center Site

By the mid-1950s, the Holy Names campus was considered close to downtown. Various commercial interests began to discuss the potential of purchasing the site, which covered a large parcel over a city block in area.[37] On June 27, 1955, Kaiser Industries acquired the Holy Names site for a reported sum of $2,560,000.[38] Kaiser had based his headquarters in Oakland since 1921 and at the time of the acquisition the main office was located at 1924 Broadway. After the sale, the College of the Holy Names was relocated to a hillside site at Redwood Road and Mountain Boulevard. The Kaiser Center site was cleared beginning on June 24, 1957.

C. Design of the Kaiser Center

Kaiser Center Buildings

From the beginning, Henry J. Kaiser, the magnate of the Kaiser industrial empire, intended to consolidate the Kaiser offices located around Oakland. Welton Becket and Associates, a Los Angeles

[36] Sanborn Fire Insurance Map, Oakland, 1950, v 2, sheet 156.
[37] "Negotiations Start for Purchase of Holy Names College Lakeside Campus" (*Oakland Tribune*, n.d.)
[38] "Kaiser Buys College Site on Lake for Huge Project" (*Oakland Tribune*, June 28, 1955).

architecture firm that designed prominent office and hotel buildings, was hired as the project architect.[39] Welton Becket had recently designed Kaiser's Hawaiian Village, a resort in Honolulu, Hawaii; therefore the Kaiser Center appears to have been a continuation of their working relationship.

At the time of the commission, it had not been determined whether the Kaiser Center would be designed with a large footprint and low profile or as a tower.[40] In 1956, a model of the Kaiser Center was unveiled that showed the building configuration and design, including a twenty-five-story office tower and a hotel.[41] Kaiser had told Becket that the building should be "an outstanding piece of architecture…a showcase in the use of Kaiser products," and Becket complied.[42] The building employed 1,000 tons of anodized aluminum; 8,000 tons of steel; 60,000 cubic yards of concrete; 98,000 tons of aggregates and dolomite; and 250,000 yards of gypsum products from Kaiser Industries.[43] Aluminum alone was used in exterior curtain walls and as sheets, strips, fluted panels, and artwork.[44] As a result of these efforts, the Kaiser Center contained 80 percent Kaiser products or Kaiser raw materials.[45]

Kaiser Center Roof Garden [46]

The Kaiser Center roof garden is sometimes credited to Henry J. Kaiser, the magnate of the Kaiser industrial empire, who purportedly wanted a more pleasant view from his twenty-eighth-floor office than a rooftop parking lot. A later account credits Edgar F. Kaiser, Henry Kaiser's son, with the impetus for the garden as a semi-public park.[47] Edgar Kaiser had previously worked in a New York office that overlooked the Rockefeller Center roof gardens, and it is likely that his support of his father's idea helped make the roof garden a reality.

Whoever made the decision, it was made before construction on the Kaiser Center began; the top floor of the parking garage was not designed for parking, and plans for the garden were developed as early as 1956. References in Kaiser's papers include a proposal for a hotel overlooking a roof garden

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[39] Theodore Osmundson, Jr., "Kaiser Center Roof Garden" (*Landscape Architecture*, October 1962), 15; "I Want a Showcase" (*Oakland Tribune*, September 27, 1960), K-7.
[40] "Kaiser Buys College Site."
[41] "Raft Foundation for Kaiser Building" (*Oakland Tribune*, May 11, 1956).
[42] "I Want a Showcase" (*Oakland Tribune*, September 27, 1960), K-7.
[43] "Kaiser Center…A Kaiser Product" (Kaiser Center brochure, ca. 1964).
[44] Alfred Frankenstein, "Glass Curtain for Aluminum" (*San Francisco Chronicle*, September 27, 1960).
[45] "I Want a Showcase."
[46] Unless otherwise noted, all material in this section is drawn from the Historic American Landscape Survey (HALS) research material on the Kaiser Center Roof Garden.
[47] Theodore Osmundson, *Roof Gardens: History, Design, and Construction* (New York: W.W. Norton & Company, 1999), 92.

on the parking garage. A 1957 Kaiser press release announced that the garage roof would include an outdoor ice skating rink and an aluminum geodesic dome. The Oakland City Planning Commission approved the plans in April 1957. The Commission's approval was subject to three conditions, and the first two dealt with roof areas: "All roof areas up to and including the roof of the top floor will be properly landscaped…No tar and gravel roofs will be visible."[48] Perhaps as a tradeoff the commission granted variances on height and setback requirements, and part of Lake Merritt was filled for project-related street widening. However, regardless of the conditions placed on development, it appears the only roof area to be landscaped was the Kaiser Center Roof Garden.[49]

In 1956, the landscape firm Osmundson & Staley, that had previously completed work for Edgar Kaiser at his house in Lafayette, was recommended to design the roof garden. Osmundson & Staley assembled a project team that included Theodore Osmundson, John H. Staley, David Arbegast, John Sue, and Walt Guthrie.

Design of the Roof Garden

Associate David Arbegast served as the principal designer for the roof garden project. He produced twenty plans for the three-and-one-half-acre garden, which were reviewed by A. B. Ordway, Vice President of Kaiser Industries. Ordway was not in favor of the garden installation and rejected most of the original plans. Finally, he chose one design from the final three in 1959.

According to Staley, the garden plan was organized along a north-south axis running from the main garden entrance at the third floor of the 20th Street Mall across the reflecting pool to the central circular lawn and plaza.[50] The 16-inch-deep reflecting pool, which a 1960 *Oakland Tribune* article described as the approximate shape of Lake Merritt, was designed to contain water circulated by perimeter jets. Curving concrete walkways wound around the planting areas, which were mounded around the trees and in some lawn spaces.

All plans for landscaping, planting, grading, and irrigation were completed by John Sue. Sue added more graded mounds to Arbegast's original design, which was essentially flat save for mounds of soil around the trees. The garden's gently undulating landscape reflects this change. Sue left the firm before the garden installation was completed, and Walt Guthrie may have worked on the plans after Sue's departure from the firm.

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[48] "Initial Plans Approved for Giant Kaiser Center" (*Oakland Tribune*, April 11, 1957).
[49] No documentation was located which could clarify why only one of the three original conditions of approval was met.
[50] John Staley to Jack Rasmussen (KCI Public Relations, September 20, 1960), quoted in Historic American Landscape Survey (HALS) research material

Materials and Plants

Weight was a primary consideration in the roof garden design, as the Kaiser Center roof was not designed to support large loads. The roof had a load-bearing capacity of just 135 pounds per square foot, with a capacity of 15,000 pounds per square foot for the supporting columns and roof drains. To accommodate the limited capacity, a specialized version of the University of California's Basic Mix B (also called Soil Mix and Soiless) was developed by the U.C. Davis Soils Laboratory in concert with Osmundson & Staley. Developed to be lighter than ordinary soil and the original Basic Mix B, the mix substituted fine expanded shale for heavier sand. It also contained crushed lava rock, peat moss, and fertilizers. The soil mix proved effective at retaining air and water, maintaining an aerated growing medium.[51]

The load-bearing capacity affected the tree species chosen for the garden. The selected trees had fibrous root systems that can spread out horizontally. Forty-two olive, holly oak, Japanese maple, and southern magnolia trees were installed as "specimen trees" over load-bearing columns. Nearly 13,500 small flowering plants and shrubs in thirty varieties were planted around the garden.[52] Plants included 1,800 small shrubs (such as rhododendrons and azaleas), 735 rose bushes, and 10,700 ground cover plants.

The concrete paving, which covers about 30,000 square feet, was composed of lightweight materials with a surface of exposed Kaiser river gravel stained black with oxide. Benches in the garden were made of lightweight cement with white Kaiser Dolomite aggregate at the surface. The twenty-four large boulders included in the garden are lightweight pumice stone.

The garden was originally lit at night with walk lights, pedestal lights, and mercury vapor lights that highlighted the trees. Automatic underground irrigation was controlled by timers.[53]

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[51] Osmundson, *Roof Gardens*, 172.
[52] "Kaiser Center Features Aeriel [sic] Garden."
[53] "The View from Above" (*Architectural Review*, February 1964), 144.

Construction

John Staley supervised the roof garden installation. Loose construction materials such as soils and wet concrete were lifted by a construction elevator that filled vehicles waiting on the roof. Heavy equipment was restricted to paths on the grid line of supporting columns, and tractors, loaders, and spreaders were required to have rubber tires.



Figure 11. Kaiser Center Roof Garden, ca. 1960. Kaiser Center Archives

After the basic garden design was laid out on the roof's concrete surface, the garden was built up with layers of materials. Concrete forms were poured for elements such as the pond curbs. A four-inch layer of lightweight aggregate drain rock was spread over the entire roof surface to facilitate drainage. A filter layer of rice straw covered the rock layer, holding the soil in place until a natural structure developed.[54] Normal topsoil was used to cover relatively shallow areas such as lawns, which were six inches deep.[55] The lightweight U.C. mix was used to build the rolling landscape and tree mounds to depths of thirty inches.[56] Together, these soil types constituted six thousand cubic yards of fill. After plants were installed, fir bark chips were spread over planting beds and ground cover.

Drainage was an important consideration. Every other supporting column contained a downspout that led to a storm sewer in the basement.[57] When the garden was installed, the existing roof drains were extended upward to be flush with the roof garden grade. Where that was not possible, a new catch basin was installed at the low point and the water was piped to a roof drain.

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[54] Ibid.
[55] Ibid., 93.
[56] "Landscaping is distinctive" (*Oakland Tribune*, September 27, 1960), 32-K.
[57] Osmundson, "Kaiser Center Roof Garden."

Cranes lifted trees to the roof. The trees were placed over supporting columns, as these were the only places that could support their weight. They were planted in their plank delivery boxes, which formed part of a wood subsurface bracing system that made visible guylines unnecessary. The designers expected a natural subsurface system to stabilize the trees by the time the bracing decayed.

The 3½-acre roof garden atop the parking garage opened to the public on October 3, 1960.[58] One reporter marveled, "One has no sense of being on a roof at all, but in a small park from which the immense, skyward lunge of Becket's building can be seen…"[59] The Kaiser Center roof garden received early recognition: in 1962, the American Society of Landscape Architects awarded the garden the Industrial Landscape Design award.[60] The garden was documented by a variety of publications, including *Sunset* magazine, *Landscape Architecture*, and *Landscape Design and Construction.* Overall, the garden was highly regarded by landscape architects, and was the center piece of the Kaiser Center complex.

[58] "'Park in the Sky' to Open at Kaiser Center" (*Oakland Tribune*, October 2, 1960).
[59] Frankenstein.
[60] Osmundson, "Kaiser Center Roof Garden."

D. Construction Chronology

Kaiser Center Buildings

Construction of the steel-frame, aluminum-and-glass-clad Kaiser Center began in May 1958 and was completed in late 1959.[61] Final construction costs reached $46 million, and Henry Kaiser could boast of having the largest building west of Chicago, with 976,000 square feet of space.[62] The first employees moved into the office tower on December 20, 1959.[63] The Kaiser Center officially opened on September 27, 1960.[64] It included a twenty-eight-story office tower, with three basement levels; a three-story department store; and a five-level, 1,200-car parking garage.



Figure 12. Kaiser Center, ca. 1960. Kaiser Center Archives

Ordway Building

By 1967, the growth of the Kaiser industries created the need for additional office space.[65] An office tower was planned to the north of the existing tower. The twenty-eight-story new tower was called the Ordway Building after A. B. Ordway, the vice president of Kaiser Industries.[66] Designed by Skidmore, Owings & Merrill, construction of the Ordway Building began in 1968 and was completed in 1970. The building cost $30 million and, like the Kaiser Center, employed Kaiser products extensively.[67]

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[61] "Kaiser Center" (likely Kaiser publication, received in Oakland Public Library on August 14, 1959); "Twenty-Eight Stories High" (*Oakland Tribune*, January 7, 1959); "New Kaiser Center" (*San Francisco Examiner*, August 27, 1959).
[62] "New Kaiser Center"; "Glass Curtain for Aluminum" (*San Francisco Chronicle*, September 27, 1960); "Gross Area Near Million Square Feet" (*Christian Science Monitor*, October 16, 1959).
[63] "Kaiser Starts Move to New Headquarters" (*Oakland Tribune*, December 20, 1959).
[64] "Glass Curtain for Aluminum."
[65] "City Hails Kaiser's New High Rise" (*Oakland Tribune*, August 20, 1967).
[66] "A. B. Ordway Opens New Building Named for Him" (*Oakland Tribune*, February 28, 1971).
[67] "New Kaiser Tower – 28 Stories High" (*Oakland Tribune*, September 5, 1968); "Pedestrian Bridge" (*Oakland Tribune*, August 9, 1970); "Ordway Building Vital Statistics" (*Oakland Tribune*, February 28, 1971).

Master Plans

Even before the Ordway Building opened, the consulting firm of Cushman & Wakefield was engaged to prepare a long-range plan for the Kaiser Center.[68] The plan, released in early 1971, recommended an $85 million expansion project including a third office tower, motor hotel, engineering center, and a combined industrial museum and library.[69] No new construction resulted from the Cushman & Wakefield plan, likely due to an economic slowdown.

More master plans were developed for the Kaiser Center complex in 1982 and 1987. Both master plans saw a natural growth for an office campus in the form of additional skyscraper office towers connected with pedestrian walkways, roof top gardens, and sky bridges. According to the 1987 document, "The Master Plan builds on the unique quality of the existing complex and provides the framework to make Kaiser Center one of the world's finest corporate urban centers."[70]

The 1987 Master Plan completed by David Stringer & Associates of Honolulu, Hawaii called for the addition of four major towers connected to the existing Kaiser Center with a large pedestrian plaza. The Master Plan recommended closing vehicular access to 21st, 22nd, and Kaiser Plaza and creating the Kaiser Center as a pedestrian-oriented office park. The Ordway Building, at the center of the planned development, was envisioned to become the focus of the plaza. In addition to new construction, the Master Plan also called for the remodeling of the Mall Buildings. However, these master plans were never realized.



Figure 13. Master Plan Model, 1986. Kaiser Center Archives

[68] John Dengel, "Kaiser Plans Major Expansion" (*Oakland Tribune*, April 28, 1970).
[69] Bill Martin, "Kaiser Maps $85 Million Expansion" (*Oakland Tribune*, February 28, 1971).
[70] Kaiser Center, Inc., *Kaiser Center Master Plan.* 1986.

Later Alterations

In the 1990s, the lobby of the office tower was renovated according to designs by Charles F. Jennings, Architect. The lobby renovations included new marble wall cladding, removal of the aluminum finishes in the elevators, enclosures for the escalators, the insertion of a new circular fountain in the escalator enclosure, and the replacement of hanging pendant lighting fixtures in the lobby and first floor retail at the office tower.

In 2003, Summit Commercial, a Los Angeles real estate company, acquired the Kaiser Center for $100 million.[71] Swig Company of San Francisco purchased the Kaiser Center in 2005 for $200 million.[72] The Kaiser Center remains in use as a commercial complex with a central office tower with retail at the first floor, a three-and-four-story parking garage with Roof Garden, and two Mall Buildings with retail and office space.

Mall Buildings

Designed for the White House Department Store, the Mall Buildings were vacated by the original tenant early in their history; the White House was replaced by the Joseph Magnin Department Store in 1961. In 1965, the Joseph Magnin Department Store was replaced by multiple tenants. After the Loma Prieta Earthquake, repairs and cosmetic changes were made to the Mall Buildings. Charles F. Jennings, Architect designed the alterations which included aluminum covers over the columns; granite veneer tile, aluminum fins and canopies above the entries of both buildings; and a new pyramidal roof above a portion of the 20th Street Mall Building. Over time the Mall Buildings have been occupied by retail shops, an airline center, banks, restaurants, and office space. Due to the changes in use, the Mall Buildings have undergone significant interior alterations due to tenant improvements.

20th Street Mall

According to building permits, tenant improvements affecting the interior of the 20th Street Mall took place in 1965, 1966, 1978, 1981, 1989, 1990, 1993. Such extensive interior remodeling is characteristic of commercial spaces that commonly change use over time. Exterior alterations at 344 20th Street took place as early as 1966, when the owners received a permit to install new canopies at 20th Street, Webster Street, and the Driveway entry. In April 1966, the owners received a permit to

[71] "Oakland's Landmark Kaiser Center Is Sold" (*San Francisco Chronicle*, March 19, 2003).
[72] "Swig Co. of S.F. Acquires Kaiser Center in Oakland" (*San Francisco Chronicle*, June 16, 2005).

add new windows at the 3rd floor. Both of the 1966 improvements were designed by Welton Becket and constructed by MacDonald & Nelson, builders.

The 20th Street Mall Building was damaged in the 1989 Loma Prieta Earthquake and exterior changes included the repair and replacement of elements damaged in the earthquake. These damaged elements included: exterior soffits, the trellis at the roof of the 20th Street Mall, and a stairwell.

Webster Street Mall

According to building permits, tenant improvements affecting the interior of the Webster Street Mall took place in 1961, 1963, 1972, 1979, 1981, 1985, 1986, 1987, 1991. According to building permits, the 20th Street Mall underwent exterior changes as early as 1961 when the building was remodeled by architect Victor Gruen to serve as the Joseph Magnin department store. The owners received a permit to remove existing glass windows in 1981. In 1982, the owners received a permit to insert automatic teller machines (ATMs) into the exterior walls.

Kaiser Center Roof Garden

The original design included a semicircular wood and aluminum garden shelter and an aluminum and concrete bridge across the reflecting pool. These elements were not built when the garden was installed in 1960. A wooden bridge was constructed across the pool sometime between 1973 and 1975.

Around 1967, an interpretive sign was installed showing the garden plan and a list of plants. In 1974, a storage shed was added to the HVAC and elevator housing building. A handicap access ramp may have been added at that time. The 1989 Loma Prieta earthquake damaged some garden walks, which were repaired.[73] A few trees have been replaced.[74]

E. Office Center Development on Lake Merritt

The construction of the Kaiser Center marked the beginning of the expansion of the city's office center from downtown Oakland to the shores of Lake Merritt. Prior to the Kaiser Center, nearly all large commercial buildings were centered on Broadway and between 11th and 20th Streets.

[73] Osmundson, *Roof Gardens*, 171.
[74] *Ibid*., 171.

According to the *Architect & Engineer*, "Kaiser Center, just southeast of downtown, is in itself a second skyline slightly stronger than the first."[75] The Kaiser Center marked the first development of modern high-rise office towers on the northwest shore of Lake Merritt. The Ordway Building (1970), also constructed by Kaiser was built across Merritt View Place from the Kaiser Center, and the buildings were connected by a sky bridge. Other modern office buildings were constructed in the area including the twenty-seven-story Lake Merritt Plaza (1986) at 1999 Harrison Street, and a number of skyscraper office buildings dating from the 1970s to the 1990s, including the twenty-five-story Kaiser Engineering Building (1984) and the twenty-story Pacific Bell Building (1985), are located on prominent intersections in the immediate area.

F. Henry J. Kaiser

Henry J. Kaiser was born to German immigrants on May 9, 1882 on a farm in upstate New York.[76] Kaiser grew up as the youngest of four children, and the only boy. He quit school at age 13 and found a job at a dry-goods store in a nearby town. Three years later, he began working in a photography studio, and invested in his own studio in Lake Placid, New York, in 1901. At the age of 19, he moved to Florida, where he managed several photography studios until his future father-in-law, lumberman Edgar Fosburgh, commanded him to go west in 1906. Kaiser, hoping for the hand of Bess Fosburgh after he had established himself in a more "substantial" business than photography, went west.

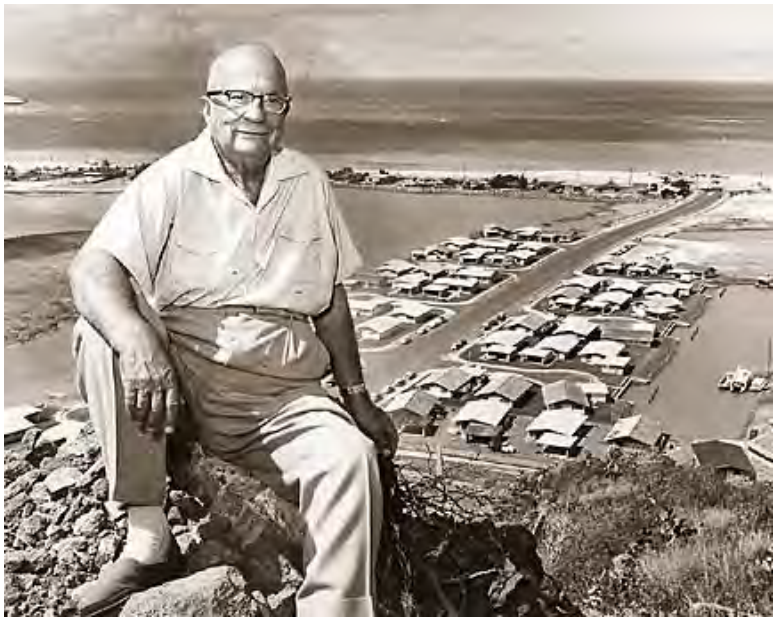


Figure 14. Henry J. Kaiser, *Honolulu Star Bulletin*

He landed in a hardware store in Spokane, where he worked for four years. Kaiser and Bess Fosburgh were married in 1907, and their son Edgar was born in 1908. In 1910, Kaiser joined a fuel company, then a construction company in

[75] "Lakeside Colossus," *Western Architect and Engineer* 1.1 (December 1960): 17.
[76] Mark S. Foster, *Henry J. Kaiser: Builder in the Modern American West* (Austin, TX: University of Texas Press, 1989).

1911. The construction company built roads, providing Kaiser with the experience he would need to open a road-paving contracting business in Vancouver in 1914.

It was a good time to be in the paving business. The U.S. passed a federal highway bill in 1916, creating the beginning of the national highway system. State and local governments followed the national lead and funded many road improvements, especially in areas beyond town limits where roads were often rutted and unpaved. Americans bought cars and took to the open road in droves. Kaiser prioritized speed, quality, and constant improvement in his work and soon won paving contracts in Washington, Oregon, California, and even Cuba. In 1921 he located the headquarters of his growing company in Oakland, California.

By the late 1920s, Kaiser won contracts to lay pipeline for natural gas companies in the southern Great Plains. He also began building dams, steady business during the otherwise bleak Depression-era economy. His first project was the Hoover Dam; later, he was involved in building the footings for the Bay Bridge.

After Kaiser lost the contract for the Shasta Dam in 1938, he launched a cement company to provide the raw materials for building the dam. This was his first foray into manufacturing durable goods. By 1942, when World War II broke out, he was preparing to compete in magnesium, steel, aircraft, and shipping.

Kaiser opened shipyards in Richmond, California and Portland, Oregon in 1940 and 1941, with yards built at Ryan Point in Vancouver, Washington and Swan Island in Portland, Oregon in 1942. The shipyards first built British ships but later turned out American ships at a prodigious rate, launching one Liberty Ship per month out of Richmond. Competition between the Kaiser shipyards helped break production records, and improvements in shipbuilding techniques also contributed. Kaiser further developed the British subassembly method of prefabricating parts of ships apart from the ship's hull. He also took lessons from the Ford assembly method to achieve greater efficiency and worker productivity. Furthermore, to help meet the demand for steel for shipbuilding, Kaiser moved into the steel business.

Kaiser anticipated peacetime needs and quickly moved to adapt his wartime ventures to meeting those needs. His steel plant produced overtime, shipping steel to Los Angeles and San Francisco. In 1945, the Kaiser Permanente Medical Care Program which was formerly offered to shipyard workers, opened enrollment to the general public. Kaiser began constructing steel-frame homes through

Kaiser Community Homes, a project that lasted only a few years. He coordinated the manufacture of automobiles and cargo planes, increased magnesium production, and launched a successful aluminum business.

In 1954, Henry Kaiser moved to Hawaii, where he became involved in building hotels, beaches, a new city, a hospital, and a cement plant. He also invested in radio and television in the islands. Edgar F. Kaiser took over the management of the Kaiser empire when his father "retired" to Hawaii.[77] Henry Kaiser died in 1967, but the success of Kaiser Industries continued. By the early 1980s, Kaiser Companies were successful multi-national businesses with highly diversified interests ranging from aluminum and steel to engineering to television broadcasting to real estate development.

G. Welton Becket

Welton Becket was born in Seattle on August 8, 1902.[78] He was determined to be an architect at an early age, and studied architecture at the University of Washington. After his graduation in 1927, Welton Becket studied at the École des Beaux Arts, Fontainebleau, for a year, and then worked several years as a junior designer for firms in Los Angeles and Seattle. He settled in Los Angeles permanently in 1933, forming a partnership with established Los Angeles architect Charles F. Plummer and Washington classmate Walter Wurdeman. The trio gained considerable local publicity with their design for the Pan Pacific Auditorium in 1935, which won a large international competition and facilitated their entry into Hollywood film circles. The following years saw a series of residential commissions for movie stars such as James Cagney, Cesar Romero, and Robert Montgomery. These were generally executed in traditional Period Revival styles.

Incorporated as Wurdeman and Becket after Plummer's death in 1939, the firm prospered and expanded during the World War II era, completing public housing and defense projects and positioning themselves well for the region's post-war construction boom. A commission to build the widely-publicized House of Tomorrow in 1943 in Los Angeles helped highlight the firm.

[77] "Edgar F. Kaiser, 1908-1981" (Oakland Symphony Program, February 1982).
[78] William Dudley Hunt, Jr., *Total Design* (San Francisco: McGraw-Hill Book Company, 1972).

Now focused on larger commercial and office projects, Wurdeman and Becket's work of the mid- to late-1940s took on aspects of the Late Moderne and International styles. Their best-known commissions included Bullock's Department Store in Pasadena (1944) and office buildings for General Petroleum (1946) and Prudential Insurance (1947) in Los Angeles. These projects soon led to others as the firm expanded its reputation, capacity, and experience in designing many building types.

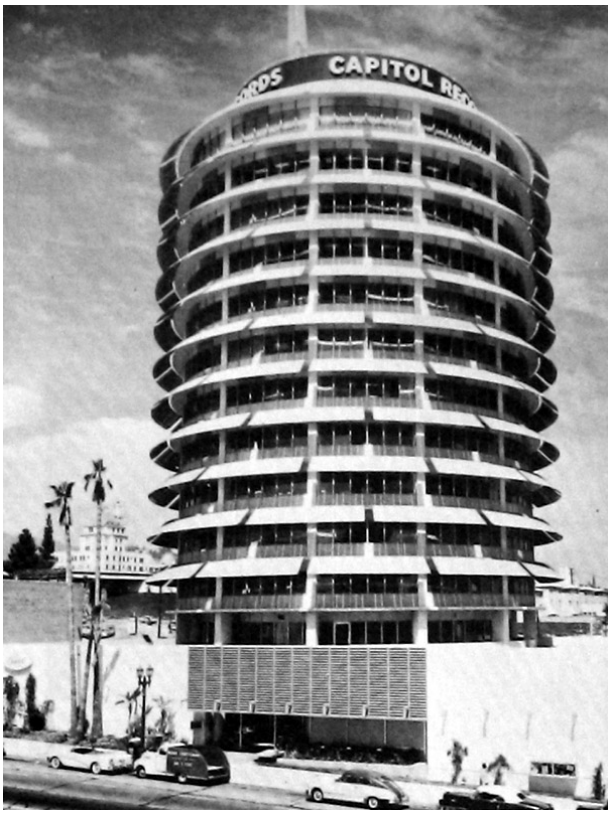


Figure 15. Capitol Records Building.
***Progressive Architecture*.**

Following Wurdeman's untimely death in 1949, Becket took over sole leadership of the firm as Welton Becket and Associates. It grew to be one of the largest architectural firms in the United States, with headquarters in Los Angeles and offices in San Francisco, New York, Houston, and Chicago. Welton Becket and Associates completed numerous high-profile projects around Los Angeles, including such icons of mid-twentieth century Modernism as the Capitol Records Building (1954-56) and the Cinerama Dome, the world's first concrete geodesic dome (1963-1964). The firm was also responsible for the Beverly Hilton Hotel (1955), Memorial Sports Arena (1959), Los Angeles International Airport Theme Building (1962, with Pereira & Luckman and Paul R. Williams), and the Federal Office Building in Los Angeles (1966, with Paul R. Williams and A.C. Martin & Associates).

In addition to the Kaiser Center, commissions in the San Francisco Bay Area included a variety of building types, primarily office buildings and shopping centers. Office buildings in San Francisco include the Bethlehem Steel Company Headquarters Building at 100 California Street (1959) and the Aetna Life and Casualty Company Building at 600 Market Street (1969). The Stonestown Mall, the firm's first shopping center, was located in San Francisco. Stonestown Mall was designed in 1949 and "pioneered the concept of the large regional shopping center with stores clustered around a central

mall."[79] The Hillsdale Shopping Center in San Mateo was completed in stages during 1954-1967. Despite later alterations, the Hillsdale Shopping Center retains its original pedestrian mall. The Stanford Shopping Center in Stanford was completed in 1957. The Serramonte Center in Daly City (1967) was a contemporary suburban shopping center which features an enclosed, pedestrian mall. Other commissions in the Bay Area included 'The Meadows,' a planned unit development in Lucas Valley, Marin County (1965); and the Cathedral at the Crossroads in Castro Valley, Alameda County (1969).

Welton Becket was named master planner for UCLA in 1948 and continued as supervising architect for the campus until 1968. At UCLA, Becket worked closely with Ralph D. Cornell (later Cornell, Bridgers and Troller), supervising landscape architect for the campus, and the companies collaborated on a number of independent projects, such as the Pomona Civic Center and the Ford Motor Company in Dearborn, Michigan.

While working with Walter Wurdeman in the 1930s, Becket embraced the philosophy of "total design," which guided the firm's approach thereafter. He encouraged clients to allow the firm to control all aspects of a design, including master/site planning, engineering, all interior work, finishes, fixtures, and landscaping, so that a unified and coherent building would be achieved.

Becket died in 1969, and his son MacDonald Becket assumed leadership of the firm. In 1987, Ellerbe Associates acquired Welton Becket Inc. to become Ellerbe Becket Inc. The firm continues today as Ellerbe-Becket.[80]

H. Theodore Osmundson, Landscape Architect

Theodore Osmundson received a degree in Landscape Architecture from Iowa State University in 1943. Along with Douglas Baylis, Robert Royston, and Lawrence Halprin, Osmundson worked in the office of Thomas Church in San Francisco in the 1940s and was a part of the first generation of Bay Area modern landscape architects. In the 1950s, he became a partner in the firm of Osmundson & Staley of Berkeley. In the 1960s, Osmundson and his son, Gordon, were principals in the firm Theodore Osmundson & Associates. Osmundson's projects included urban parks, institutional grounds, residences, and office parks. In addition to the Kaiser Center Roof Garden, likely his most

[79] Ibid, 13.
[80] This biography is excerpted from the Historic American Building Survey of the Los Angeles Music Center prepared by Teresa Grimes. It was obtained through the Music Center/Performing Arts Center of Los Angeles County (http://www.musiccenter.org/about/wb.html, accessed June 16, 2008).

important commission, Osmundson also designed the roof garden for the Standard Oil Building in San Francisco, the roof garden for the Pacific Telephone and Telegraph Company in Sacramento; Marine World in Redwood City; and a master plan for the California State University, Chico campus. In 1967, he was elected president of the American Society of Landscape Architects (ASLA), and was the youngest person at that time to assume the responsibility. He served as ASLA president until 1979. He received the ASLA medal in 1983 and the ASLA president's medal in 1987. He has taught at the University of California at Berkeley and Harvard and has lectured extensively. Publications by Osmundson include major sections of the *Reader's Digest Practical Guide to Home Landscaping* 1972, "Roof and Deck Landscapes" in *Time-Saver Standards* (1988), *Roof Gardens* (1990), and many articles in *Landscape Architecture*.[81] In 1999, Osmundson's book *Roof Gardens: History, Design, and Construction* was published.

I. Modern Office Towers

After World War II as before the war, office towers in America continued to search for new heights. The corporate world of post-War America, which had been spurred on by new ideas and innovation, manifested itself in unabashedly modern glass and steel towers. The masonry cladding and exuberant ornamentation which was common in earlier office buildings such as the Empire State Building in New York City (1931) and the Tribune Tower in Oakland (1923) was replaced by glazed curtain walls and a Modern design aesthetic which eschewed nearly all ornamentation. The forward-looking designs conjured up efficiency, cleanliness, organization and standardization, and were considered suitable icons for 1950s corporate America.



Figure 16. Crown Zellerbach Building, ca. 1959.
National Trust Guide: San Francisco

[81] William A. Mann, *Landscape Architecture: An Illustrated History in Timelines, Site Plans, and Biography* (Hoboken, NJ: John Wiley & Sons, 1993), 360.

The Lever House (1951) designed by Gordon Bunshaft of Skidmore, Owings, and Merrill in New York City was an early archetypal example of the International style commercial high rise. The building featured many elements characteristic of the Modern style. The building included a podium for its mezzanine offices, which created a courtyard at the ground level. The main slab of the building rose vertically, clad in glass and chrome. The building had nearly identical fenestration; the only variation was the expression of mechanical areas with a different glazing pattern. Common variations of commercial skyscrapers included *pilotis* or structural columns at the first floor, effectively raising the volume and creating a courtyard area; and concrete or aggregate panel cladding, especially at secondary façades.

Modern Office Towers in the San Francisco Bay Area

The San Francisco Bay Area followed the commercial office tower trend during the post-war era as evidenced by the number of Modern skyscrapers constructed in the area. One of the earliest and most significant commercial buildings constructed during this time in San Francisco's Financial District was the Crown Zellerbach Building at 1 Bush at Market Street which was completed in 1959, the same year as the Kaiser Center. Designed by Hertzka & Knowles and Skidmore, Owings, and Merrill, the nineteen-story building was the first International style glass curtain wall tower in San Francisco. The services were located in a mosaic tile clad tower. Utilities, elevators, and stairways were located in the attached service tower which allowed the office floors to be entirely open and free of columns. The building is set in a triangular landscaped plaza with a circular one-story building used for branch bank operations.

Like many office buildings across the United States including the Kaiser Center, the Crown Zellerbach building followed the basic tenets of Modern office building architecture and exhibited common design features, such as a park-like landscaped plaza, columns at the first floor elevating the mass of the building, geometrical massing, an emphasis on verticality, glass curtain walls with uniform bays, sparingly used masonry veneer cladding, and relatively few decorative details.

J. Modern Bay Area Landscape Architecture

In the late 1930s and 1940s, a group of landscape architects led by Thomas Church began to formalize the practice of landscape architecture in the San Francisco Bay Area. The first generation of Bay Area modern landscape architects included Church, Robert Royston, Dan Kiley, James Rose, and Garret Eckbo, as well as Douglas Baylis, Robert Royston, and Lawrence Halprin, and Theodore Osmundson, who all worked in the office of Thomas Church in San Francisco in the 1940s.

The influence of Thomas Church and his contemporaries led to the creation of the California Style, which continues to dominate the practice of modern landscape architecture in the Bay Area. The California Style emphasizes the concept of indoor/outdoor living achieved by gardens that "appeared as subtle extensions of the architecture into the landscape."[82] Modern landscape designs in the Bay Area were created in attempts to unite aesthetic and functional requirements to provide useable landscaped spaces for inhabitants. This concept broke with the tradition of earlier garden design history, where designers often focused on collections of species and aesthetics, instead of functionality and space.[83] Typical characteristics of modern landscape design include: the use of simple materials such as brick and concrete, geometrically-shaped lawns, curvilinear paths, the use of undulating topography to create movement through the site, hierarchical circulation, terraces, trimmed hedges, shrubs, specimen trees, and pools.[84]

The majority of the designs by modern landscape architects in the early years of the movement were for private residential gardens. However, as the influence of modern landscape architecture and the California Style dispersed, modern landscape architects were commissioned to design larger-scale projects for institutional clients including universities, cities, and private companies such as Kaiser.

[82] Dorothee Imbert, "Thomas Church: Defining Styles—The Early Years" *Studies in the History of Gardens & Designed Landscapes* vol. 20(2) (Summer 2000), 96.
[83] Marc Treib, "Introduction" *Studies in the History of Gardens & Designed Landscapes* vol. 20(2) (Summer 2000), 93.
[84] Imbert, 103.

VI. EVALUATION

A. California Register of Historical Resources

The California Register of Historical Resources (California Register) is an inventory of significant architectural, archaeological and historical resources in the State of California. Resources can be listed in the California Register through a number of methods. State Historical Landmarks and National Register-eligible properties are automatically listed on the California Register.[85] Properties can also be nominated to the California Register by local governments, private organizations or citizens. This includes properties identified in historical resource surveys with Status Codes of 1 to 5 and resources designated as local landmarks through city or county ordinances. The evaluative criteria used by the California Register for determining eligibility are closely based on those developed for use by the National Park Service for the National Register. In order for a property to be eligible for listing in the California Register, it must be found significant under one or more of the following criteria:

> *Criterion 1 (Event)*: Resources that are associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States.
>
> *Criterion 2 (Persons)*: Resources that are associated with the lives of persons important to local, California, or national history.
>
> *Criterion 3 (Architecture)*: Resources that embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of a master, or possess high artistic values.
>
> *Criterion 4 (Information Potential)*: Resources or sites that have yielded or have the potential to yield information important to the prehistory or history of the local area, California or the nation.

Criterion 1 (Events)

The Kaiser Center appears to be eligible under Criterion 1 (Events) as a complex that reflects "events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States." In this case, the event is the influence of the Kaiser Industries on the history of California and the West Coast. As the only remaining headquarters building of Kaiser Industries, the multinational corporation that influenced the World War II war effort, infrastructure in California, and throughout the West Coast, and changed the health care industry, the Kaiser Center is a significant landmark testifying to an important industrial

[85] National Register-eligible properties include properties that have been listed on the National Register, and properties that have formally been found eligible for listing.

institution that helped Oakland remain a significant site of commercial and industrial activities in the post-War era.

The complex is also significant as a reminder of the expansion of Oakland's Downtown office core to include Grand Avenue and Lake Merritt. The Kaiser Center led the expansion of the downtown office core to include Lake Merritt. The Kaiser Center was the first modern commercial skyscraper complex to be located on Lake Merritt. Other modern office towers were located on the lake, including the Ordway Building (1970), the twenty-seven-story Lake Merritt Plaza (1986) at 1999 Harrison Street, and a number of skyscraper office buildings dating from the 1970s to the 1990s which are located on prominent intersections in the immediate area.

Criterion 2 (Persons)

The Kaiser Center appears eligible for the California Register under Criterion 2 (Persons) for its association with Henry J. Kaiser. Kaiser is significant as an innovative industrialist with a larger than life personality who built more ships than any other builder during World War II, completed massive construction projects like the Hoover Dam, headed the first company to manufacture steel on the West Coast, and developed a health care organization for workers that became a model for Health Maintenance Organizations (HMOs) across the country. Kaiser was influential in the design of the Kaiser Center; purportedly telling the management team and the architects to "double it" when asked his opinion of the proposed size of the building. Kaiser is also frequently credited for the creation of the roof garden. Additionally, Kaiser held his offices, where he oversaw his multitude of companies and had an apartment at the 27th floor of the building. While many of Kaiser's industrial buildings, such as the shipyards in Richmond, and Portland, Oregon, and ten Kaiser Aluminum fabrication facilities still exist in the United States, the Kaiser Center in Oakland is the only remaining corporate headquarters connected to Kaiser Industries. Kaiser's earlier Oakland headquarters building, at 1924 Broadway, was demolished in the 1990s and therefore the Kaiser Center is an important building that expresses the importance of Oakland as the world headquarters of Kaiser Industries.

Criterion 3 (Architecture)

The Kaiser Center appears eligible for the California Register under Criterion 3 for embodying the distinctive characteristics of the Modern style. The Kaiser Center is a well-preserved example of the style as applied to a corporate headquarters complex. Characteristic features of the complex include its variety of building types: office tower, retail wings, and parking garage all designed as a coordinated whole; its site in a landscaped plaza with views to Lake Merritt. The complex appears as a strong horizontal base that is contrasted by a vertical office tower. The office tower features

structural piers elevating the building's mass above the plaza, a mezzanine podium at the base, a T-shaped plan, a sweeping curved façade, flat roof, polychrome aluminum and glazed wall surfaces, aggregate concrete panels at secondary facades, and standardized bays with little variation. The Mall Buildings are completed in the same style and feature rectangular plans, flat roofs, structural piers elevating the building's mass above the first floor, and dolomite panel cladding. The materials used throughout the complex were selected to showcase the variety of Kaiser manufactured materials including aluminum and dolomite.

The Kaiser Center is also important as a designed office and retail complex, with an office tower, retail, landscaped open space, and parking incorporated on one site. Kaiser's headquarters was not envisioned as solely an office building, but as a group of associated buildings and landscapes that were intended to be used by both Kaiser Industries employees and Oakland community members.

In addition to being an example of a type, the Kaiser Center is also significant as the work of a master, Welton Becket & Associates. Welton Becket & Associates was an important modernist architecture firm working throughout the United States. The firm specialized in corporate headquarters, hotels, and cultural centers and was the largest architecture firm in the United States in the 1950s. The Kaiser Center is an excellent example of Welton Becket's work for corporate clients, who relied upon the firm to embody the corporation's philosophy in physical form. Welton Becket's design for the Kaiser Center showcases not only the materials produced by Kaiser Industries but also the characteristics Kaiser Industries were known for: innovation, in the use of a curved façade; and concern for employee well-being embodied in the inclusion of a roof garden.

The roof garden is significant for its design and as the largest contiguous roof garden in North America at the time of its construction. The garden features many of the hallmarks of modern landscape design including undulating topography, curvilinear pathways, geometrically shaped lawns, simple materials such as concrete pathways, planters, and benches; trimmed hedges, shrubs, specimen trees, and an asymmetrical pool. The design by Osmundson & Staley is indicative of the Bay Area Modern landscape architecture popularized by designers such as Thomas Church, Robert Royston, and Lawrence Halprin. The Kaiser Center roof garden by Osmundson & Staley exemplifies the mid-century California Style first popularized by Church and his contemporaries in the 1940s. The California Style emphasized the importance of indoor/outdoor living and relied heavily on a modern landscape architectural vocabulary to achieve this effect. The decision to include a roof garden as part of the Kaiser Center complex marked an important recognition of the potential of the roof garden to create a more healthful and attractive office environment within the city.

Criterion 4 (Information Potential)

The analysis of the Kaiser Center for eligibility under California Register Criterion 4 (Information Potential) is beyond the scope of this report. This Criterion is typically reserved for archeological resources, and therefore it is not evaluated as part of this report.

Integrity

The process of determining integrity is similar for both the California Register and the National Register. The California Register uses the same seven variables, or aspects of a property, to define integrity as the National Register: location, design, setting, materials, workmanship, feeling and association. According to the National Register Bulletin, *How to Apply the National Register Criteria for Evaluation*, these seven aspects of integrity are defined as follows:

- **Location** is the place where the historic property was constructed.
- **Design** is the combination of elements that create the form, plans, space, structure and style of the property.
- **Setting** addresses the physical environment of the historic property inclusive of the landscape and spatial relationships of the building/s.
- **Materials** refer to the physical elements that were combined or deposited during a particular period of time and in a particular pattern of configuration to form the historic property.
- **Workmanship** is the physical evidence of the crafts of a particular culture or people during any given period in history.
- **Feeling** is the property's expression of the aesthetic or historic sense of a particular period of time.
- **Association** is the direct link between an important historic event or person and a historic property.

The Kaiser Center

Office Tower

The Kaiser Center office tower retains a high degree of integrity of location, setting, design, materials, workmanship, feeling, and association. The property remains situated on its original lot with the same access pattern, site layout, and designed and natural landscape features as when the building was first constructed. The driveway, access walks, rooftop garden, and foot paths around the property remain largely unchanged, or with similar designs in new materials.

The building has had minimal modifications to the exterior since construction. The office building retains original exterior finishes and materials. The building remains in office use, and retains the appearance and feeling of a mid twentieth-century Modern office building. The lobby underwent a renovation in the mid-1990s and many changes were made including the replacement of wall cladding, enclosing the escalator and inserting a new circular fountain, new lighting, and interpretive panels. Despite these changes, the lobby's double height space, second floor mezzanine, and central escalator retain a sense of the original space. The majority of the tower's public spaces have been retained other than the original cafeteria space which has been converted to tenant office space. The interior public spaces, such as hallways, have retained many character-defining features including polished stone paneled walls or terrazzo walls, terrazzo floors, spray acoustical ceilings, glazed aluminum storefronts and period hardware. The interior of the office spaces have been altered over time to accommodate tenant needs. However, the offices retain the characteristic curve, and the windows and exterior walls remain unchanged. Some of the offices retain original features such as aluminum partition wall systems, ribbed aluminum doors, and perforated aluminum ceiling tiles.

Mall Buildings

The Mall Buildings retain a high degree of integrity of location, setting, design, workmanship, feeling, and association. The Mall Buildings remain in their original location and their setting remains intact. The interior of the buildings have been substantially altered due to tenant improvements, but the exterior of the buildings have undergone few substantial alterations which were typically limited to storefront alterations, changes in signage, and the installation of ornament above the entrances. Overall, the Mall Buildings retain sufficient integrity to convey their historical significance.

Roof Garden

The Kaiser Center Roof Garden retains a high degree of integrity of location, setting, design, materials, workmanship, feeling, and association. The only additions to the garden appear to have been the bridge over the pool which was incorporated in the design in the 1970s. The cooling tower and elevator shaft building which is an eighteen foot building with a flat roof, stucco cladding, and paired metal doors remains intact. Many of the original hardscape design components of the garden remain intact including the low perimeter walls, aggregate paths, planters, benches, and an original water fountain. While many of the plant materials have been replaced over time, the replacement plantings have been consistent with the original design and have not compromised the garden's historic integrity.

The "Fifty Year Rule"

In order to be determined eligible for listing in the National Register, resources less than fifty years of age must be shown to have "exceptional importance." This is not the case with the California Register. According to the California Office of Historic Preservation:

> In order to understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than fifty years old may be considered for listing in the California Register if it can be demonstrated that sufficient time has passed to understand its historical importance.[86]

The Kaiser Center is just under fifty years of age, but the complex has exceptional importance for its association with the expansion of Oakland's office core to include Lake Merritt, with Kaiser Industries, with Henry J. Kaiser, and for its Modern design. The Kaiser Center is significant as the first Modern skyscraper in Oakland on the shore of Lake Merritt. The complex is also significant for its connection to Henry J. Kaiser and Kaiser Industries as the headquarters of Kaiser Industries. The complex is also significant for its design including the building's Modern design, use of Kaiser Industries products, and as an example of the work of Welton Becket & Associates. The Kaiser Center Roof Garden is significant as the largest contiguous roof garden in North America at the time of its construction, as an example of Bay Area modern landscape architecture, and is significant for its association with landscape architects Osmundson & Staley.

B. Character-Defining Features

For a property to be eligible for national or state designation under criteria related to type, period, or method of construction, the essential physical features (or character-defining features) that enable the property to convey its historic identity must be evident. These distinctive character-defining features are the physical traits that commonly recur in property types and/or architectural styles. To be eligible, a property must clearly contain enough of those characteristics to be considered a true representative of a particular type, period, or method of construction, and these features must also retain a sufficient degree of integrity. Characteristics can be expressed in terms such as form, proportion, structure, plan, style, or materials.

[86] California Office of Historic Preservation, *How to Nominate a Resource to the California Register of Historical Resources*, 11.

The character-defining features of the Kaiser Center include, but are not limited to:

Office Tower

- Site on Lake Merritt
- Site Landscaping
- Height
- Massing
- T-shaped plan
- Curved main façade
- Curtain walls
- Polychrome aluminum cladding
- Aggregate wall panels
- Interior aluminum detailing, including but not limited to: original aluminum doors, elevator bank walls, perforated aluminum ceiling tiles
- Interior aggregate panels
- Terrazzo floors

Mall Buildings

- Height
- Massing
- Rectangular plans
- Aggregate wall panels
- Appearance of main massing of the buildings "floating" above the first floor
- Terrazzo floors

Roof Garden

- Axial plan (north-south axis from 20th Street Mall garden entrance to central lawn)
- Central lawn with surrounding curvilinear paths
- Low perimeter wall with concrete base and aluminum railing
- Irregularly shaped pool
- Curvilinear aggregate walkways
- Raised planters
- Irregular-shaped lawns
- Original furnishings including benches and water fountain

- Undulating topography
- Perimeter plantings (creating a buffer of privacy)

C. Significance Diagrams

Please see Significance Diagrams in Appendix C.

This section discusses a series of diagrams illustrating the relative zones of significance present at the Kaiser Center. For the purposes of this analysis, Page & Turnbull surveyed the building, including all exterior façades and public interior spaces, and evaluated their relative significance by placing them in three categories: Primary Significant (Primary), Secondary Significant (Secondary) and Non-Contributing. These categories are defined below.

Primary Significant

Definition: Spaces, elements or materials characterized by a high degree of architectural significance and a high degree of historic integrity.

Preliminary Guideline: All primary significant exterior and interior features and materials should be retained and preserved, or where alterations have occurred, be restored. Deteriorated materials shall be repaired rather than replaced. Where replacement is necessary due to extensive material deterioration or failure, replacement materials shall match the original materials and forms.

Secondary Significant

Definition: Elements characterized by a lesser degree of architectural significance, yet retain a high degree of historic integrity, or historically important, yet altered elements.

Preliminary Guideline: It is recommended that secondary significant elements be retained wherever possible. Where required, alterations and additions shall be designed to be compatible with the existing elements and materials. New materials and assemblies at reconstructed areas shall be similar to the original.

Non-Contributing

Description: Non-Contributing elements are generally non-historic elements or elements that have been altered to the extent that their original character is absent.

Preliminary Guideline: Non-Contributing elements are not specifically limited by preservation recommendations, except to note that the overall character of alterations to an historic building must meet the general requirements set forth in the *Secretary of the Interior's Standards.*

Please see Significance Diagrams in Appendix C.

VII. EVALUATION OF PROJECT-SPECIFIC IMPACTS UNDER CEQA

This section will analyze the project-specific impacts of the proposed project on the environment, as required by CEQA. Included as part of this evaluation is an examination of the Proposed Project pursuant to the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

A. Status of Existing Property as a Historic Resource under CEQA

In the City of Oakland, an historical resource under CEQA is a resource that meets **any** of the following criteria:

> 1) A resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources;
>
> 2) A resource included in Oakland's Local Register of historical resources (defined below), unless the preponderance of evidence demonstrates that it is not historically or culturally significant;
>
> 3) A resource identified as significant (e.g., rated 1-5) in a historical resource survey recorded on a Department of Parks and Recreation Form 523, unless the preponderance of evidence demonstrates tat it is not historically or culturally significant;
>
> 4) Meets the criteria for listing on the California Register of Historical Resources; **or**
>
> 5) A resource that is determined by the City Council to be historically or culturally significant even though it does not meet the other four criteria listed here.

The City of Oakland's Local Register (Historic Preservation Element Policy 3.8) includes the following:

- All Designated Historic Properties (Landmarks, Heritage Properties, Study List Properties, Preservation Districts, and S-7 and S-20 Preservation Combining Zone Properties ; and
- Those Potential Designated Historic Properties that have an existing rating of A or B or are located within an Area of Primary Importance.[87]

[87] Public Resources Code Section 21084.1, citing sections 5020.1(k) and 5024(g); CEQA Guidelines section 15064.5; Oakland's Historic Preservation Element.

Based on our analysis, (pages 7-9, 40-45) the Kaiser Center appears to qualify as a historical resource under CEQA.

B. Determination of Significant Adverse Change under CEQA

According to CEQA, a "project with an effect that may cause a substantial adverse change in the significance of an historic resource is a project that may have a significant effect on the environment."[88] Substantial adverse change is defined as: "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historic resource would be materially impaired."[89] The significance of an historical resource is materially impaired when a project "demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance" and that justify or account for its inclusion in, or eligibility for inclusion in, the California Register.[90] Thus, a project may cause a substantial change in a historic resource but still not have a significant adverse effect on the environment as defined by CEQA as long as the impact of the change on the historic resource is determined to be less-than-significant, negligible, neutral or even beneficial.

C. Compliance with the Secretary of the Interior's Standards for Rehabilitation

The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines for Rehabilitating Historic Buildings (Standards) provide guidance for reviewing proposed work on historic properties.[91] The Standards are used by Federal agencies in evaluating work on historic properties. The Standards have also been adopted by local government bodies across the country for reviewing proposed rehabilitation work on historic properties under local preservation ordinances. The Standards are a useful analytic tool for understanding and describing the potential impacts of substantial changes to historic resources. Conformance with the Standards does not determine whether a project would cause a substantial adverse change in the significance of an historic resource. Rather, projects that

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[88] CEQA Guidelines subsection 15064.5(b).
[89] CEQA Guidelines subsection 15064.5(b)(1).
[90] CEQA Guidelines subsection 15064.5(b)(2).
[91] W. Brown Morton III, Gary L. Hume, Kay D. Weeks, and H. Ward Jandl, *Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines for Rehabilitating Historic Buildings* (Washington, D.C.: U.S. Department of the Interior, National Park Service, Cultural Resources, Preservation Assistance Division, 1992). The *Standards*, revised in 1992, were codified as 36 CFR Part 68.3 in the July 12, 1995 Federal Register (Vol. 60, No. 133). The revision replaces the 1978 and 1983 versions of 36 CFR 68 entitled *The Secretary of the Interior's Standards for Historic Preservation Projects*. The 36 CFR 68.3 *Standards* are applied to all grant-in-aid development projects assisted through the National Historic Preservation Fund. Another set of *Standards*, 36 CFR 67.7, focuses on "certified historic structures" as defined by the IRS Code of 1986. *The Standards* in 36 CFR 67.7 are used primarily when property owners are seeking certification for Federal tax benefits. The two sets of *Standards* vary slightly, but the differences are primarily technical and are not substantive in nature. The *Guidelines*, however, are not codified in the Federal Register.

comply with the Standards benefit from a regulatory presumption that they would have a less-than-significant adverse impact on an historic resource.[92] Projects that do not comply with the Standards may or may not cause a substantial adverse change in the significance of an historic resource. The following analysis applies each of the Standards to the proposed project.

The Secretary of the Interior offers the following four sets of Standards to guide the treatment of historic properties: Preservation, Rehabilitation, Restoration, and Reconstruction. According to the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, the four distinct treatments are defined as:

> **Preservation**: The *Standards for Preservation* "require retention of the greatest amount of historic fabric, along with the building's historic form, features, and detailing as they have evolved over time."
>
> **Rehabilitation**: The *Standards for Rehabilitation* "acknowledge the need to alter or add to a historic building to meet continuing new uses while retaining the building's historic character."
>
> **Restoration**: The *Standards for Restoration* "allow for the depiction of a building at a particular time in its history by preserving materials from the period of significance and removing materials from other periods."
>
> **Reconstruction**: The *Standards for Reconstruction* "establish a limited framework for re-creating a vanished or non-surviving building with new materials, primarily for interpretive purposes."[93]

Typically, one set of standards is chosen for a project based on the project scope. In this case, the proposed project scope includes altering Kaiser Center to meet the evolving use of the complex while retaining its character-defining features. Therefore, in the case of this project affecting the Kaiser Center, the *Standards for Rehabilitation* should be applied, and the Guidelines for Rehabilitating Historic Buildings should be followed.

D. Proposed Project Description

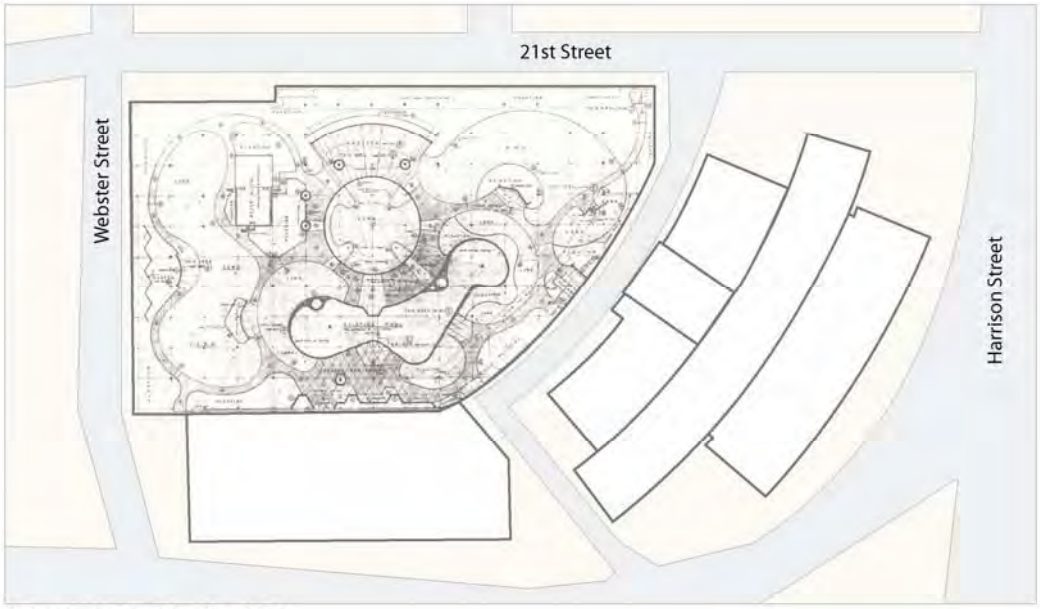
The proposed project includes the redevelopment of portions of the Kaiser Center site. The project would add approximately 1,474,992 square feet of new development. The project includes the demolition of the 20th Street and Webster Street Mall Buildings which comprise approximately 280,002 square feet of retail/commercial space. The project includes the construction of two towers:

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[92] CEQA Guidelines subsection 15064.5(b)(3).
[93] Kay D. Weeks and Anne E. Grimmer, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings* (Washington, D.C.: U.S. Department of the Interior, 1995), 2.

a thirty-four-story tower (436 feet) with an irregularly shaped footprint at the northeast corner of Webster and 20th streets, and a forty-two-story tower (566 feet) at the southeast corner of Webster and 21st streets. These proposed additions are largely consistent with earlier master plans that envisioned the Kaiser Center as a campus of office towers.

The proposed project would also include the construction of approximately 22,500 square feet of ground floor retail and an addition of 828 parking spaces. The 122,606 square foot roof garden located above the parking garage and Mall Buildings would be reconfigured, removing approximately 18,369 square feet in the Webster and 21st Street corner and adding 22,933 square feet along 20th Street. Approximately 15,157 square feet of the garden, in the Webster and 20th Street corner, would be a reconstruction. The garden would have a net gain of 4,564 square feet, and the proposed project provides for the inclusion of a grand staircase accessing the roof garden from 20th Street, which would improve public access to the garden. The project sponsor is also planning to increase access to the roof garden through the new office towers. Please see **Figures 17 and 18** below for details of the alterations and additions to the Roof Garden.



Kaiser Center Roof Garden, 1960



Kaiser Center Roof Garden, proposed

Figure 17. Comparison of original and proposed Roof Garden site plan



Figure 18. Site plan showing the proposed alterations and additions to the Roof Garden. SOM, altered by the author

E. Compliance with the Secretary of the Interior's Standards for Rehabilitation

This section evaluates each element of the proposed project (Office Tower, Mall Buildings, Garage, and Roof Garden) for compliance with each of the 10 rehabilitation standards in the *Secretary of the Interior's Standards for Rehabilitation*.. Architectural drawings of the proposed project by Skidmore, Owings & Merrill dated March 14, 2008 were used in this analysis (**see Appendix F: Proposed Project Drawings**).

> **Rehabilitation Standard 1**: *A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces and spatial relationships.*

The Kaiser Center office tower would retain its historic use as office space, and this portion of the complex would not undergo any changes to its materials, features, spaces, or spatial relationships.

The Mall Buildings would be demolished and two new office towers would be constructed on the site. While the new towers would feature retail on the ground floor as is currently present in the Mall Buildings, the Mall Buildings themselves would be demolished, destroying their materials, features, spaces and spatial relationships including the height, massing, rectangular plans, dolomite wall panels, terrazzo floors, and the appearance of the main massing of the buildings "floating" above the first floor.

The parking garage would retain its original use as a parking garage, and would remain intact.

The Kaiser Center Roof Garden would remain a publicly accessible passive recreational space that would be privately owned and managed. At the garden level, the new south office tower would occupy part of the 20th Street Mall footprint at the southwest corner of the property, while the new north tower would replace the HVAC structure and a portion of the existing garden in the northwest corner of the property. A new grand staircase at the south façade would increase public access to the roof garden. Although the overall size of the roof garden would be increased and would have a greater level of public access, construction of the north tower in particular would require demolition of a portion of the existing historic roof garden, and would introduce new garden area, requiring changes to some of the garden's distinctive materials, features, spaces, and spatial relationships. Increased shadow from the new towers would alter the climate of the roof garden. The proposed

new towers would also obscure some existing views of the historic Kaiser Center office tower from certain public viewpoints, as well as views from the garden looking west toward Downtown Oakland.

The project sponsor intends to retain as many of its character-defining features of the garden as possible, including its axial plan, central lawn with surrounding curvilinear paths, low perimeter wall with concrete base and railing, irregularly shaped pool, curvilinear aggregate walkways, raised planters, irregular-shaped lawns, original furnishings, undulating topography, and perimeter plantings. Regardless, construction of two towers would substantially impact the roof garden.

The proposed project would include the demolition of the Mall Buildings and construction of two towers, which would require a substantial change to a portion of the Kaiser Center's distinctive materials, features, and spatial relationships.

Therefore, the proposed project does not comply with Rehabilitation Standard #1.

> **Rehabilitation Standard 2**: *The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces and spatial relationships that characterize the property will be avoided.*

The Kaiser Center Office Tower would remain intact. The proposed project would retain the historic character of the office tower and would not remove or alter and features, spaces or spatial relationships that characterize the property.

The Mall Buildings would be demolished and two new office towers would be constructed on the site. The demolition of the mall buildings would remove distinctive materials, features, spaces and spatial relationships that characterize this portion of the property.

The parking garage would retain its original use as a parking garage, and this portion of the property would remain intact.

The Roof Garden would be altered, but the majority of the garden would remain intact. The 122,606 square foot roof garden would be reconfigured, removing approximately 18,369 square feet in the Webster and 21st Street corner and adding 22,933 square feet along 20th Street. Approximately 15,157 square feet of the garden, in the Webster and 20th Street corner, would be a reconstruction.

The garden would have a net gain of 4,564 square feet, for a total garden size of 127,170 square feet when completed. While the project sponsors intend to create a new roof garden design that would be differentiated from the original roof garden, yet compatible with existing historic fabric, the proposed new towers would also alter views of Downtown Oakland from the roof garden, and would add new shadow resulting in a change to the garden's climate.

The proposed project calls for the removal of the two Mall Buildings and a portion of the roof garden, which would remove distinctive materials, features, spaces and alter the spatial relationships of the Kaiser Center complex.

Therefore, as designed the proposed project does not comply with Rehabilitation Standard #2.

> **Rehabilitation Standard 3**: *Each property will be recognized as a physical record of its time, place and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historical properties, will not be undertaken.*

The proposed project is still in the early design phases, and would need to undergo further review as the design develops. However, the project sponsor intends that the proposed project would not feature alterations or additions that would create a false sense of historical development and that new construction would be undertaken in a manner that clearly differentiates new features from the existing.

The new roof garden area, at the southern edge, would be differentiated from the original roof garden yet compatible with existing historic fabric and design. For example, the new portion of the garden could be differentiated by plant materials, paving materials, etc. while still maintaining a connection to the original Modern landscape design. While the existing Office Tower currently shades portions of the roof garden, the proposed towers would create new shadows on the garden, which could further affect all existing and proposed plant materials. In accordance with Mitigation Measure 2.0 (discussed below), and as a condition of approval, an historic landscape expert shall be retained to ensure that character-defining features of the garden are preserved; and that the design of the new portion of the garden is compatible but differentiated from the original portion of the garden. Shade-tolerant plantings may also need to be selected for the new garden design.

If the proposed project meets these conditions, then it would comply with Rehabilitation Standard #3.

Rehabilitation Standard 4: *Changes to a property that have acquired significance in their own right will be retained and preserved.*

The Kaiser Center has undergone few alterations, including remodeling the lobby of the Office Tower, remodeling the original cafeteria in the Office Tower to serve as tenant office space, tenant improvements at the Mall Buildings, and storefront remodeling, signage, and ornamentation at the entrances of the Mall Buildings. None of these alterations have acquired significance in their own right. Therefore, as designed, the proposed project would be in compliance with Rehabilitation Standard #4.

Rehabilitation Standard 5: *Distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize a property will be preserved.*

The Kaiser Center Office Tower would remain intact. The proposed project would retain the distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize this portion of the property.

The Mall Buildings would be demolished and two new office towers would be constructed on the site. The demolition of the Mall Buildings would remove the distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize this portion of the property.

The parking garage would remain intact. No changes are proposed to the parking garage.
The Roof Garden would be altered, but the majority of the garden would remain intact. A portion of lawn and walkway in the northwest corner of the roof garden would be demolished and replaced by an office tower. The portion of the roof garden to be removed is relatively small (18,369 square feet or less than 15 percent of the total garden in square feet). Approximately 15,157 square feet portion of plantings, lawn and walkway near the southwest corner of the extant garden over the Webster Street Mall would be demolished and reconstructed between the new towers. A new garden area, at the southern edge of the garden fronting on 20th Street, would be differentiated from the original roof garden yet compatible with existing historic fabric. Despite these interventions, approximately 85 percent or about 104,237 square feet of the original garden would be retained. New shadows on the garden from the proposed new towers would affect all existing and proposed plant materials.

The demolition of the two Mall Buildings would adversely impact the Kaiser Center since it would remove distinctive materials, features, finishes and construction techniques or examples of craftsmanship that characterize the property. Although demolition of the Mall Buildings does not comply with the Standards, the impact on the resource may be lessened if the character and feeling of the original Mall Buildings could be interpreted in the design of the base of the new structures. In a letter dated November 20, 2008, Turner Construction Company has stated that reuse of the existing dolomite panels as part of the new structures is infeasible due to the manner in which the panels were attached to the Mall Buildings during their original construction in the 1960s (please also see Appendix B of this report). Staff reviewed the report, completed a site inspection, and agreed with the report's conclusion that the dolomite panels cannot be reused. Mitigation Measure 1.1, below, requires that the project sponsor redesign the base of the proposed new towers to retain the character and qualities of the original Mall Buildings.

As proposed, the project would not comply with Rehabilitation Standard #5.

> **Rehabilitation Standard 6**: *Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.*

The majority of the Kaiser Center complex is in excellent condition, but where repair is needed, this standard would be followed. According to Rehabilitation Standard #6, deteriorated historic features should be repaired rather than replaced. If severe deterioration makes replacement necessary, in-kind replacements would be used. There is ample documentation for the repair and/or replacement of deteriorated features and/or the replacement of missing features.

As per the Turner Construction report, the dolomite panels 'as-built' precludes their reuse; therefore, the project sponsor should incorporate into the design of the new buildings wall cladding that is of comparable character and quality as the dolomite panels, if not the actual materials (see Mitigation Measure 1.1, below).

As designed, the proposed project would be in compliance with Rehabilitation Standard #6.

> **Rehabilitation Standard 7**: *Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.*

The proposed project does not include chemical or physical treatments. Therefore, Rehabilitation Standard #7 is not applicable.

> **Rehabilitation Standard 8**: *Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measure will be undertaken.*

The proposed project would include excavation as part of the construction of the office towers. The site has already been excavated for the current buildings, but if any archeological resources are encountered during this work, construction would be halted and a proper analysis undertaken by qualified specialists to comply with Rehabilitation Standard #8.

> **Rehabilitation Standard 9**: *New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and environment.*

The Office Tower would remain intact and the historic materials and features of this portion of the property would not be damaged by the new additions. The proposed new towers would, however, alter the existing tower's spatial relationship to the Kaiser Center, as it would no longer be the only tall building at the Kaiser Center.

The Mall Buildings would be demolished to allow for the construction of the two new office towers. Therefore, the new additions would destroy the historic materials, features and spatial relationships of this portion of the property.

The Parking Garage would remain intact. No changes are proposed to the parking garage and this portion of the property would not be damaged by the new additions.

A portion of the Roof Garden would be removed and replaced by a new office tower, another portion would be removed and reconstructed, and the garden would be expanded to the south as

part of the project. A portion of the roof garden would be destroyed by the new additions. The proposed new towers would also obscure some views of Downtown Oakland from the garden. The spatial relationship between the garden and the existing office tower would be altered with the introduction of two new towers, creating a new garden 'wall' on the western side of the garden where none exists currently.

The proposed project includes two new office towers and an addition to the roof garden at the 20th Street edge. The new additions would destroy some historic features, materials and spatial relationships, including both Mall Buildings and a portion of the roof garden.

The new garden area would be differentiated from the original roof garden yet compatible with existing historic fabric. As part of the design process for the buildings, an historic landscape expert must be retained to ensure that character-defining features of the garden are preserved; and that the design of the new portion of the garden is compatible but differentiated from the original portion of the garden (see Mitigation Measure 2.0).

As design details for the new office towers are lacking, it is unknown whether the proposed new towers would be differentiated from the Kaiser Center office tower, yet compatible in terms of materials, features, size, scale and proportion, and massing.

The proposed project calls for the removal of the two Mall Buildings which would adversely impact the Kaiser Center complex since it would destroy historic materials including the Mall Buildings' character-defining features and the historic spatial relationships between the Mall Buildings and the Office Tower and the Roof Garden and the Office Tower that characterize the complex.

Therefore, the proposed project does not comply with Rehabilitation Standard #9.

> **Rehabilitation Standard 10**: *New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

The proposed project includes the addition of two office towers and the demolition of the two Mall Buildings and a portion of the roof garden. If the new additions were removed in the future, the essential form and integrity of the historic resource, the Kaiser Center complex, would be impaired since the Mall Buildings and a portion of the roof garden would have been removed as part of the

project. The removal of the Mall Buildings and a portion of the Roof Garden would be irreversible in terms of historic materials.

Therefore, the proposed project does not comply with Rehabilitation Standard #10.

Conclusion

We conclude that the proposed project as currently designed does not conform to Standards 1, 2, 5, 9, 10 of the *Secretary of the Interior's Standards for Rehabilitation.*

F. Analysis of Project Specific Impacts under CEQA

As the above analysis demonstrates, the project as it is currently designed would not comply with the *Secretary of the Interior's Standards for Rehabilitation.* Provided below is an analysis of the proposed project's potential impacts to historic architectural resources in terms of CEQA criteria (determination of significant adverse impact).

Impact 1.0 – The proposed project would demolish the Mall Buildings, which are components of a qualified historical resource on the project site (Conservatively deemed Significant and Unavoidable because the project lacks design details)

The proposed project would demolish the two Mall Buildings, which are components of a qualified historic resource. Demolition is considered to be a significant adverse impact, since it would materially alter in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the federal, state, and local registers. The physical characteristics of the Mall Buildings that would be materially altered by the project would include the Mall Buildings' height, massing, rectangular plans, dolomite wall panels, the appearance of main massing of the buildings "floating" above the first floor, the strong, solid horizontally-oriented band at the base of the tower, the relationship between the tower building's exterior finishes with the base of the complex, and the terrazzo floors. Mitigation Measures 1.1 to 1.3 described below would help reduce the significance of the impact to historic architectural resources. However, because design details are not yet available, this impact is conservatively identified (i.e., worst case scenario) as significant and unavoidable. Specifically, this is a Preliminary Development Plan application and the project sponsor has not prepared or submitted detailed architectural designs of the proposal for consideration by the City. Without those details, the impact must conservatively

be determined to be significant and unavoidable at this point. The final, approved design may mitigate the impacts to less than significant levels, but such cannot be determined at this time.

Policy 3.8.1 of the Historic Preservation Element (HPE) of the City of Oakland General Plan states that measures appropriate to mitigate significant effects to an historic resource may include one or more of the following depending on the extent of the proposed addition or alteration:

1) Modification of the project design to avoid adversely affecting the character-defining elements of the property.
2) Relocation of the affected Historical Resource to a location consistent with its historic or architectural character.

If the above measures are not feasible, then other measures may be considered including, but not limited to the following:

3) Modification of the project design to include restoration of the remaining historic character of the property.
4) Modification of the project design to incorporate or replicate elements of the building's original architectural design.
5) Salvage and preservation of significant features and materials of the structure in a local museum or within the new project.
6) Measures to protect the Historical Resource from effects of on-site or other construction activities.
7) Documentation in a Historic American Buildings Survey report or other appropriate format: photographs, oral history, video, etc.
8) Placement of a plaque, commemorative marker, or artistic or interpretive display on the site providing information on the historical significance of the resource.
9) Contribution to a Facade Improvement Fund, the Historic Preservation Revolving Loan Fund, the Oakland Cultural Heritage Survey, or other program appropriate to the character of the resource.

The following provides a list of measures appropriate to mitigate significant impacts to the historic resource:

Mitigation Measure 1.1. The sponsor shall modify the design of the base of the new structures to retain the existing street level design and character, and shall prepare a salvage program: The sponsor shall modify the design of the base of the new tower structures to retain the existing street level design and character of the Mall Buildings, which include its height, massing, flat roofs, dolomite panels, the strong, solid horizontally-oriented band at the base of the tower "floating" above the first floor, the relationship between the Office Tower's side exterior dolomite panels with the Mall Building's side exterior dolomite panels, and the terrazzo floors. Other than the terrazzo floors, the majority of the remaining historic fabric is expressed on the exterior of these buildings. This mitigation would satisfy Policy 3.8.1 (1) of the Historic Preservation Element of the City of Oakland General Plan (Modification of the project design to avoid adversely affecting the character defining elements of the property).

Historic features such as dolomite panels and terrazzo flooring are easily replicated. All replicated elements should retain the character and quality of the original design, but not necessarily the individual physical elements of the dolomite panels themselves. In addition, the modified design would not be required to retain the precise dimensions of the existing Mall Buildings, but rather, should allow reasonable flexibility in their interpretation, consistent with this report and the purpose of the mitigation measure. Retention of the quality and character of the Mall Buildings could reduce the impact on the environment to a less than significant level. However, because design details are not yet available, and it is therefore unknown whether the proposed project would meet *Secretary of the Interior's Standard*s described above, this impact is conservatively deemed to be significant and unavoidable at this time.

The project sponsors shall also undertake a salvage program to save and reuse historically significant materials and features from the Mall Buildings at the site, such as terrazzo flooring, or possibly other materials or features not yet identified herein. As such the project sponsors shall conduct a full survey of *all* historic architectural elements and elements suitable for re-use at the site, develop a reuse/salvage plan, whose goal is to maximize reuse of materials at the site, and submit such for Landmarks Preservation Advisory Board (LPAB) consideration. The LPAB would make advisory recommendations either to the Planning Commission or Development Director. The applicant shall implement the approved plan. Implementation of a salvage program would satisfy Policy 3.8.1 (5) of the Historic Preservation Element of the City of Oakland General Plan (Salvage and preservation of significant features and materials of the structure in a local museum or within the new project). While salvage and reuse of historic materials would help to reduce the impact of the loss of the Mall

Buildings, the impact to historic resources is conservatively considered to be significant an unavoidable at this time since design and salvage details are not yet available.

Impacts to historic resources could be mitigated to a less-than-significant level if the project sponsor modifies the design of the base of the new structures to retain the existing street level design and character in accordance with the *Secretary of the Interior's Standards*, and completes the salvage program. However, because these activities have not yet been completed, the impact is conservatively deemed to be significant and unavoidable.

Mitigation Measure 1.2. HABS /HALS Level Recordation: The project sponsor shall complete a recordation of the Kaiser Center which meets the requirements of the National Park Service's Historic American Buildings Survey (HABS) and the Historic American Landscape Survey (HALS). A complete set of HABS/HALS documentation typically consists of a set of measured drawings (or a copy of original drawings if available), large-format black and white photographs, and a written history. A complete set of the HABS/HALS recordation photos, drawings, and report should be presented to following repositories:

- Library of Congress
- Oakland History Room at the Oakland Public Library.
- Oakland Heritage Alliance, and
- Oakland Cultural Heritage Survey.

This mitigation would satisfy Policy 3.8.1 (7) of the Historic Preservation Element of the City of Oakland General Plan (Documentation in a Historic American Building Survey report or other appropriate format: photographs, oral history, video, etc.)

While applications of HABS/ HALS efforts are common mitigation strategies used to reduce the significance of an adverse impact to historic resources, they do not alter the loss to community character and collective history. Section 15126.4(b)(2) of the Public Resources Code is clear in this regard: "In some circumstances, documentation of an historical resource, by way of historic narrative, photographs or architectural drawings, as mitigation for the effects of demolition of the resource will not mitigate the effects to a point where clearly no significant effect on the environment would occur."

Mitigation Measure 1.3. Financial Contributions to the Oakland Façade Improvement Program: If Mitigation Measure 1.1 is not satisfied, the project sponsors shall make a financial contribution to the City of Oakland, which can be used to fund other historic preservation projects at the project site or in the immediate vicinity. This mitigation would satisfy Policy 3.8.1.(9) of the Historic Preservation Element of the City of Oakland General Plan (Contribution to a Façade Improvement Fund, the Historic Preservation Revolving Loan Fund, the Oakland Cultural Heritage Survey, or other program appropriate to the character of the resource. Contributions to the fund shall be determined by staff based on the linear feet of the facades to be demolished. Potential preservation projects that may benefit from the fund could include, without limitation; 1) an update of the Lake Merritt Historic District survey and/or Lake Merritt historic context statement., or, 2) physical improvements to potential contributor(s) to the District so that they may become a formal contributor in the future, or improvements to existing contributor(s) that are currently in a state of disrepair. However, such financial contribution, even in conjunction with Mitigation Measure 1.2 (HALS/HABS Recordation), would not reduce the impacts to less than significant levels. Thus, the impact would remain significant and unavoidable if Mitigation Measure 1.1 is not satisfied.

The City of Oakland would not impose Mitigation Measure 1.3 (financial contribution) if the project sponsors can demonstrate through the subsequent submission and review and approval by the City (with review by the LPAB) of design modifications to the proposed project that they would meet the requirements of Mitigation Measure 1.1. For conservative purposes, however, and because no such designs are currently available for review, Mitigation Measure 1.3 is included in this document.

Impact 2.0 – The proposed new construction would affect remaining portion of the qualified historic resource on the project site (Conservatively deemed Significant and Unavoidable because the project lacks design details).

The proposed project would retain the Kaiser Center Office Tower, the majority of the Kaiser Center Roof Garden, and the Parking Garage, and construct two new commercial towers on the site of the existing Mall Buildings. The new construction would affect the resource's integrity of setting, since the Mall Buildings would be removed and the view corridor from the west on 21st Street to the rear of the Office Tower would be altered by the construction of the new commercial towers. The new construction would remove a portion of the historic roof garden and introduce new garden area. The impacts to the resource's setting and roof garden design are considered to be significant adverse impacts, since new construction would impact the character-defining features of the historic resource. Mitigation Measure 2.0, described below, would help reduce the significance of the impact

to historic architectural resources by modifying the project design to ensure that new additions to the Kaiser Center would be designed to relate to the architectural and landscape character, spatial relationships, and organizing principles of the existing design. (See Mitigation Measure 2.0, below**)**. However, because design details are not yet available, this impact is conservatively identified as significant and unavoidable.

Mitigation Measure 2.0. Historically-Sensitive Roof Garden Design: The project sponsor shall ensure that a qualified Landscape Architect familiar with landscape history and historic resources designs a roof garden addition that is differentiated from the old and compatible with the historic design to protect the integrity of the historic roof garden, specifically with respect to the following character-defining features of the garden; the viability of the plant palette under new shadows and altered micro-climate created by the proposed new towers; the north-south axial plan, curvilinear shaped lawns, and curvilinear aggregate pathways, original furnishings, undulating topography, irregularly shaped pools, and raised planters. Since the Kaiser Center Roof Garden was included in articles in many landscape architecture journals at the time of its construction, historic images of the roof garden are easily located. The landscape plan shall be submitted the LPAB for review and approval. The LPAB would make advisory recommendations either to the Planning Commission or Development Director, and the Applicant shall implement the approved plan.

The proposed alterations to the lawns and walkways can be mitigated by clearly demarcating the original garden material and new configuration with signage and design features. As part of the design process for the buildings, garden entrances, and new garden area, the architects and landscape architect should consult with a historic landscape expert who would prepare a landscape plan to ensure that new designs are compatible yet differentiated from the historic garden material and plans. The restored portion of the garden must adhere to the Secretary of the Interior's *Standards for the Treatment of Historic Properties*. In this way, the design of the new roof garden addition could reduce the impact to historic resources.

Mitigation Measure 2.1. Historically Sensitive Tower Design. The project sponsors shall ensure that the design of the new towers is compatible with, yet clearly differentiated from, the existing Kaiser Center Office Tower. Existing views of Downtown Oakland to the southwest and northwest should be maintained to the greatest extent possible, through the use of highly-transparent glass for the design of the towers at the roof garden level. Plans should be reviewed and approved by the LPAB, which would make advisory recommendations either to the Planning Commission or Development Director.

To further reduce Impact 2.0, the project sponsor shall also implement Mitigation Measure 1.2 (*HALS Level Recordation*). For conservative purposes, however, because no designs are currently available for review, this impact is conservatively deemed to be significant and unavoidable at this point in time.

Impact 3.0. The Proposed Project Would Have a Less-Than-Significant Impact on the Eligibility of the Lake Merritt Historic District as an API or NRHP historic district.

According to the inventory form completed in 1986, the Lake Merritt Historic District consists of "Lake Merritt itself, the parklands on its shores, the buildings within those parks, and all buildings fronting on the lake which were constructed over 50 years ago and are now reasonably intact. Some newer structures, compatible with the older ones, are also within district boundaries."[94] As of 1986, the Lake Merritt Historic District included approximately 92 total resources, of which 64 were contributors, five were contingency contributors and 23 were non-contributors. It should be noted that contributors included six parks and two objects. As with most historic districts, changes have been made over time within the boundaries of the district. According to the inventory form, "the Lakeside area has gradually changed from a neighborhood of 19th century single family dwellings to one of 20th century apartment, civic, and office buildings."[95]

Since the district was identified, a number of additions have been made including the Lake Merritt Plaza a 27-story office tower constructed in 1986, at 1999 Harrison Street, the 20-story The Essex on Lake Merritt, a residential building constructed in 2001, at the corner of Lakeside Drive and 17th Street, and the Cathedral of Christ the Light, constructed in 2008, on Harrison Street between 21st Street and Grand Avenue. One contributor, located at 1330 Lakeshore Drive was demolished and replaced by a non-contributor. Other smaller-scale development along the shores of Lake Merritt has also taken place during this time. However, these projects have retained the basic nature of the district, which includes a combination of residential, institutional, and commercial uses and a variety of building heights all focused on and respecting the lake. The northwest shore is predominantly high-rise, the southwest shore is predominantly mid- and high-rise, the southeast shore is predominantly mid-rise, and the northeast shore is predominantly mid-rise.

[94] OCHS, Lake Merritt District Inventory Form, 1986.
[95] OCHS, Lake Merritt District Inventory Form, 1986. 8.

The proposed projects, located along the northwest shore, appear to be an adaptation of the district to meet the needs of the current day. As stated previously, the Kaiser Center Office tower was the first Modern high-rise office complex on Lake Merritt and led to an expansion of high-rise office tower development from downtown Oakland to the shores of Lake Merritt. While the proposed project includes towers that are substantially taller than extant towers in the district, they would not adversely affect the district's integrity. The proposed towers would be non-contributors to the district. The proposed towers would not directly front on the lake; they would be placed behind other existing historic buildings that contribute to the district, lessening the visual impact on the district. They would also perpetuate a pattern of building heights stepping down toward the lake.

The Lake Merritt Historic District currently includes approximately 107 total resources, of which 90 are contributors, and 17 are non-contributors. The proposed project would demolish a portion of one contributor to the district (the Mall Buildings at the Kaiser Center) and add two non-contributing buildings (two new office towers at the Kaiser Center) to the district. However, the district would retain over two-thirds contributing properties, therefore retaining its integrity and its API and NRHP status. Since the proposed deletions and additions to the district would not adversely affect the district's potential eligibility as an API or NRHP historic district, the proposed project would not cause a significant impact on the Lake Merritt Historic District. No mitigation would be required.

F. Analysis of Cumulative Impacts under CEQA

CEQA defines cumulative impacts as follows:

> "Cumulative impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.[96]

In addition to the proposed Kaiser Center project, there are thirteen reasonably foreseeable projects within the project area (generally defined to be a five block radius from the project site), some of which could combine with the loss of a portion of the Kaiser Center complex to form a significant cumulative impact to historic resources. The following list includes the project names, project

[96] CEQA Guidelines, Article 20, subsection 15355.

description including effect to historic resources if any, and Major Projects List number from CEDA's website [accessed October 30, 2008] in parentheses. These projects were identified at the time of the release of the Kaiser Center Notice of Preparation (NOP) on May 19, 2008.

Proposed Projects with No Effects on Historic Resources:

- 1309 Madison Street (17); 72 condominium units.
- 1538 Broadway (31); 69 residential units, ground floor food sales.
- Valdez & 23rd Street Project (48); 281 residential units, 500 car parking structure including 250 public spaces, 12,000 square feet retail.
- 1755 Broadway (53); Conversion of floors 2-5 of office to 24 live/work condominiums.
- Jackson Center Two (58); 110 condominium units, 5,000 square feet retail.
- 1331 Harrison Street (59); 98 condominium units, 9,000 square feet commercial, structured parking.
- 100 Grand (61) 241 residential units.
- 1640 Broadway Mixed Use Project (85) 177,600 square feet of office, 4,710 square feet ground floor retail, structured parking, alternative approved for 254 residential units with ground floor retail.

Proposed Projects including Rehabilitation of Historic Resources

- 1930 Broadway (75); approximately 85,200 square foot retail/fitness club, approximately 829,500 square feet of office space, 220 residential units, 444 parking stalls, Rehabilitation of the Tapscott Building, a historic resource.
- 1100 Broadway (92); 310,285 square feet of office, 9,810 square feet of retail; Rehabilitation of the Key System Building, a historic resource.

Proposed Projects with Possible Effects on Historic Resources:

- 1443 Alice Street/1434 Harrison Street (15); 245 residential units; alterations to a historic resource.
- Emerald Views, 222 19th Street (21); 42-story residential high-rise (457'-9" to the top of the pyramidal roof form), containing 370 residential units, 357 parking spaces in five levels of underground parking, 933 square foot café; and demolition of a historic resource (the garden associated with the historic August Schilling estate). Located within Lake Merritt Historic District.
- Broadway West Grand (86); 367 residential units, 8, 500 square feet retail; demolition of seven historic resources (mostly former brick auto showrooms).

Impact 4.0. The Proposed Project Would Have a Less-Than-Significant Cumulative Impact to Historic Architectural Resources.

Cumulative Impacts to the Lake Merritt Historic District

Aside from the proposed project, the only other reasonably foreseeable project within the Lake Merritt Historic District boundaries is the proposed 42-story Emerald Views Development project. The proposed 34- and 42-story office towers associated with the Kaiser Center project, in combination with the proposed 42-story Emerald Views development, may form a cumulative impact to historic resources within the Lake Merritt Historic District, as both would demolish contributors to the district (an historic garden and the Mall Buildings at the project site), and would introduce a total of three new non-contributing towers to the District.

As described above under Impact 3.0, the proposed towers of the Kaiser Center and Emerald Views can be understood as a continuation of the development of modern towers on the northwestern shores of Lake Merritt, a characteristic of the district that has already been established. Collectively, these projects would continue the trend of redevelopment along this portion of Lake Merritt. With approximately 90 contributory resources to the District, the combination of these projects would retain over two-thirds of its contributing properties, thereby retaining its integrity and its API and NRHP status. Since these proposed changes to the district would not adversely affect the district's potential eligibility to the NRHP or as an APE, no significant cumulative impacts to the Lake Merritt Historic District are anticipated. No mitigation would be required.

Cumulative Impacts to Historic Resources in the Immediate Project Vicinity and to the City of Oakland

Taken collectively, the reasonably foreseeable projects listed above, such as those along Broadway and Harrison Streets, contribute to the on-going demolition or alteration of historic resources within the project vicinity. The proposed Kaiser Center project would demolish a portion of a historic resource, therefore contributing to this trend. However, the proposed project is consistent with the typical development found in this area and would not directly or indirectly affect the eligibility of any other historic resources within the vicinity

While these projects may affect individual historic resources, the affected resources include a broad range of building typologies, and would not have a clear, measurable impact on an individual type of

historic resource. For example, the proposed Kaiser Center project would demolish a portion of a Modern historic resource in the Lake Merritt Historic District. None of the other proposed projects would affect Modern historic resources, and only one other proposed project, the Emerald Views project, would affect the Lake Merritt area or a resource in the Lake Merritt Historic District. Since these projects do not have a clear, measurable impact to an individual type of historic resource, or a type that is particularly rare or threatened, the cumulative impact would be less than significant.

Other reasonably foreseeable projects throughout the City of Oakland which may affect citywide historic resources and have been considered in the cumulative analysis include alterations to the Ninth Avenue Terminal Building along the Oakland waterfront, and alterations to buildings at the former Oakland Army Base. Other projects that have been approved/constructed include those in the Waterfront Warehouse District along the Oakland Waterfront, and the Courthouse Condominiums project at 29th and Telegraph Avenue. However, such citywide projects are too far away from the project site (and would affect such different types of historical buildings compared with the Modern Kaiser Center, that such projects would not be cumulatively considerable. As such, the proposed project would have no significant cumulative impacts to historic resources on a citywide basis. No mitigation would be required.

VIII. CONCLUSION

Designed in 1958 as the headquarters building for Kaiser Industries, the Kaiser Center complex is an excellent example of an intact 1950s Modern style office campus with a high-rise office tower, low-rise shopping mall and parking garage, and modern, podium roof-top designed landscape. The twenty-eight-story glass and aluminum curtain wall building is currently used as office space and anchors the commercial high-rise area at the northwest corner of Oakland's Lake Merritt. The three-story Mall Buildings remain in retail use and create a strong horizontal base that is juxtaposed by the tower's verticality. The Kaiser Center Roof Garden remains an important publicly accessible private open space and is an iconic example of Bay Area Modern Landscape Architecture. The Kaiser Center is an excellent example of an intact Modern style office campus.

The Kaiser Center is rated A by the Oakland Cultural Heritage Survey and appears to be individually eligible for listing in both the California and National Register under Criteria A/1 (Events), B/2 (Persons), and C/3 (Design). The Kaiser Center also appears to be eligible to the National Register as a contributor to the potential Lake Merritt Historic District. Because the Mall Buildings are an integral part of the Kaiser Center Complex, their proposed demolition would not comply with the

Secretary of the Interior's Standards for Rehabilitation and would materially alter in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the federal, state, and local registers. As such, the proposed project would have a significant adverse impact on the historic resource under CEQA. Mitigation measures are available to reduce the impact of the proposed project, such as a modified design which retains the street level design and character and quality of materials of the Mall Buildings. However, because design details are not yet available, this impact would conservatively be deemed to be significant and unavoidable at this time.

The project-specific impacts of the proposed new construction has been conservatively deemed to be significant and unavoidable at this time because design proposals have not been submitted to the city, and design details are not yet available for review, as described above. No significant cumulative impacts were identified to the Lake Merritt Historic District, or from other proposed developments in the project vicinity or in the City of Oakland as a whole. Therefore, no mitigation measures were identified.

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APPENDIX A

Additional Figures



Figure A1. Office Tower, rear façade.
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Figure A2. Office Tower, detail of *porte cochere*.
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Figure A3. Kaiser Complex from 21st Street
Page & Turnbull, 2008



Figure A4. Office Tower, porte cochere. Page & Turnbull, 2008



Figure A5. Office Tower, second floor lobby.
Page & Turnbull, 2008



Figure A6. Garage, south façade. Page & Turnbull, 2008



Figure A7. 20th Street Mall, south façade. Detail of entrance.
Page & Turnbull, 2008



Figure A8. 20th Street Mall, First Floor Lobby.
Page & Turnbull, 2008

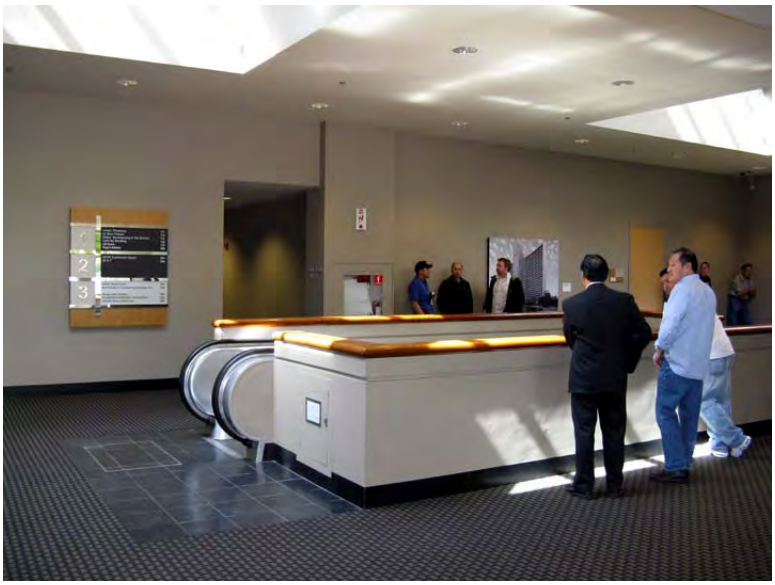


Figure A9. 20th Street Mall, Third floor
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Figure A10. Webster Street Mall, view from northwest.
Page & Turnbull, 2008



Figure A11. Webster Street Mall, Hall. View from north.
Page & Turnbull, 2008

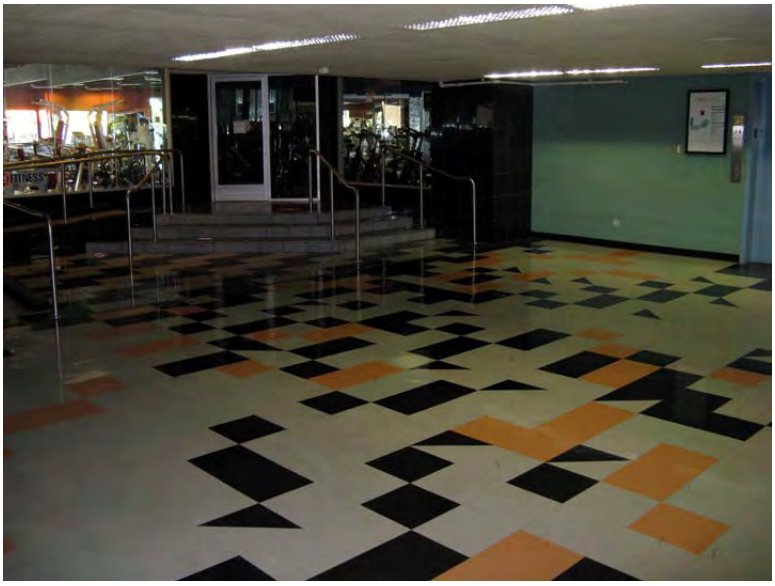


Figure A12. Webster Street Mall, Hall. View from south.
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Figure A13. HVAC, Kaiser Center Roof Garden. View from southwest.
Page & Turnbull, 2008



Figure A14. Roof Garden, water fountain.
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Figure A15. Lake Merritt Historic District
Page & Turnbull, 2008



Figure A16. Lake Merritt Historic District, northwest shore.
Page & Turnbull, 2008



Figure A17. Lake Merritt Historic District, southwest shore.
Page & Turnbull, 2008



Figure A18. Lake Merritt Historic District, northeast shore.
Page & Turnbull, 2008



Figure A19. Lake Merritt Historic District, northwest shore.
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Figure A20. Lake Merritt Historic District, showing Kaiser Center.
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Figure A21. Lake Merritt Historic District, showing Kaiser Center (center), The Essex (left), Cathedral of Christ the Light (Right)
Page & Turnbull, 2008



Figure A22. Lake Merritt Historic District, 244 Lakeside Drive
Page & Turnbull, 2008



Figure A23. Lake Merritt Historic District, Snow Park
Page & Turnbull, 2008



Figure A24. Lake Merritt Historic District,
The Essex at Lake Merritt
Page & Turnbull, 2008

Historic Images



Figure H1. Model of Kaiser Center Tower. Kaiser Center Archives.



Figure H2. Office Tower, Lobby, ca. 1960.
***Architectural Record*, December 1960**

Maps

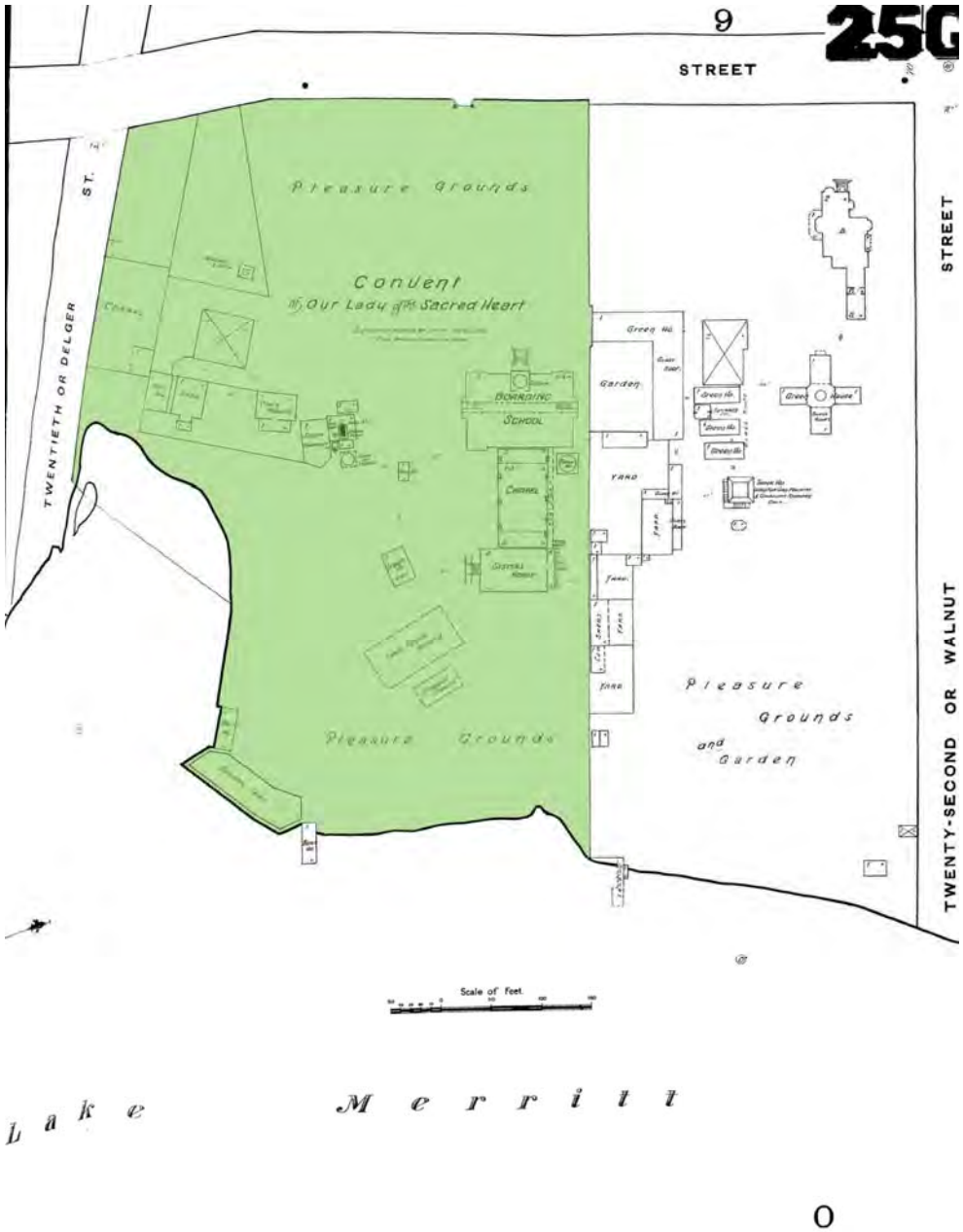


Figure M1. Sanborn Fire Insurance Map, 1899. Showing approximate location of subject property

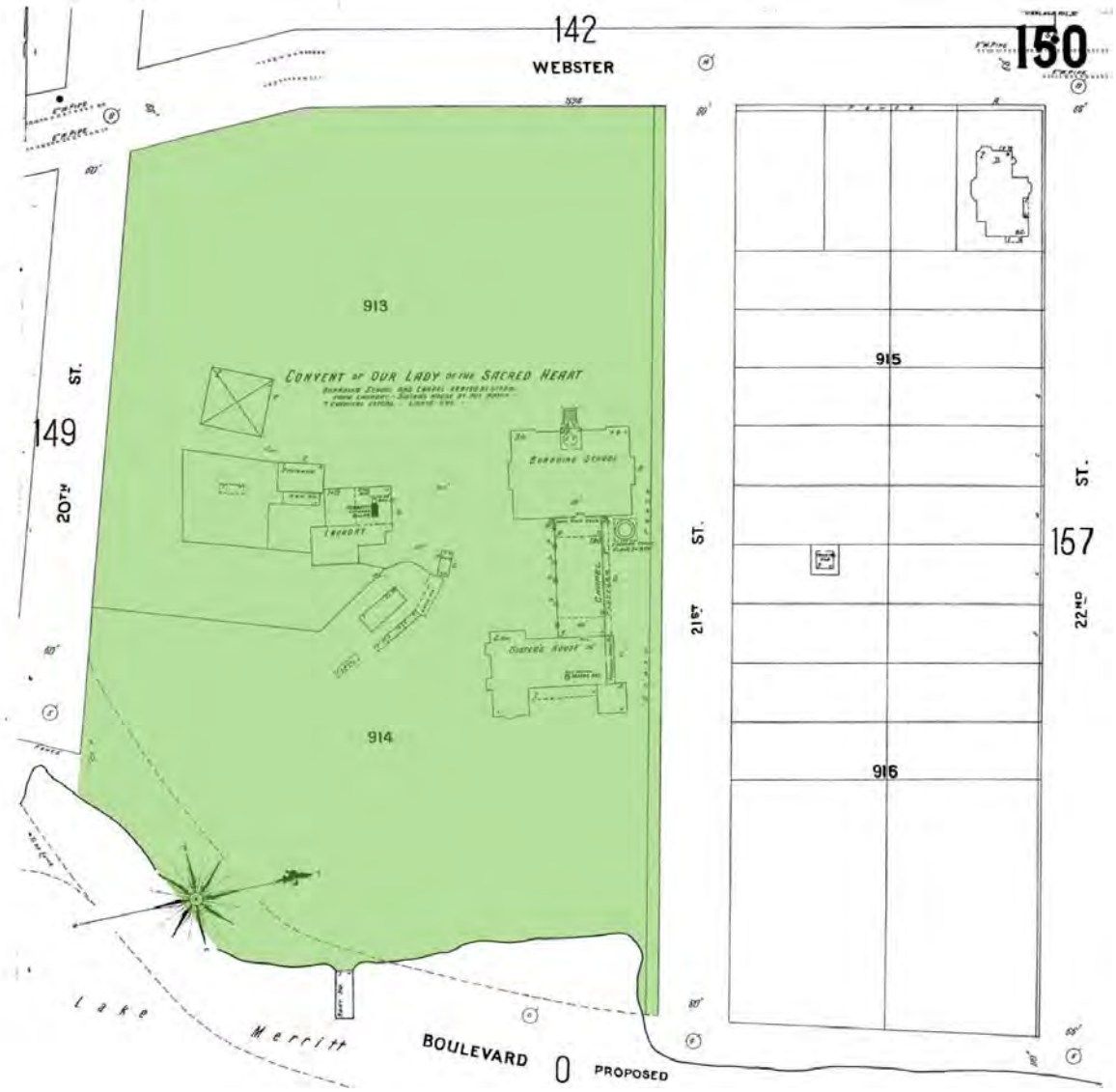


Figure M2. Sanborn Fire Insurance Map, 1903. Showing approximate location of subject property

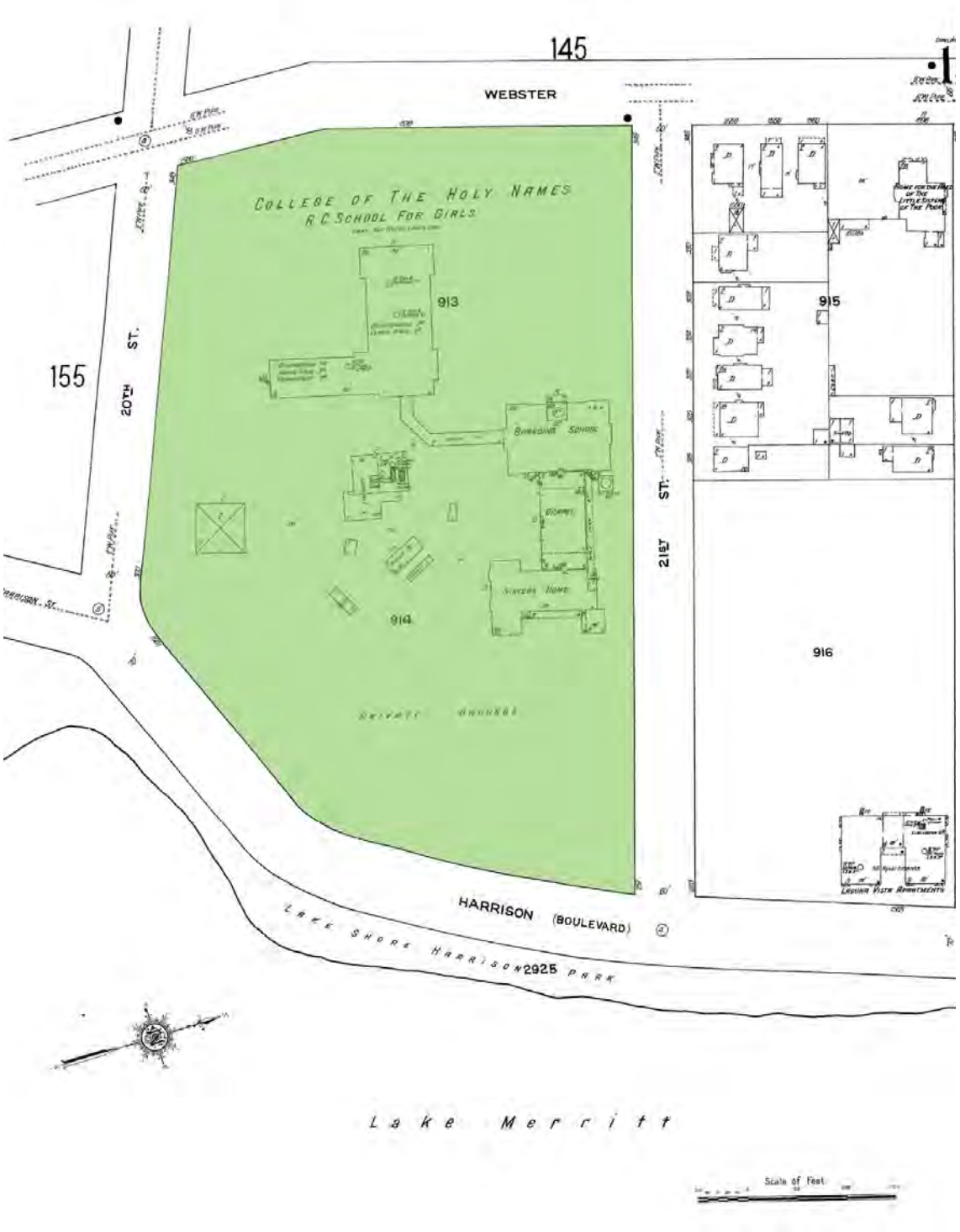


Figure M3. Sanborn Fire Insurance Map, 1912. Showing approximate location of subject property

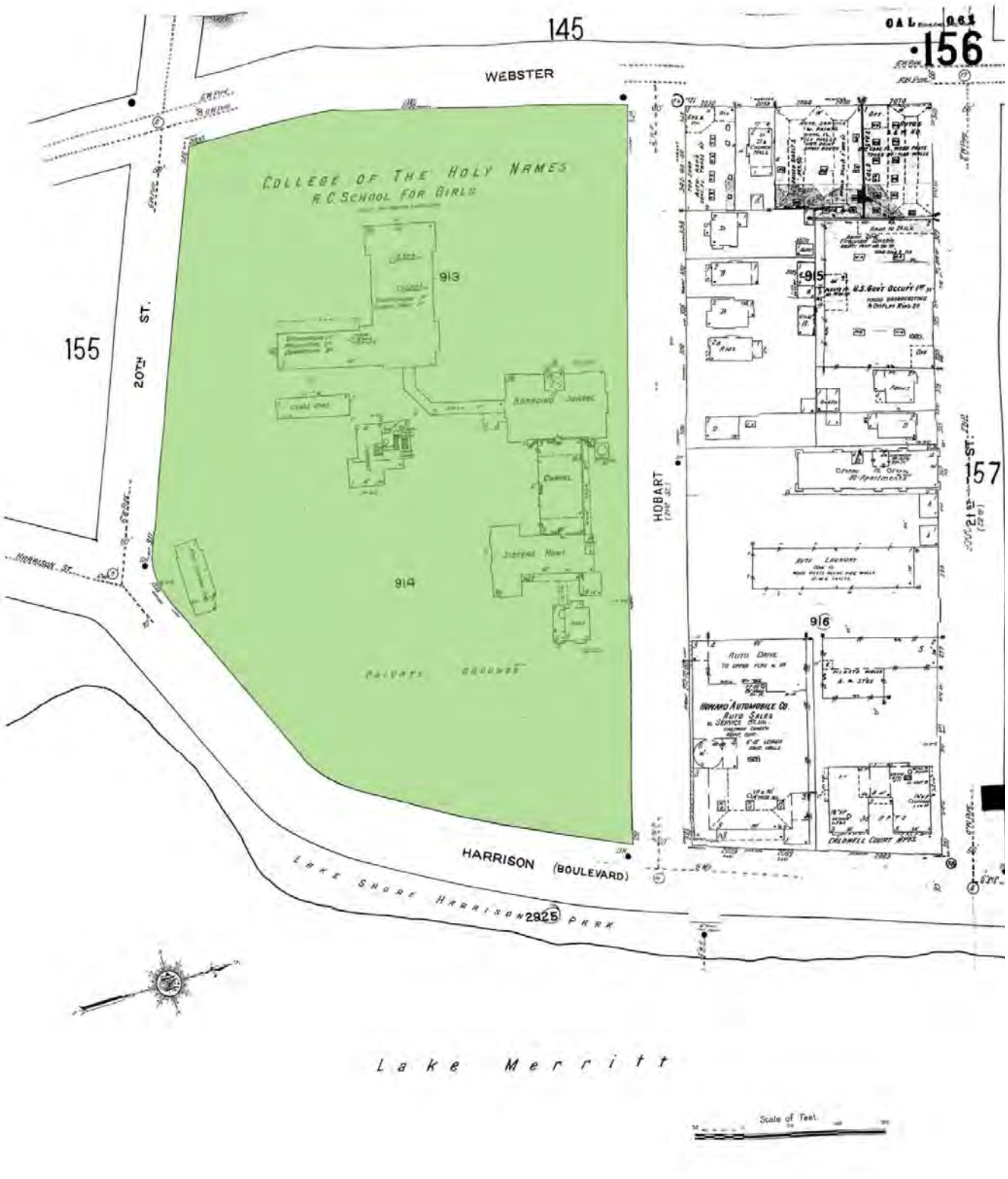


Figure M4. Sanborn Fire Insurance Map, 1950. Showing approximate location of subject property

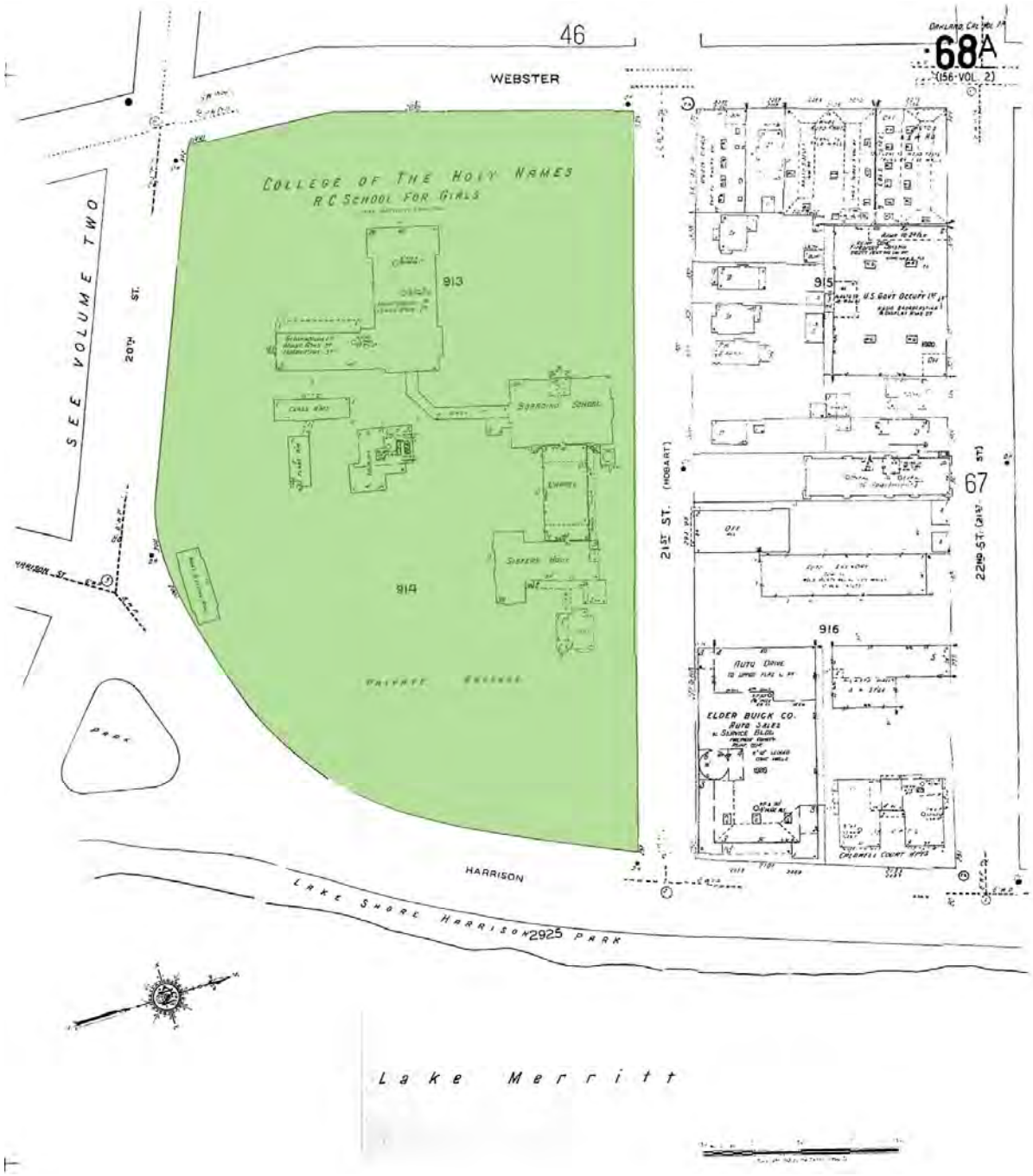


Figure M5. Sanborn Fire Insurance Map, 1952. Showing approximate location of subject property

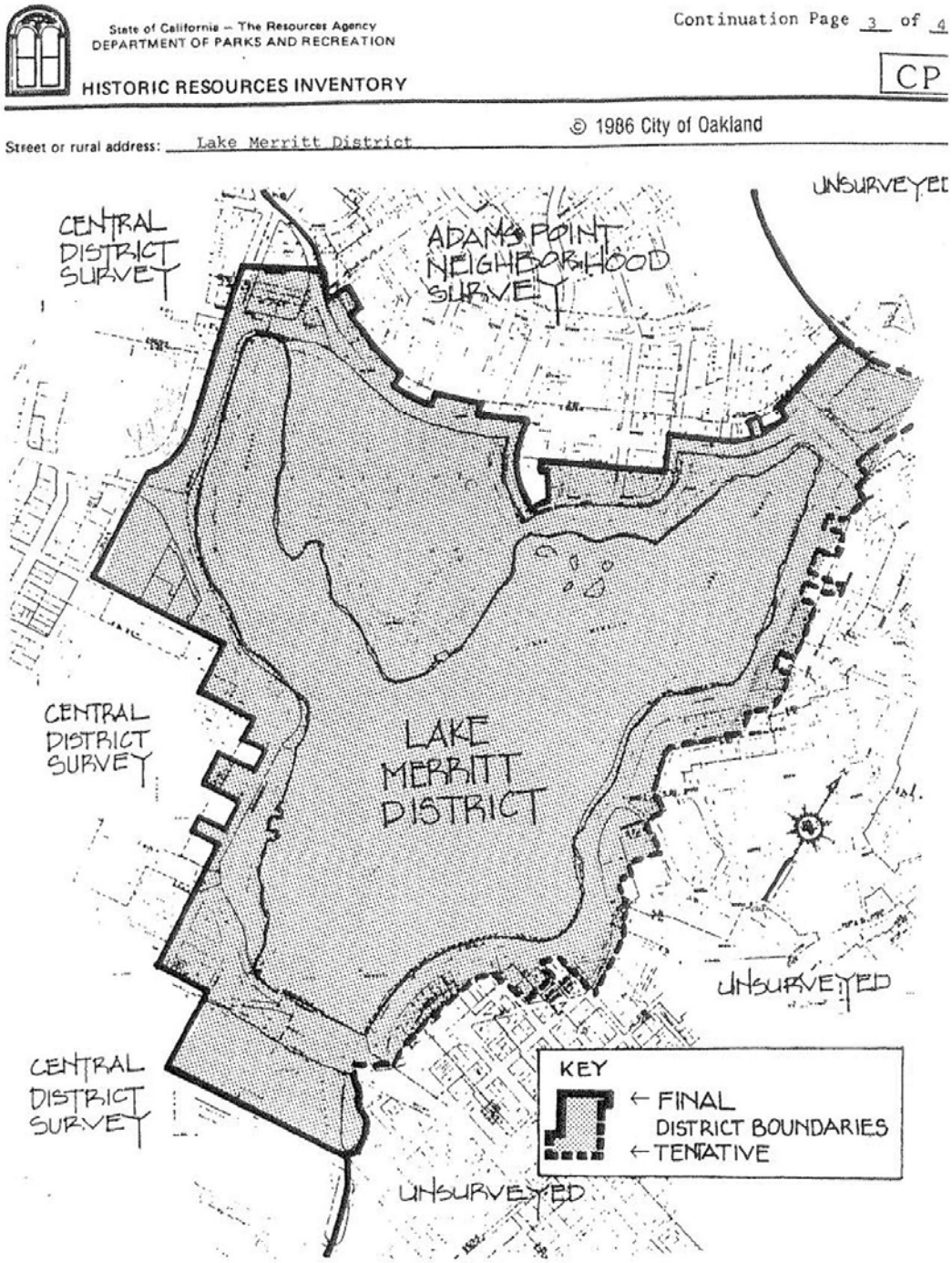


Figure M6. OCHS, Lake Merritt Historic District Boundary Map, 1986.

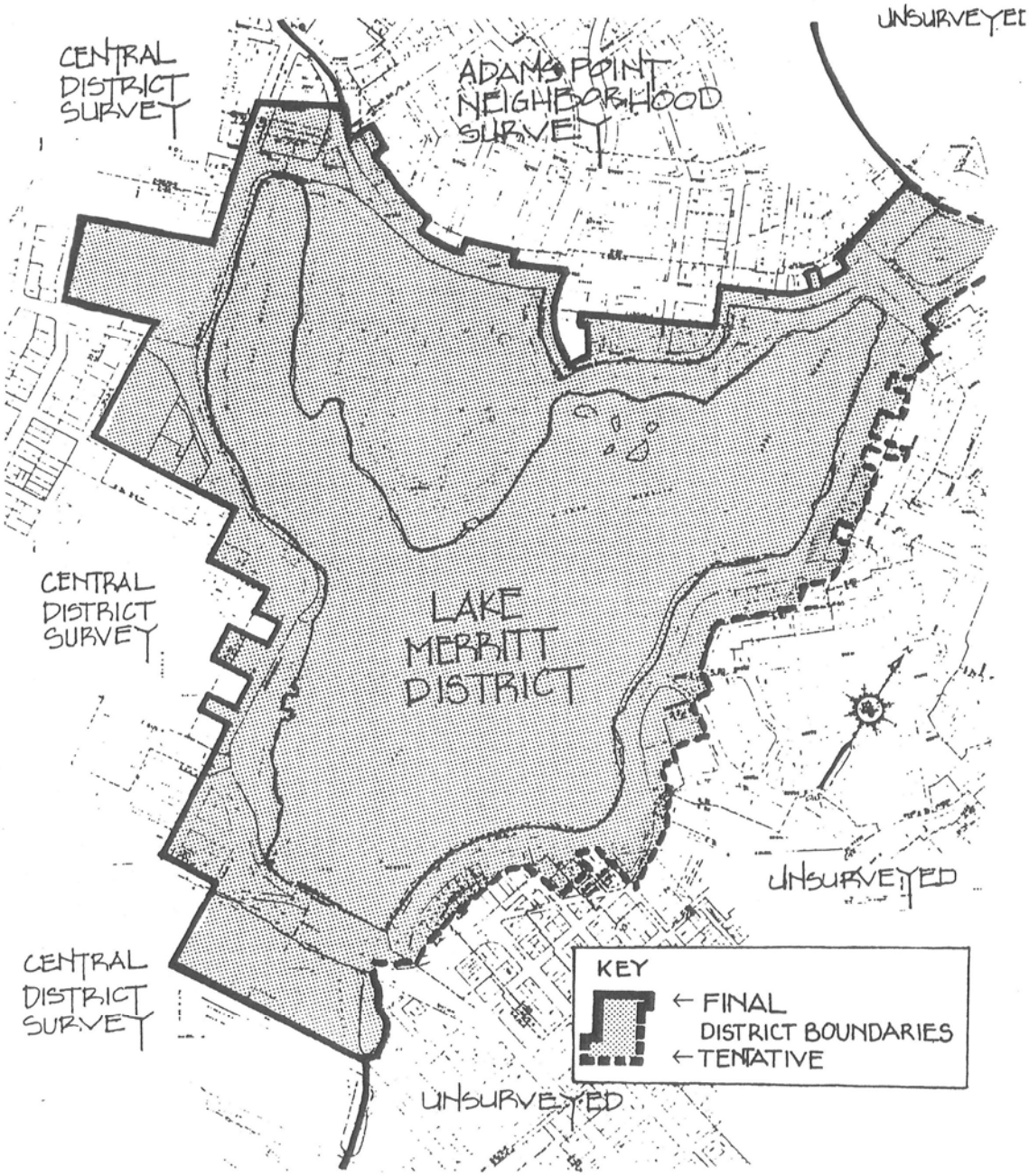


Figure M7. OCHS, Lake Merritt Historic District Boundary Map, 1986,
Altered by author per the request of OCHS staff.
Note that the map boundary has been altered to include the Kaiser Center.

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APPENDIX B

Dolomite Panel Cleaning Study and Reuse Feasibility Analysis

SGH
Simpson Gumpertz & Heger Inc.
Consulting Engineers
Arlington, MA / San Francisco, CA

BY FAX AND U.S. MAIL

10 March 2000

Ms. Deborah A. Boyer
Director of Operations & Construction
Kaiser Center, Inc.
300 Lakeside Dr., Suite 130
Oakland, California 94612-3534

Comm. 98843.01 — Construction Administration, Concrete Wall Repairs, Kaiser Center, Oakland, CA

Dear Ms. Boyer:

This letter is in response to your request for maintenance guidelines of the rehabilitation work performed by Western Waterproofing at the above referenced project. Western Waterproofing's rehabilitation scope included sealant replacement, concrete spall repair, sealing concrete panels, and aluminum coping installation. The maintenance guidelines for each of these items are listed below.

Sealant

In accordance with the manufacturers recommendations, the Sikaflex 2c replacement sealant should be visually inspected every five years to check the performance of the sealant. The Sikaflex 2c normally will not require repair or replacement for at least ten years dependent on exposure. If a failure is observed, that portion of the sealant joint should be removed and the surface of the panels should be cleaned and free of foreign materials that would inhibit bonding. The sealant should then be replaced with Sikaflex 2c using a joint width-to-depth ratio of 2 to 1 using new backing material to set the joint depth. We recommend that a qualified waterproofing contractor perform any sealant repairs to assure that the joints are prepared properly.

Concrete Spall Repairs

The exposed aggregate panels should be monitored for further spalling. If additional spalls should occur, the spalls should be removed, and the area prepared and repaired according to the specifications. The spalls should be repaired by a company with experience in restoration and concrete patching.

Note that the final mix design included one part lime, one part grey Portland Type II cement and two parts sand. This mix was developed as part of the submittal process and is not in the specifications.

Concrete Sealer

The Dynasylan BH-N clear penetrating sealer is a surfaced-applied sealer which affects the top 1/2 inch of the wall surface. The sealer is colorless and therefore it is impossible to determine the condition of the sealer over time by visual observation. The condition of the sealer can only be assessed by coring the wall and doing a chemical analysis of the surface. For maintenance, the manufacturer suggests recoating the wall in 10 to 15 years. This product is affected by environmental exposure so the condition of the sealer on the three facades may vary by the time of resealing. Prior to resealing, it is prudent to conduct an inconspicuous mock-up on each facade to determine any negative aesthetic results, such as darkening. Concrete coating and sealing technology changes constantly. We would recommend consulting product representatives of Dynasylan or other consultants for an evaluation of then current products and compatibility with the Dynasylan BH-N.

Aluminum Coping

The aluminum coping extension should be checked biyearly from the roof to verify the condition of the sealants used at the metal joints. Because of its exposure to weather, the coping seals experience a lot of movement. If a failure is observed, that portion of the sealant joint should be removed and the surface of the panels should be cleaned and free of foreign materials that would inhibit bonding. The sealant should then be replaced with Sikaflex 2c using a bond breaker at the fillet-type joints. We recommend that a qualified waterproofing contractor perform any sealant repairs to assure that the joints are prepared properly.

Conclusion

The above guidelines are meant to assist you in maintaining your property. A periodic inspection of every five years should help Kaiser Center monitor the performance of exterior concrete walls. There are many factors which affect the performance of the exterior cladding materials, especially environmental factors, such as sun, wind, rain and airborne contaminants. Therefore, the various products will require repair or replacement at different times. Any failures within the warranty periods, however, should be brought to Western Waterproofing and Simpson Gumpertz & Heger's attention.

We hope this letter assists you in the long-term maintenance of your building. If you have any questions or concerns, please do not hesitate to call.

Sincerely yours,

Jonathan T. Stafford, Engineer
I:\COMM\SSI\1998\98800\98843\01KCA\L16JTS99.WPD

Encl.

cc: Mr. Robert P. Browne, Western Waterproofing (w/o encl.)

Sikaflex®-2c Maintenance Procedure

1) Preconditions:

a) As a premium-grade two component polyurethane elastomeric joint sealant Sikaflex-2c is suitable for sealing properly designed working joints. The self-leveling grade for horizontal joints and the non-sag consistency for vertical and overhead joints.

b) Sikaflex-2c is normally applied at a minimum thickness of 1/4 inch by use of a bulk gun or by manually pouring the self-leveling grade.

c) Sikaflex-2c is normally used to seal joints between concrete, masonry, aluminum or coated metal panels and EIFS systems that have been suitably prepared, repaired or conditioned in accordance with Sika's current technical data sheets.

2) Maintenance Procedure:

These maintenance recommendations given below relate to the product correctly applied in accordance with the preconditions above.

In accordance with standard good practices all sealant systems, including Sikaflex-2c, should at least be visually inspected every 5 years. Sikaflex-2c will normally not require maintenance (i.e. resealing) for at least 10 years dependent on exposure. When eventual maintenance is required, the following procedure should be closely observed:

a) Cut out all damaged sealant with a manual or mechanical device. By mechanical means remove all other foreign or deleterious materials that might prevent bond.

b) When the substrate is clean, sound and dry, reapply the sealant in accordance with the original Sikaflex-2c specification.

c) The sealant shall be applied with a minimal thickness of 1/4 inch and in the industry acceptable ratio, width to depth, of 2:1. Note that a 1:1 ratio is also tolerable in various situations.

d) Allow the sealant to cure normally and plan the next visual inspection in 5 years and possible routine maintenance in 10-15 years dependent on exposure and requirements.

3) Warranties:

Subject to satisfactory compliance with all of the above, Sika Corporation will issue a further warranty for this system in accordance with our standard policies.

file

KAISER CENTER INC.
MAR 13 2000
ADMINISTRATION

Simpson Gumpertz & Heger Inc.

Consulting Engineers
San Francisco
Arlington

222 Sutter Street
Suite 300
San Francisco, CA
94108

Telephone:
415 495 3700
Fax:
415 495 3550

TRANSMITTAL

Date:	10 March 2000	**Comm. No.**	98843.01
Project:	Kaiser Center		
To:	Kaiser Center, Inc.	**From:**	Chris Decareau
Attention:	Ms. Deborah A. Boyer Director of Operations & Construction	**Tel No:**	(510) 271-6113
Address:	300 Lakeside Dr., Suite 130	**Fax No:**	(510) 271-6103
City, State, Zip:	Oakland, California 94612-3534	**No. Pages:**	3

Delivered Via:	✔ U.S. Mail ☐ Federal Express	✔ Fax ☐ Messenger	☐ UPS ☐ Pick up
Action Required:	☐ Sign and return to this office ☐ Indicated on item transmitted	☐ Comment / return ☐ See remarks below	☐ No action required ☐
For your:	☐ Approval ☐ Review / Comments	☐ Records ☐ Distribution	☐ Use ☐ Information

Quantity:	Description / Remarks:	Dated:
1	Letter	10 March 2000

cc:	Enclosures:	Delivered Via:	
		☐ U.S. Mail ☐ Federal Express	☐ Fax ☐ Messenger
		☐ U.S. Mail ☐ Federal Express	☐ Fax ☐ Messenger
		☐ U.S. Mail ☐ Federal Express	☐ Fax ☐ Messenger

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SGH
Simpson Gumpertz & Heger Inc.
Consulting Engineers
Arlington, MA / San Francisco, CA

LETTER REPORT

EXTERIOR WALL CLEANING AND COATING STUDY

KAISER CENTER
OAKLAND, CALIFORNIA

Prepared for:

Kaiser Center Inc.
300 Lakeside Dr., Suite 130
Oakland, California 94612-3534

Comm. 98843.00

25 February 1999

222 Sutter Street, Third Floor, Suite 300, San Francisco, CA 94108 ■ Telephone: 415-495-3700 ■ Facsimile: 415-495-3550 ■ www.sgh.com

SGH
Simpson Gumpertz & Heger Inc.
Consulting Engineers
Arlington, MA / San Francisco, CA

25 February 1999

Ms. Deborah A. Boyer
Director of Operations and Construction
Kaiser Center Inc.
300 Lakeside Drive, Suite 130
Oakland, California 94612-3534

Comm. 98843.00 — Exterior Wall Cleaning and Coating Study, Kaiser Center, Oakland, CA

Dear Deborah:

Introduction

At your request, Simpson Gumpertz & Heger Inc. (SGH) has conducted an investigation of methods to clean and repair the exterior walls at the Kaiser Center. The Kaiser Center is a 28-story office building (Photo 1), built in the early 1960's, located in Oakland, California. Most of the exterior wall is an aluminum and glass curtain wall. Solid stair tower walls are clad in precast concrete with exposed dolomite aggregate finish.

You identified two problems for us to investigate:

1. The aluminum curtain wall panels are dirty and unsightly.

2. The concrete walls are streaked and dirty.

Our work to date has consisted of a review of original construction documents, visual surveys of the exterior walls, close-up inspections from swing stages, laboratory analysis of samples, cleaning test mock-ups, recommendations for cleaning and repair, and an estimate of probable construction cost.

Information Obtained From Others

We reviewed the original drawings and specifications, by architect Welton Becket & Associates and found the following pertinent information:

- Four types of finishes were used on the aluminum (Sheet 1008, dated 1-29-58):
  - Column covers are a dark grey color identified as "material: .125#7BP with finish C1-A2."
  - Beam fascias are a light grey color identified as "material: 6063-T5 with finish C1-A2."
  - Mullions are a light grey color identified as "material: 6063-T5 with finish C1-A2."
  - Spandrel panels are a gold color identified as "material: 125 gold alloy, ribs embossed vertically, with finish C1-A2."
- Precast concrete panels are lightweight concrete with a decorative dolomite aggregate finish. (Specification Section XIII)

We interviewed personnel familiar with the building:

- According to the building engineer, George, pieces of concrete have spalled from the panels since shortly after construction. A small, tan colored aggregate particle is at the apex of the spalls, and appears to be the point of origin of the spalls. The concrete was coated with an epoxy sealer to prevent water from reaching the aggregate particle and causing expansion of the particle and spalling. There have been fewer spalls since the sealer was applied.
- According to Dick Schroter of SGH, who worked for Kaiser at the time of construction, the aggregate causing the spalls was reported to be burnt dolomite, which was transported in the same trucks as the exposed aggregate dolomite. The burnt dolomite became mixed into the aggregate for the precast panels, and caused the spalls.

We reviewed two letter reports by Western Restoration, dated 23 September 1991 and 24 October 1991, regarding exterior cleaning.

- Western Restoration conducted cleaning tests on the north concrete wall at ground level, using various chemical cleaners manufactured by ProSoCo. They recommended a cleaning program consisting of:
  a. Water blast
  b. Apply poultice and allow to dwell for 24 hours
  c. Remove poultice
  d. Pressure wash
  e. Apply ProSoCo limestone restorer
  f. Apply ProSoCo Weather Seal Siloxane

Steps a, d and e would have to be done after hours, and the poultice removed in step c would have to be disposed of as hazardous waste.

- Western Restoration recommended cleaning the aluminum with Sure Klean Aluminum Cleaner.

Field Observations

Carolyn Searls made a visual survey of the entire building from street level and a close up survey of the lower portion of the north concrete wall on 18 July 1998:

Concrete Walls

All concrete walls are streaked and dirty. The epoxy sealer is cracked and brittle. It has worn off in some areas but is intact in other areas. There are incipient spalls and previously patched spalls visible on all concrete walls. The concrete panels are dirtier on the tower than at the lower podium.

North Wall

We accessed the north wall up to the fourth floor using a lift. We removed two incipient spalls from the concrete panels. A tan-colored aggregate particle was found at the base of each spall. The particles were cracked and disintegrating. In the area up to the sixth floor we could see five other incipient spalls and 17 previously patched spalls (Photo 2).

Aluminum and Glass Curtain Wall

The aluminum is dirtier at the north and east sides of the building (Photo 3). The louvers near the top of the building appear especially dirty. The aluminum on the south side of the podium has been scuffed and scratched (Photo 4).

We made further inspections on 27 August 1998.

East Concrete Wall

Carolyn Searls and George (the building engineer) made a close up inspection of the east concrete wall on 27 August 1998. The swing stage covered the south half of the wall only. We made the following observations:

- We identified and removed 31 incipient spalls. Photo 5 shows a typical spall. Most of the spalls were easy to remove by hand or with a little prying with a screwdriver.
- We saw many incipient spalls at the half of the wall we could not reach from our swing stage. (Photo 6)
- We saw one area where concrete had recently spalled. (The concrete where the spall had been was still clean.) (Photo 7)
- The spalls range in size from 2 in. to 9 in. in diameter, and ½ in. to 1-3/4 in. deep.
- Most spalls have one tan, disintegrating aggregate particle at the apex of the spall. One spall has two particles.
- While on the wall, we noticed that the sealant is in fairly good condition with some small areas of adhesive failure. The sealant is still fairly elastic. It is placed over a fibrous backer rod.
- The epoxy sealer is worn off the dolomite aggregate, but remains on some of the cement paste between the aggregate. It is brittle and flaky.
- The metal roof coping does not cover the top of the precast panels, leaving the top horizontal concrete surface exposed. (Photo 8)
- The ends of steel rods are sticking out at the 26th and 27th floors. These rods may have originally been installed to support the "Kaiser Center" sign shown on the drawings. The sign is no longer in place on this elevation.

Aluminum and Glass Curtain Wall

Carolyn Searls observed the aluminum curtain wall close up at the fourth floor roof and from a swing stage on the east elevation, and made the following observations:

- All aluminum elements are dirty. The ribbed gold panels are more dirty than the smooth grey column covers and mullions.
- Some gold panels have patches of oxidation product, as shown in Photo 9. If the oxidation product is scraped off, a pit in the aluminum remains.
- The pitting on the drop we surveyed was worse at about the mid height of the building.

Field Tests

Aluminum Cleaning

On 15 September 1998, AMS Architectural Technologies Inc. performed mock-ups of the cleaning of the aluminum. The first mock-up is located at the 17th floor, south elevation, between Column Lines 7 and 8. We selected this panel for the mock up because it was representative of the most severe corrosion and pitting we saw. The gold, ribbed panel was cleaned. Before cleaning the aluminum was dirty and had irregular shaped spots of oxidation products from corrosion of the aluminum, as shown in Photo 9.

AMS cleaned the panel by hand scrubbing with nylon abrasive pads and detergent. After rinsing and drying, they applied a surface protectant.

After cleaning, some dirt remained in the grooves, but the panel was fairly and uniformly clean. We could see the pits in the aluminum from the swing stage (Photo 10), but not from the street. The cleaned panel is much cleaner than the adjacent panels and is readily visible from the street (Photo 11).

AMS cleaned a second mock up at the fourth floor roof level, north elevation, at the east end of the building, as shown in Photo 12:

- Gold ribbed panels: AMS cleaned two gold panels — one especially pitted and one heavily soiled panel. After cleaning and applying the surface protectant, the pitting is still visible. Both panels are uniformly clean except at a strip at the lower 2 in. of the panels. It was difficult to clean this area because of interference from the horizontal mullion below the panel.
- Light grey spandrels and mullions: AMS found that these elements have a lacquer coating. They removed the lacquer, cleaned the panels and applied the surface protectant. The panels are visibly cleaner than the adjacent uncleaned areas.
- Dark grey column covers: These elements also have a lacquer coating. AMS removed the lacquer and cleaned the panels. The cleaned panels are visibly cleaner than the adjacent uncleaned areas.

On 12 December 1998, Stuart Dean Co, Inc. performed a mock up of the cleaning of the aluminum on the fourth floor roof level on the north elevation of the building. The cleaning included two gold ribbed panels, two light grey horizontal mullions and a six foot section of the dark grey column covers.

The panels were cleaned using 3M nylon pads and a liquid detergent. The gold ribbed panels had to be cleaned using an additional lacquer stripper in order to remove the shipping coating. After the cleaning, the panels were allowed to dry and were then sealed with a surface protectant.

Before cleaning the panels were very dirty, showed signs of pitting and oxidization, and were scratched in places, assumed to be caused by the window washing equipment.

After cleaning the panels were fairly clean with minimal dirt remaining on the surface. The pitting on the surface and scratches from the window washers equipment were still visible. The cleaned panels stood out against the dirty panels around them.

Concrete Cleaning

On 13 October 1998, Western Waterproofing and JOS/Quintek performed cleaning mock ups of the concrete panels. The mock-ups are located at ground level on the north side of the building. Four cleaning methods were tried:

- JOS System. This system uses a microabrasive fine dolomite powder mixed with water applied at low pressures. The process was not successful in removing the epoxy coating, and was extremely messy, requiring large amounts of the microabrasive. This system is not recommended.
- Black Beauty: This is a dry blast method. It damaged the dolomite aggregate and is not recommended.
- Rotec steam cleaning. The Rotec system uses steam projected in a flat fan spray (Photo 13). A variety of pressures from 1000 psi to 3000 psi, with a small and large nozzle were tested. The 3000 psi pressure using the small nozzle was most effective (Photo 14).
- Rotec steam cleaning with polymer cracker. A chemical "polymer cracker" was brushed on the concrete and allowed to dwell for 6 ½ hours. It was then removed with the steam cleaning at 2500 psi. The improvement over the steam cleaning alone was marginal.

We observed further cleaning tests conducted by Western Waterproofing on 14 January 1999. They tested:

- Peel Away 7 paint stripper, dwell time 1-1/2 hours, removed with a power wash.
- High pressure cold water power wash.

Neither of the techniques was as effective as the Rotec steam cleaning.

Laboratory Tests

We performed a microscopic examination of two spalls removed from the concrete and x-ray diffraction analysis of the tan aggregate particles found at the apex of the spalls. The complete report is attached, and our findings are summarized herein. The spalls are caused by fragments of burnt dolomite within the concrete which experience up to a 200% increase in volume when exposed to moisture over long periods. When the burnt dolomite expands, it fractures the surrounding concrete, creating the spalls. The previously applied coating has trapped moisture behind the outer surface of the concrete and probably exacerbated the spalling.

Unreacted aggregate particles are still present in the concrete; therefore, the spalling can be expected to continue as long as a source of moisture is provided. However, the concrete provides some restraint of expanding particles, and spalls only occur to a certain depth. At some time, all shallow particles will have expanded and spalled, and the spalling will stop. Determining the number of spalls on the building over several years is the best method of determining if the spalls have slowed or stopped.

We had Sivento, Inc., a manufacturer of water repellents, perform tests of the efficacy of water repellent coating for the concrete. The complete report is attached, and our findings are summarized herein.

We submitted two steam-cleaned concrete spalls (which we had removed from the east wall) to Sivento for testing. Sivento coated one sample with their Dynasylan BH-N water repellent and measured the 24-hour water absorption of the treated sample and one untreated sample. The untreated sample absorption was 0.90%, and the treated sample absorption was 0.24%.

Both treated and untreated samples have low water absorption. The moisture causing the spalls may be caused more by the water trapped by the epoxy coating than by absorption through the surface of the concrete. Further testing would be required to determine the primary source of the moisture and how effective a water repellent will be. However, a breathable water repellent (such as Dynasylan BH-N) will not cause any harm and could reduce the spalling.

Recommendations

We recommend the following repairs:

Aluminum Curtain Wall

1. Clean the aluminum surfaces using mild cleaners, hand scrubbing and water rinse.

2. Seal aluminum surfaces with either AMS #350 or Stuart Dean's Sodric sealers.

The following table compares the proposals submitted thus far by AMS and Stuart Dean. We have worked with both contractors, and we believe either one is capable of performing this work.

Comparison of Aluminum Cleaning Proposals		
Category	**AMS**	**Stuart Dean**
Price	$698,323.84, including staging	$750,000 ± 10%, including staging*
Cleaning	Hand scrub, water rinse	Hand scrub, water rinse
Sealing	AMS #350 0.1 mil thickness siloxane	Sodric 1.0 mil thickness acrylic-silicone blend
Maintenance: Washing	once/year with water	once/year with water
Maintenance: Resealing	3 years or more, depending on exposure, likely 5 years	3 years or more, depending on exposure, likely 5 years

Comparison of Aluminum Cleaning Proposals		
Category	**AMS**	**Stuart Dean**
Duration	Within 1 year, flexible to meet needs of owner	Within 1 year, flexible to meet needs of owner
Guarantee	3 years	3 years

*Stuart Dean has requested to be allowed to perform do another test panel (time and motion study) similar to that done by AMS, in order to finalize their price

Concrete Walls

1. Clean the concrete using the Rotec steam cleaning method.
2. Remove incipient spalls.
3. Patch spalls with mortar. Embed dolomite aggregate in the patch to match the existing surface.
4. Apply Dynasylan BH-N water repellant.
5. Install sheet metal coping at the top of the concrete walls to reduce water infiltration into the concrete panels.

Our specifications require the contractor to install a sample panel showing all of the repairs, to verify acceptable appearance of, and to set a standard for the rest of the work.

Cost Estimate

We have prepared the following cost estimate for your budgeting purposes:

Item	Cost	Estimate by
Aluminum Curtain Wall		
Cleaning and Sealing (incl. staging)	$698,324	AMS
Concrete Walls		
Cleaning (incl. staging)	$245,000	Western Waterproofing
Water repellant	85,000	Western Waterproofing
Coping	4,450	Western Waterproofing
Spall patching	25,000	Western Waterproofing
Total Concrete Walls	$359,450	

Item	Cost	Estimate by
Engineering Fees		
Construction documents	$15,000	SGH
Construction administration	40,000	SGH
Total Engineering Fees	$55,000	
GRAND TOTAL	$1,112,774	

Once you have received approval to proceed, we will prepare construction documents for the work. We will need input from you concerning your requirements for the owner/contractor agreement, as well as special requirements for working hours, noise, etc. We will submit the construction documents to AMS, Stuart Dean, and Western Waterproofing for bidding. We are available to provide construction observation during the work.

Sincerely yours,

Carolyn L. Searls, Senior Associate, VP
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Photo 1

Kaiser Building, Oakland, California.



Photo 2

Previously patched concrete spall.



Photo 3

Dirty aluminum panels.

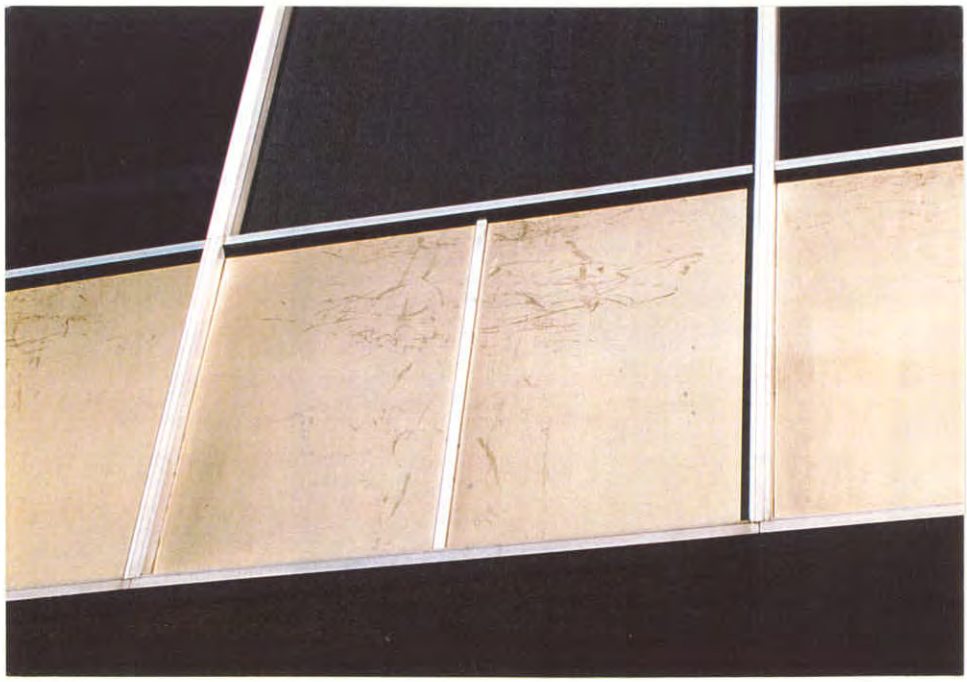


Photo 4

Scratched aluminum on the south side of the podium near ground level.



Photo 5

Typical concrete spall. Note tan-colored aggregate at apex of spall.

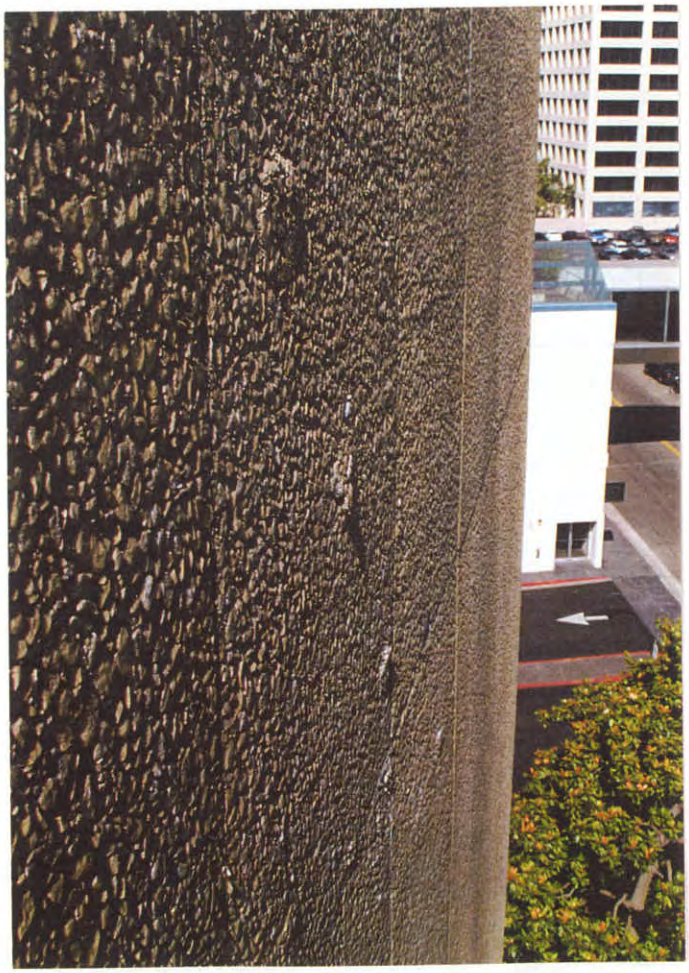


Photo 6

We saw many incipient spalls (popouts that had not yet fallen) on the portion of the south wall adjacent to our drop.



Photo 7

Recent concrete spall. Note how dirty the surface of the concrete is compared to the clean spalled area.



Photo 8

The parapet coping does not cover top of precast concrete panels.

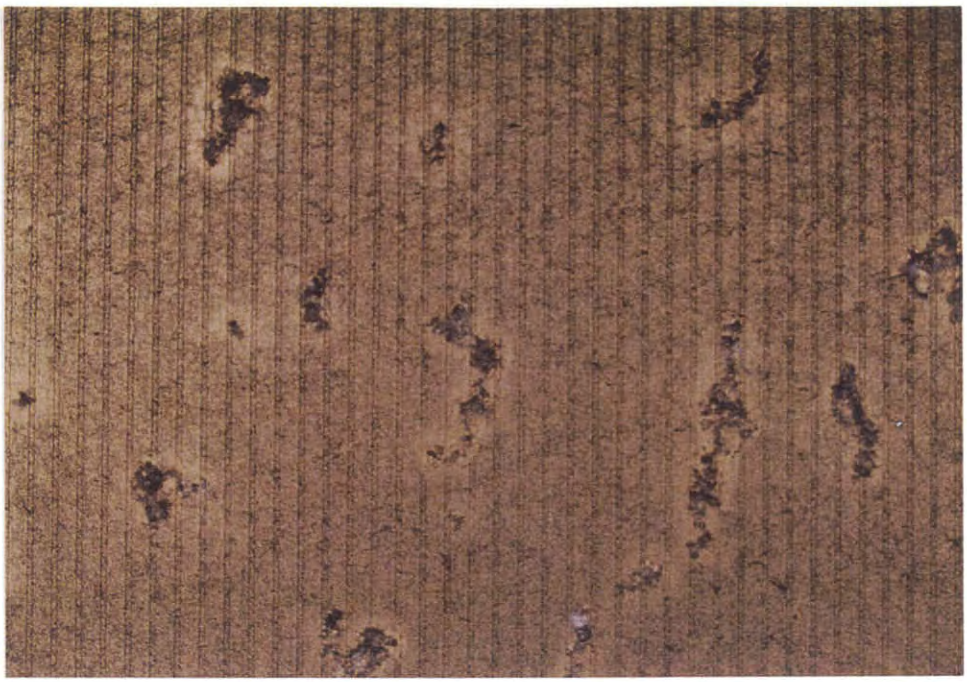


Photo 9

Gold-ribbed panel before cleaning is dirty and pitted. The irregular splotches on the photo are areas of corrosion.

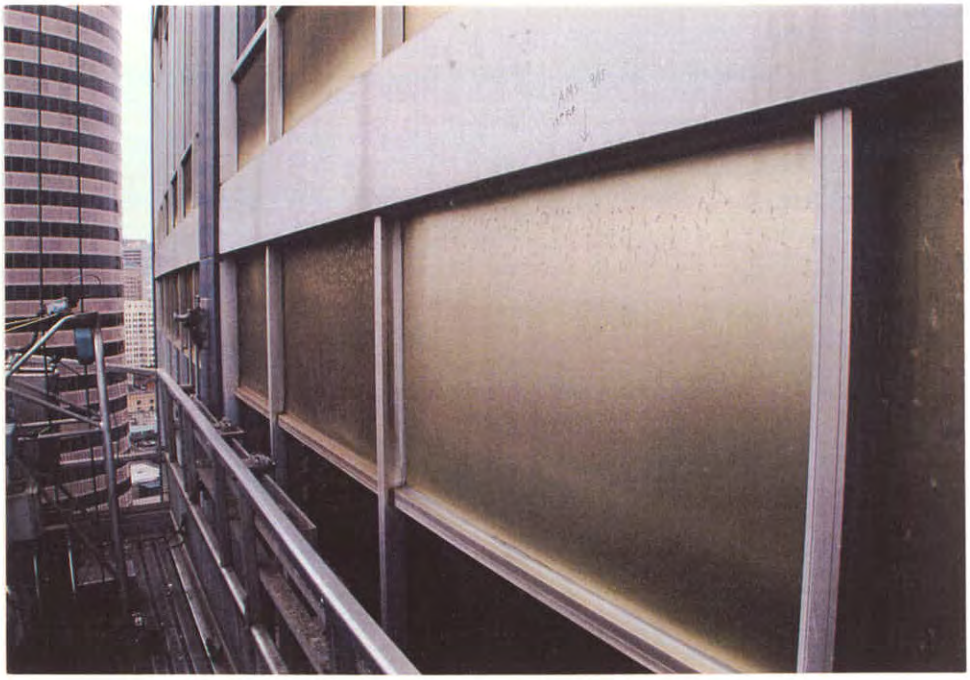


Photo 10

Cleaned gold aluminum panel at 17th Floor.



Photo 11

Cleaned gold aluminum panel at 17th Floor.



Photo 12

Aluminum cleaning mock-ups at the 4th Floor.



Photo 13

Steam cleaning of concrete.

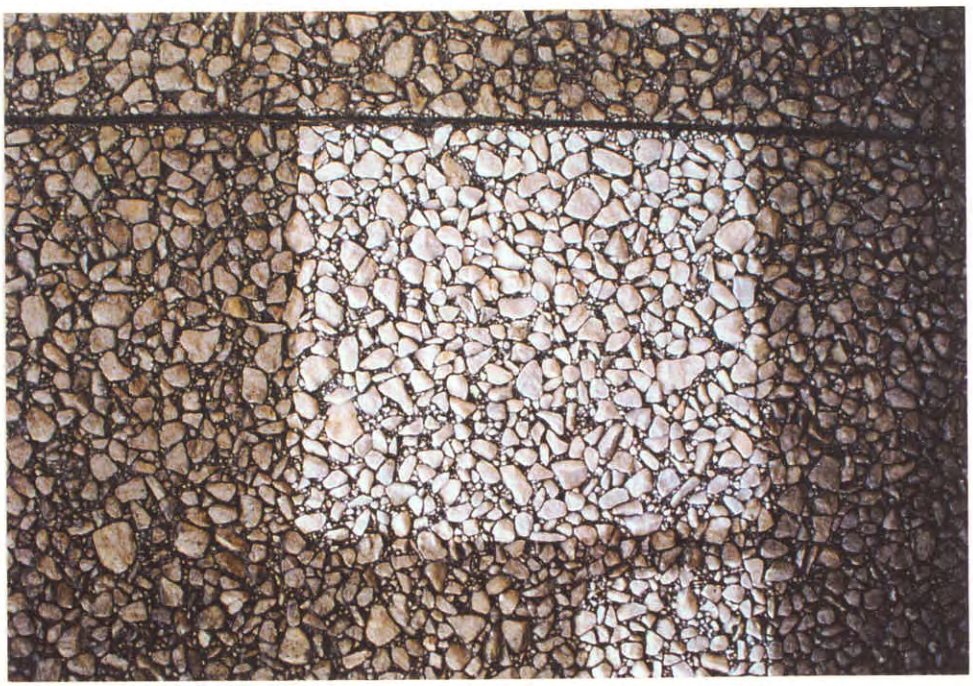


Photo 14

Concrete cleaning test area.

APPENDIX A

MICROSCOPIC EXAMINATION AND ANALYSIS OF HARDENED CONCRETE

SGH
Simpson Gumpertz & Heger Inc.
Consulting Engineers
Arlington, MA / San Francisco, CA

M E M O R A N D U M

Date: 2 October 1998

To: Carolyn Searls and File

From: Mauro J. Scali, Staff Consultant/Petrography

Comm. 98843 – Investigation of Precast Concrete Panel Failures – Kaiser Building, San Francisco, CA

Subject: Microscopic Examination and Analysis of Hardened Concrete

Per your request, we have completed a microscopic examination and analysis of hardened concrete samples from the Kaiser Building, located in San Francisco, California. The purpose of the laboratory testing is to determine the underlying cause of popouts in the exposed surfaces of the precast concrete panels on the exterior of the building.

This memorandum provides a summary of the results of the visual and microscopic examination and x-ray diffraction analysis of the submitted test samples.

Sample Description

The test samples consist of two small, irregular, conically-shaped fractured spalled sections of hardened concrete. The test samples were removed from two different precast panels on the exterior of the building. The test samples were identified as ES -1 and ES -2, with nominal dimensions 6X8 in. and 6-1/2 X 9-1/2 in., respectively.

Sample Preparation

Each sample was cut transversely to expose a cross-section of the hardened concrete. The cut sections were then lapped and ground smooth to create planar, polished surfaces for conducting a microscopic examination of the precast concrete. In addition, a portion of each sample was submitted for preparation of ultra-thin (23 μm -27 μm, about 0.0009 in. to 0.001 in. thick) sections that were used to conduct a more detailed examination and analysis of the aggregate and surrounding paste structure.

A portion of Sample ES -1 containing a fragment of a tan color aggregate was submitted to an independent testing laboratory for x-ray diffraction (XRD) analysis. The sample was selected on the basis of the location of the aggregate near the center of the fractured concrete surface.

Microscopic Examination

Using both visual and microscopic techniques, portions of prepared and unprepared surfaces of each sample, including ultra-thin sections, were examined in accordance with selected portions of ASTM C856 "Petrographic Examination of Hardened Concrete."

Polished and fractured sections from each sample were examined with the aid of a stereo microscope at magnifications of 10X to 100X. In addition, a more detailed examination of the prepared thin sections was conducted with the aid of a transmitted-light polarizing microscope, at magnifications of 50X to 800X.

Test Results

Visual and Microscopic Examinaiton

The results of our visual and microscopic examination are summarized below:

- Both samples exhibit a conical cross-section having a maximum thickness of 1-1/4 in. In both instances, there are multiple pieces of small (1/8 to 1/4 in.), tan to brown color aggregate located at the apex or along the crest of the conical spall fracture (Figures 1 and 2).
- The small tan color particles are soft and easily disrupted when probed with a steel pick.
- The exterior surface of the concrete is dark with light color splotches (Figure 3). The dark color is due to a yellowed, translucent polymer coating on the exterior surface of the concrete. The surface coating exhibits extensive cracking and has pulled away from the surfaces of exposed aggregate particles creating the contrasting light color splotches (Figure 4).
- In general, the surface coating is well bonded to the concrete, except where it has curled and pulled away from the coarse aggregate particles (Figure 5).
- The coarse aggregate consists of 3/4 to 1 in. maximum sized particles of white marble, which are present throughout the full depth of the spalled concrete.
- There is microcracking and evidence of expansion fractures in the tan color aggregate particles (Figure 6).

X-Ray Diffraction (XRD) Analysis

The results of the XRD analysis are summarized below and a copy of the x-ray spectra is included as an attachment to this report. The x-ray diffraction analysis identified the following phases in the tan color particles.

- MgO
- $Ca(OH)_2$
- Calcite ($CaCO_3$)
- Brucite [$Mg(OH)_2$]
- Hematite (Fe_2O_3)
- Aragonite ($CaCO_3$), small amounts
- Dolomite [$CaMg(CO_3)_2$], small amounts

Based on the presence of the above compounds and mineral species, the following chemical reactions are believed to have occurred when the tan color particles were exposed to moisture:

$CaO + H_2O = Ca(OH)_2$, calcium hydroxide
$MgO + H_2O = Mg(OH)_2$, brucite

Both of these reactions can result in as much as a 200% increase in the volume of the aggregate.

Subsequently, the calcium hydroxide combines with air and water-borne carbon dioxide (CO_2) to form the calcium carbonate that was detected in the tan color particles. The CaO reaction is much more rapid and more likely to have gone to completion as compared to the MgO reaction. Therefore, it is not surprising that CaO (lime) was not detected by XRD analysis of the already expanded tan color aggregate.

Summary and Conclusions

Based on all of the test results, it is concluded that the surface popouts are due to the presence of a contaminant within the concrete, which is expansive in the presence moisture.

The XRD analysis detected calcium carbonate and brucite that were formed from lime (CaO) and magnesium oxide (MgO) in the original aggregate. The tan color aggregate also contains small amounts of dolomite and Aragonite.

The presence of dolomite and Aragonite indicate that the tan color fragments were originally formed from a dolomitic rock. Furthermore, the small quantities of dolomite, the presence of magnesium oxide and the tan color of aggregate fragments indicate that the aggregate particles represent fragments of burnt dolomite.

The XRD analysis reveals the presence of substantial amounts of MgO that remain unreacted in the tan color aggregate. Therefore, there is a real possibility of continued expansion and spalling of the precast concrete, unless the ingress of moisture is halted.

Despite the evidence of extensive cracking, discoloration and partial debonding, the coating on the exterior surface of the concrete has contributed to moisture being trapped behind the surface of the concrete.

The constant availability of moisture ensures that the expansion can and will continue as long as there are sites of unreacted lime (CaO) and magnesium oxide (MgO) in the tan color aggregate. Therefore, the existing surface coating should be removed by mechanical abrasion and replaced with a breathable coating such as a silane or siloxane sealer.

MJS02-98.mmb



Figure 1.

A view of the underside of Sample ES -1 showing the presence of two tan color aggregate fragments along the apex of the surface spall.

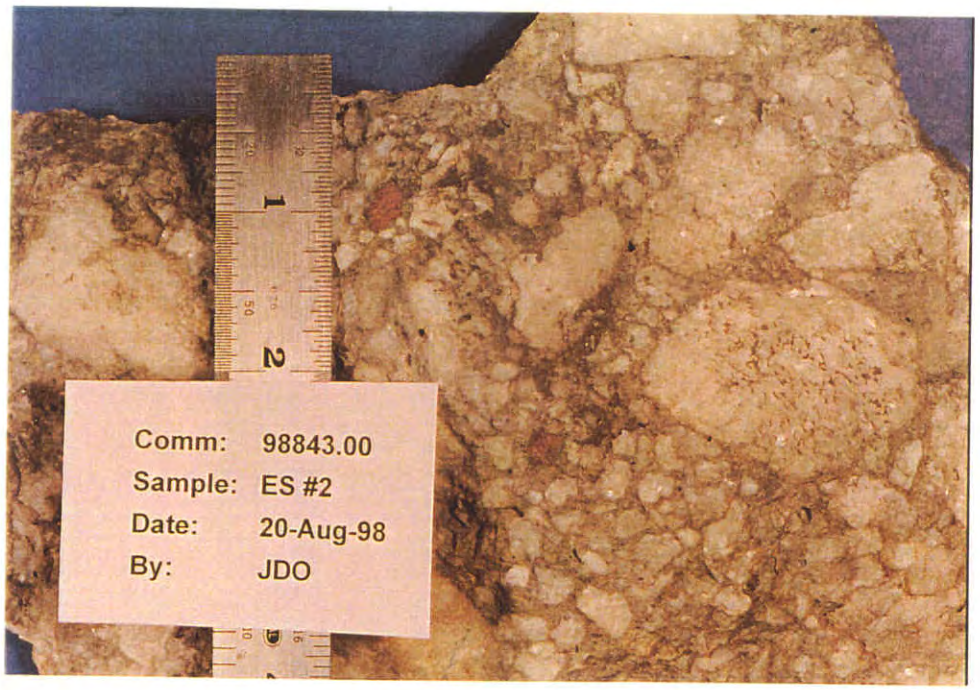


Figure 2.

A view of the underside of Sample ES -2 showing the presence of two tan color aggregate fragments along the apex of the surface spall.



Figure 3.

A view of the exterior surface of the precast concrete at the location for Sample ES - 2. Note the generally dark color of the concrete and the contrasting light color splotches.

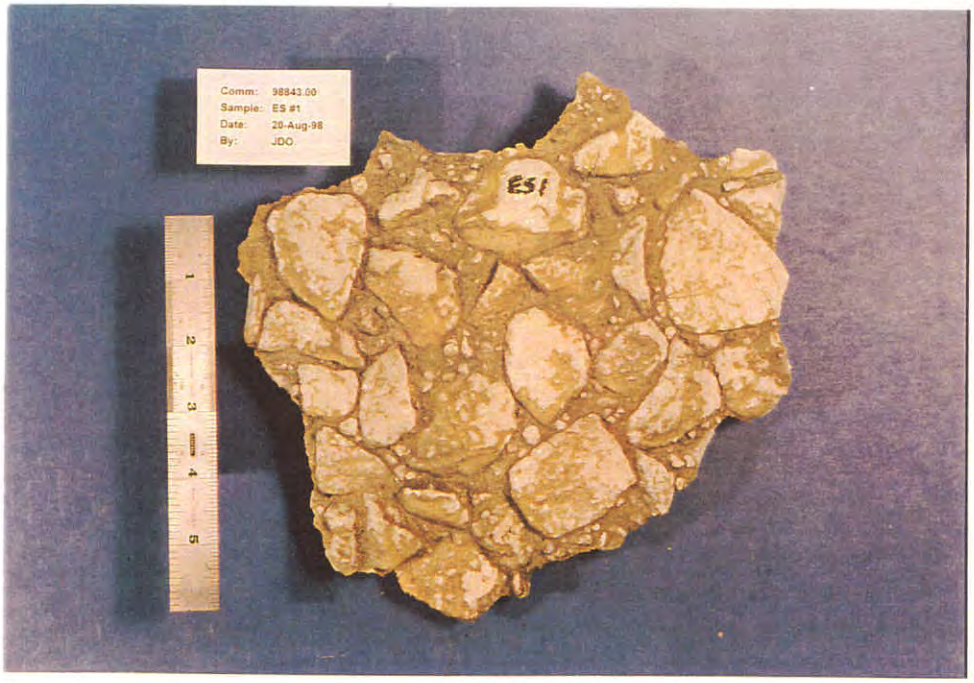


Figure 4.

A close-up view of the surface coating on Sample ES - 1 showing exposed coarse aggregate particles that are only partially covered with the surface coating material.

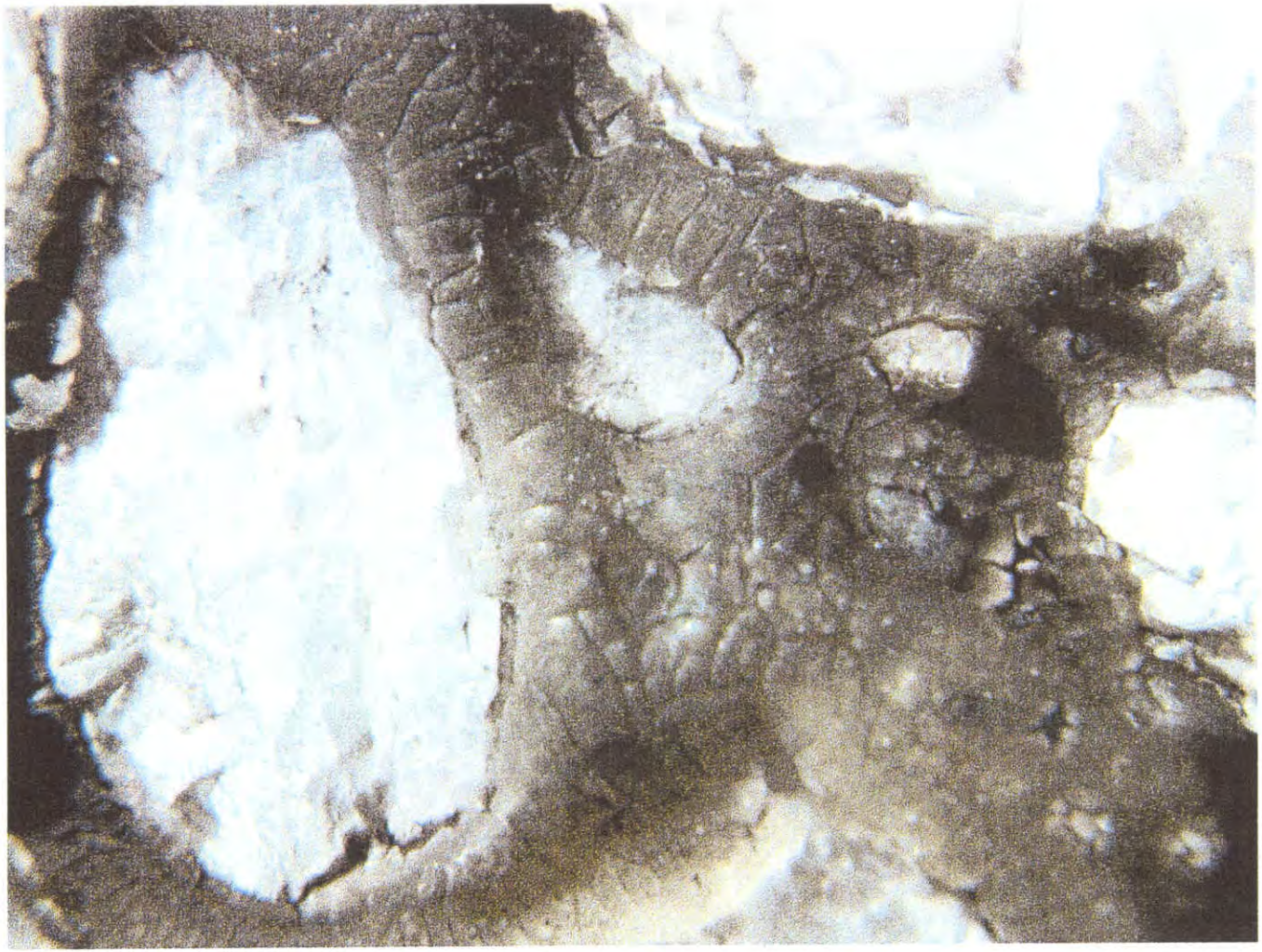


Figure 5 - A magnified (10X) view of the surface of Sample ES - 2 showing discoloration and extensive cracking of the surface coating material. Also note the contrasting color of the exposed white marble aggregate.

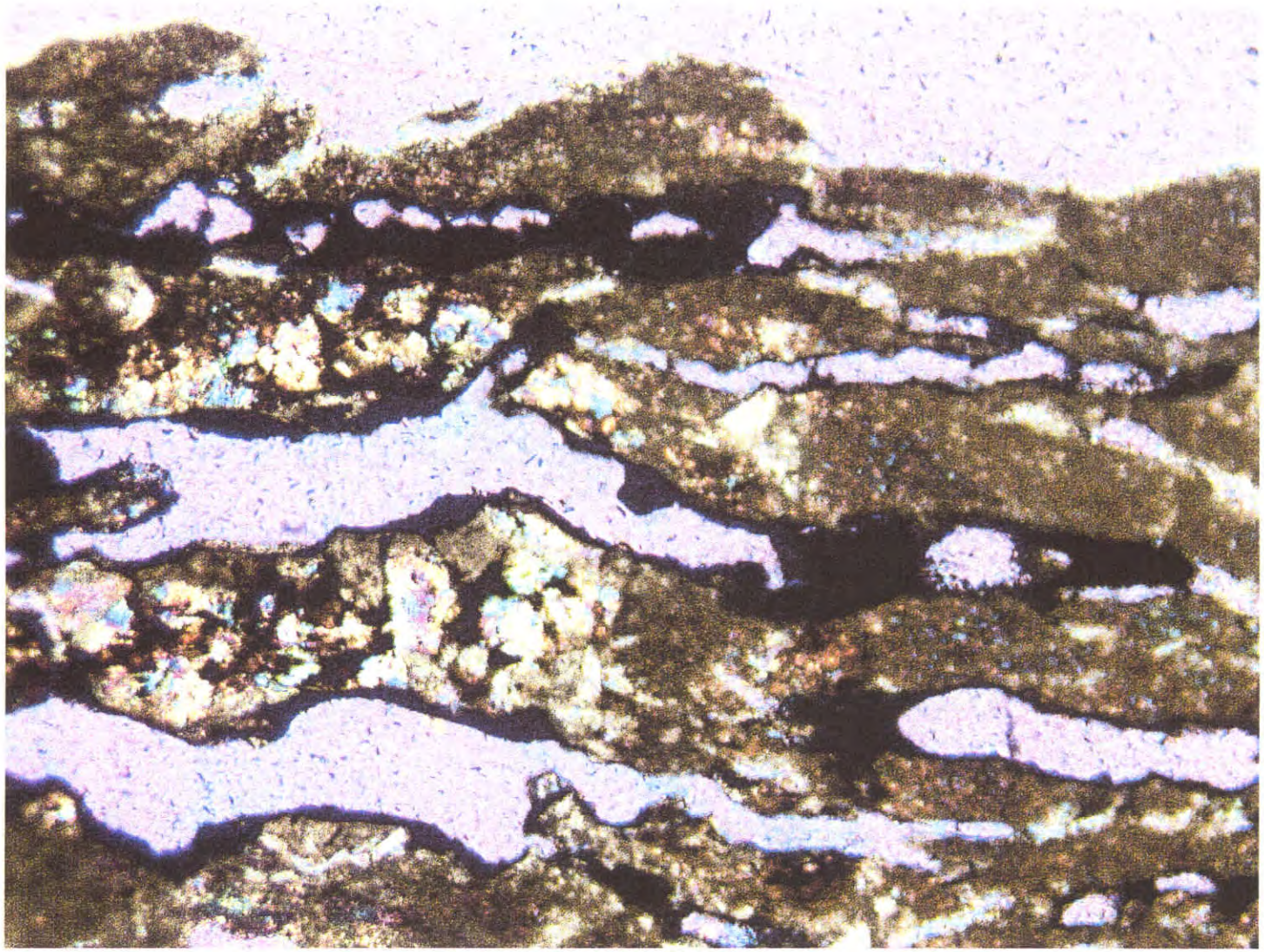


Figure 6 - A magnified (100X) view of a thin section from near the center of the concrete spall in Sample ES - 1. Note the large expansion fractures through the dolomite aggregate (colorful particle located left of center). Also note the extension of the fractures into the surrounding paste structure.

APPENDIX B

WATER REPELLENT EVALUATION

Laboratory Report

CONSTRUCTION PRODUCTS GROUP

CHEM-TRETE® Weatherproofing Water Repellent Evaluation

TS-369-088

DATE:

November 16, 1998

PROJECT:

Kaiser Center
300 Lakeside Drive, Suite 130
Oakland, CA 94612

SAMPLES RECEIVED:

(3) pieces of Precast Concrete (spalled from structure)

RECEIVED FROM:

Mr. Joe Link
Specialty Construction Products
P.O. Box 1674
Sebastopol, CA 95473

Regional Sales Manager: Bob Dooley

PURPOSE:

To determine the effectiveness of Dynasylan BH-N at reducing water ingress in the supplied specimens for the purpose of warranty qualification.

The information furnished without warranty, representation, inducement or license of any kind, except that it is accurate to the best of Sivento Inc.'s knowledge or obtained from sources believed by Sivento Inc. to be accurate, and Sivento Inc. does not assume any legal responsibility for use or reliance upon same. Tests should be carried out only by chemists or chemically qualified lab technicians. Before using any chemical, read its label and Material Safety Data Sheet.

SAMPLE PREPARATION:

Specimens received were oven dried at 110°C for 24 hours to remove atmospheric moisture. The entire circumference of each sample was waxed to prevent water absorption along sides during testing.

TREATMENT OF SAMPLE:

Specimen number 1 was laboratory treated with flood coat of Dynasylan BH-N. Specimen number 2 remained untreated as a control.

The third specimen was retained.

SIVENTO INC. STANDARD TEST PROCEDURES:

Water Absorption Test: (Modified ASTM C- 642)

The cooled specimen(s) was weighed to the nearest 0.01 grams, then placed treated or exposed surface only, in a tank containing several inches of tap water for a period of 24 hours. The specimen(s) was then removed from the water, towel dried and reweighed. The initial and final weights were used to calculate the 24 Hour Treated Water Absorption values.

Depth of Penetration:

Each sample was split longitudinally using a hammer and chisel. Sample half was placed fractured surface down in a water soluble dye solution. Only the untreated portion of each sample absorbs the solution and becomes stained. The depth of penetration is measured from the surface down to stained region, highest and lowest penetration is recorded.

Laboratory Report: TS-369-088
Page Three

TEST RESULTS:

Water Absorption and Depth of Penetration:

Sample No.	Sample Treatment	24 Hour Water Absorption (%)	Depth of Penetration (inches)
1	Dynasylan BH-N	0.27	Full
2	Control	0.9	–

CONCLUSION:

Test results indicate that Dynasylan BH-N is very effective at reducing water ingress in the supplied specimens. Data shows a very low 0.27 % uptake of water for the treated specimen compared to the relatively low 0.9 % for the control. Dynasylan BH-N penetrated the full depth of specimen to a measurement of approximately one inch.

Observations indicate that a significant amount of epoxy coating remains on the surface of the received samples.

Turner Construction Company
1625 Clay Street
Oakland, California 94612
phone: (510) 267-8100
fax: (510) 267-8118

November 20, 2008

Tomas Schoenberg
The Swig Company, LLC
220 Montgomery Street
San Francisco, CA 94104

Re: Kaiser Center- Mall Buildings Exterior Façade (Dolomite Panels) Feasibility Analysis

Dear Tomas,

Thank you for requesting Turner Construction Company to provide an analysis of the exterior façade of the two existing Mall Buildings at the Kaiser Center complex. Per your request, we have evaluated the feasibility of the intact salvaging (removal) of the Dolomite Precast Panels from the structure of the Mall Buildings, and then the potential preservation and reinstallation of these panels on a new structure at that location.

Scope
The scope of the study included a detailed review of the original 1958 Architectural and Structural Drawings and Specifications for both the Kaiser Center office tower and Mall Buildings prepared by Welton Becket & Associates, as well as a visual inspection of these buildings. Both the tower and Mall Buildings were reviewed due to the variation in panel thickness and attachment details given their different structural frames.

Findings
A review of the original construction documents for the Mall Buildings yielded two Architectural details and one Structural detail as the primary elements influencing our findings (please reference Architectural Detail “A” and Detail “B”, and Structural Detail “C” attached to this document). The key element is the 1 inch thick grout layer shown between the 3 inch thick precast panels and the buildings’ concrete frame, as referenced on the attached Details “A” and “B”. The grout bonds the panel to the concrete as if the panel were cast in place, thus effectively creating a unified section. While the Structural details do not show how the panels are to be attached, Detail “C” does show the same unified section for the panel and grout of 4 inches thick. From our visual inspection we did not see anything to suggest that the panels were installed other than the manner is shown in the drawings. It should be noted that none of these details reference any mechanical attachment for the precast panels that is common in current construction methods (the fastener shown in Detail “A” is for a vertical aluminum mullion interfacing between the panels and is not for the panels’ attachment to the building); please reference attached Details SK1A and SK1B as examples of typical precast attachment details.

It is important to note that in our experience renovating another high-rise building in Oakland of similar vintage with a similar precast system, the precast panels were actually used as the form surface for the shearwall concrete, thus casting the panels into the unified concrete frame. Separating the panels from the building’s concrete frame required extensive hand demolition of the panels utilizing chipping guns. It is possible that this method of attachment may have been used in certain areas of the Mall Building as well, and thus removal would have the same result as the grouted bonding of the panels stipulated in the original design.

Conclusion
Based upon our review of the design documents and our visual inspection, the attachment of these precast Dolomite panels to the Mall Buildings' concrete frame precludes their mechanical removal other than by destructive methods. Further, even attempting to remove the panels by careful hand demolition would most likely cause them to disintegrate due to the nature of their material composition and age. Therefore, it is our opinion that, irrespective of cost, it would be infeasible for the Dolomite precast exterior façade at the Mall Buildings to be salvaged in a manner that would allow their reuse on any new structure. In addition, while it may be possible to salvage some limited amounts of the Dolomite material from the panels, a reasonable approach to demolition of the structure would not yield any "clean" or consistent material for incorporation into the proposed new building façade.

We also consulted two other construction firms that specialize in precast panel manufacturing and installation, Walters & Wolf and Clark Pacific, who reviewed and commented on the pertinent design documents with respect to the Dolomite panels and their opinions and conclusions align with ours.

We welcome the opportunity to discuss this analysis with you or whomever else you feel is appropriate, and would be glad to answer any further questions you may have.

Sincerely,

Willy Mautner, AIA
Chief Estimator

Cc: Deborah Boyer, The Swig Company, LLC
Scott Eastman, Turner Construction Company

APPENDIX C

Significance Diagrams



Significant

Contributing

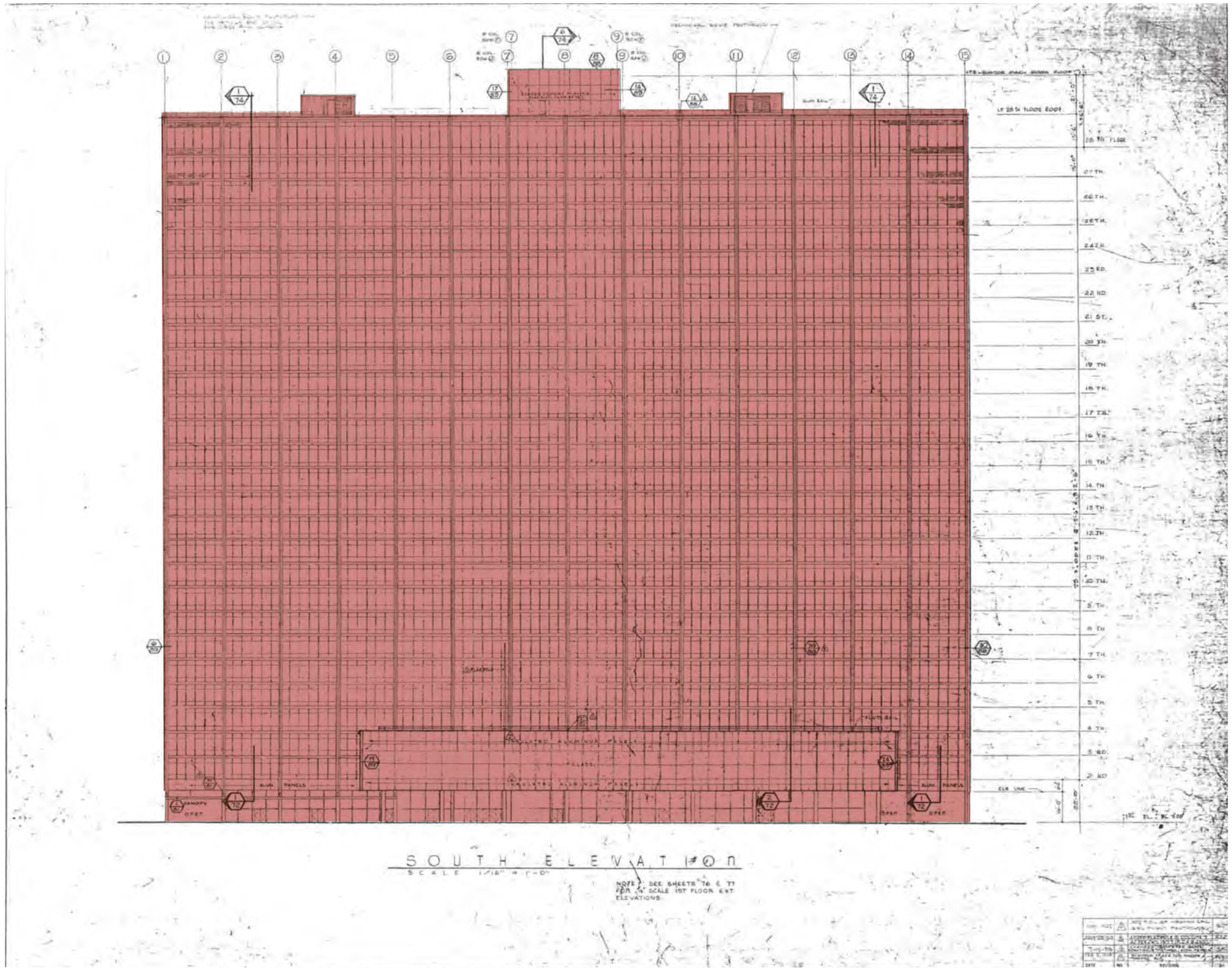
Non-Contributing

Kaiser Center
Office Tower

North Elevation

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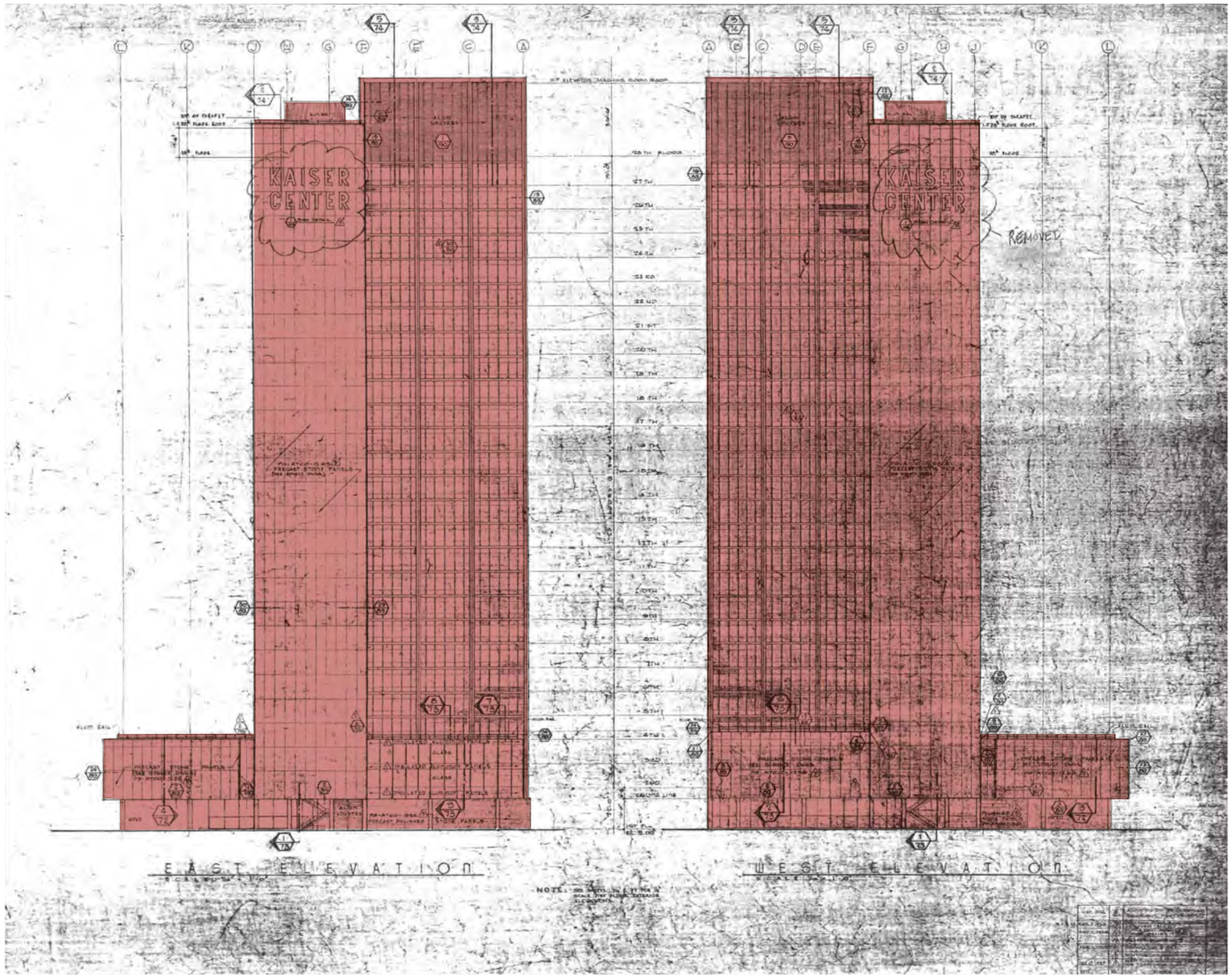
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Kaiser Center
Office Tower

South Elevation

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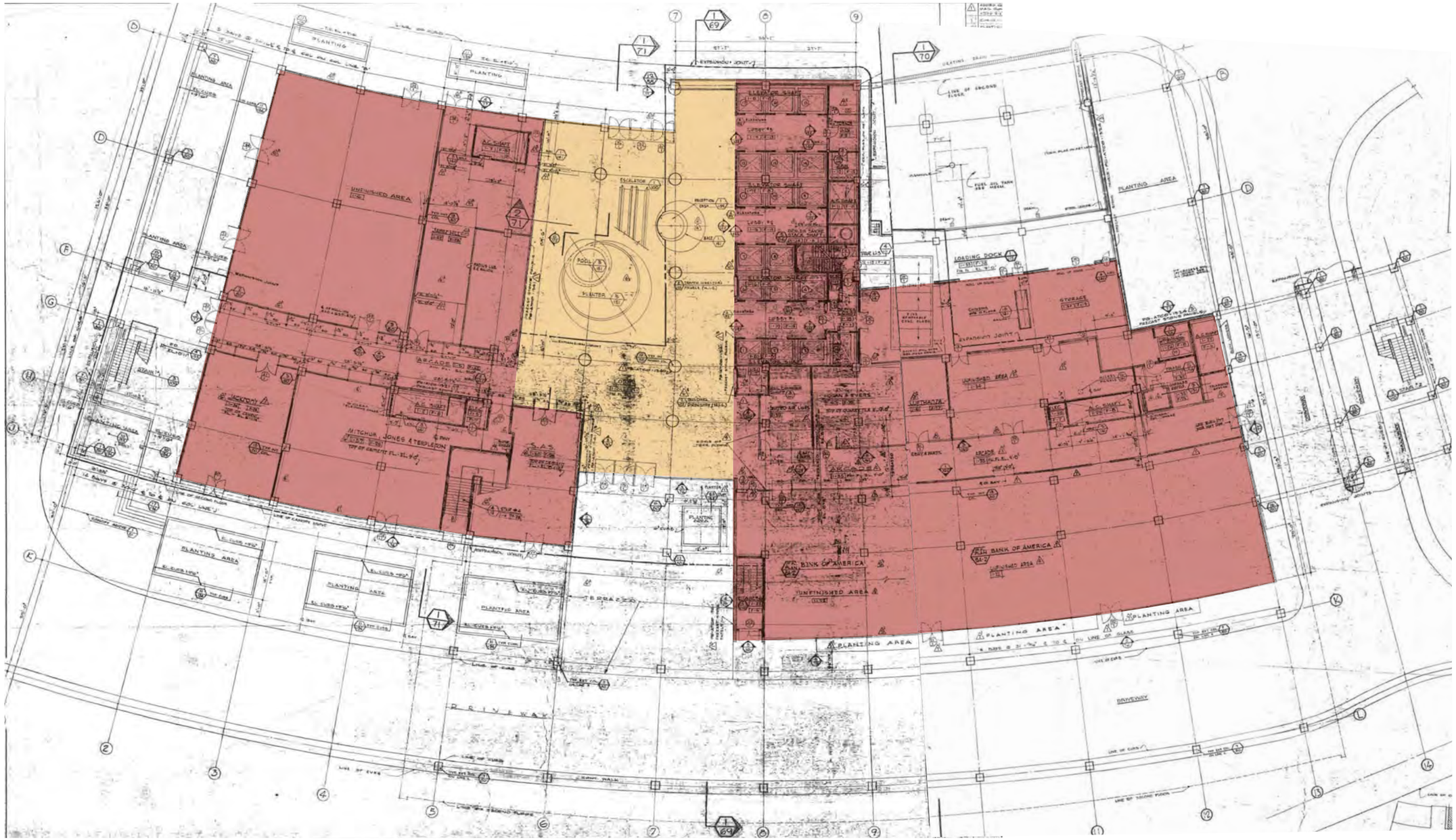
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Kaiser Center
Office Tower

East & West Elevations

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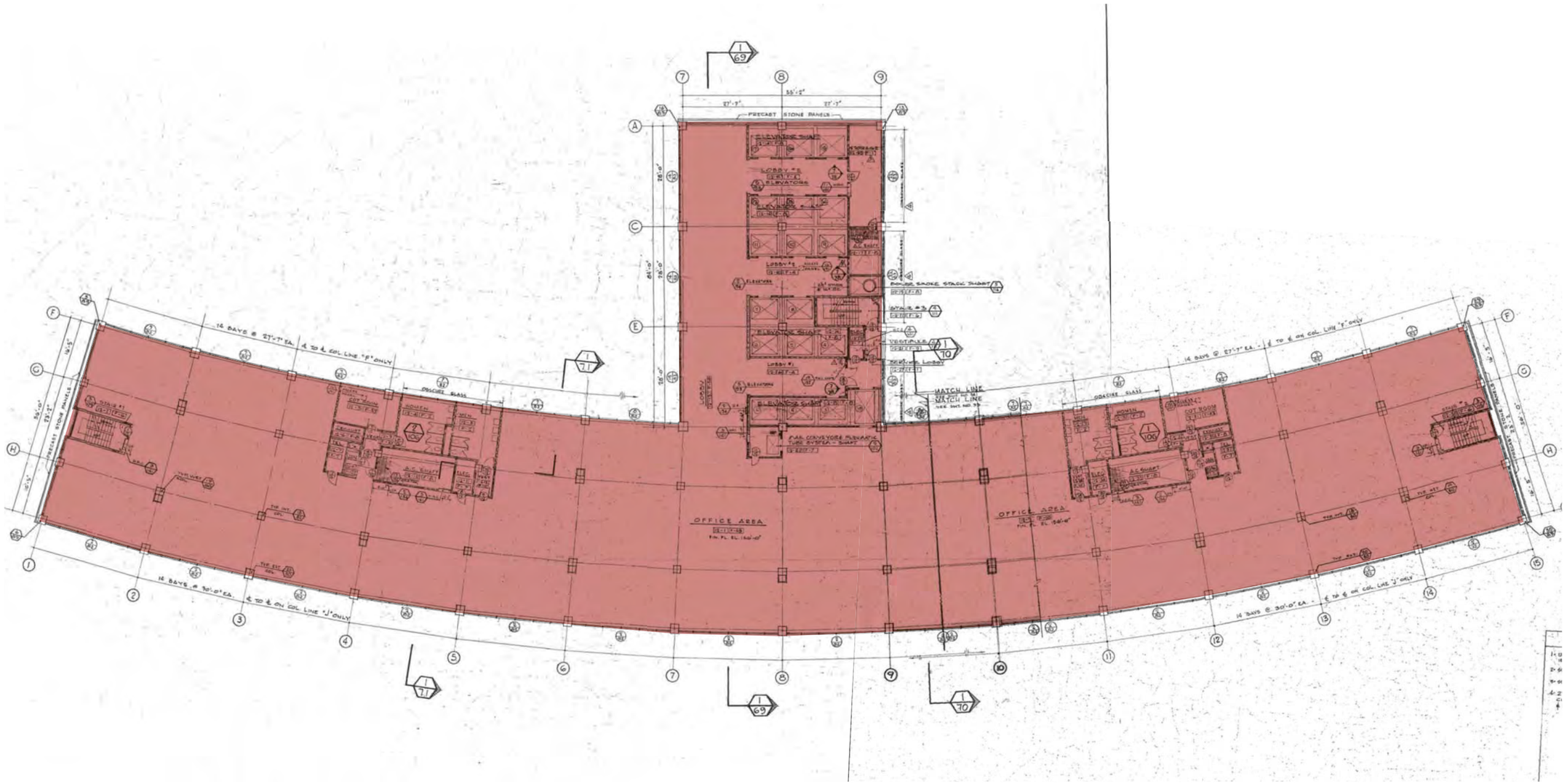
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Kaiser Center
Office Tower

First Floor

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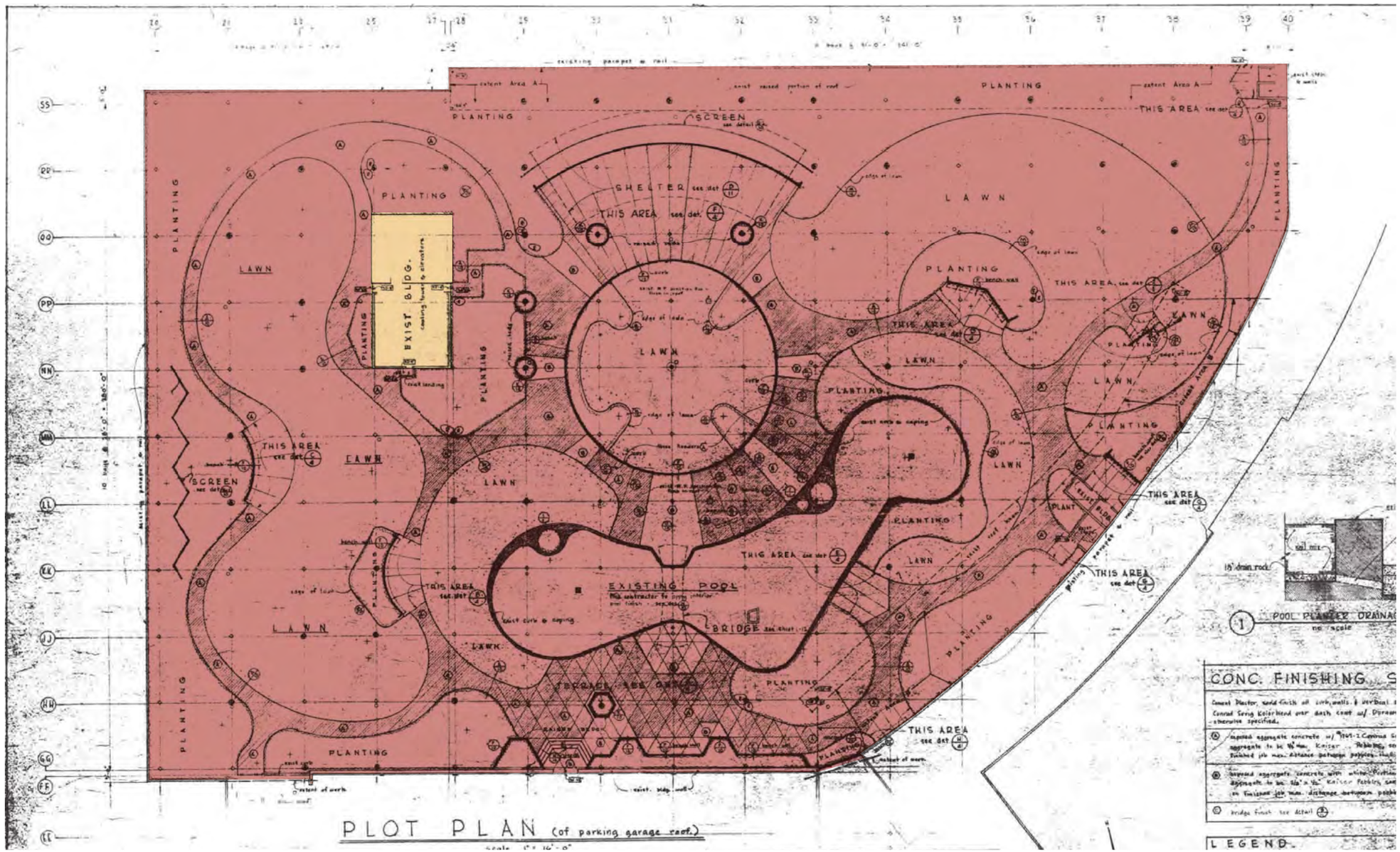
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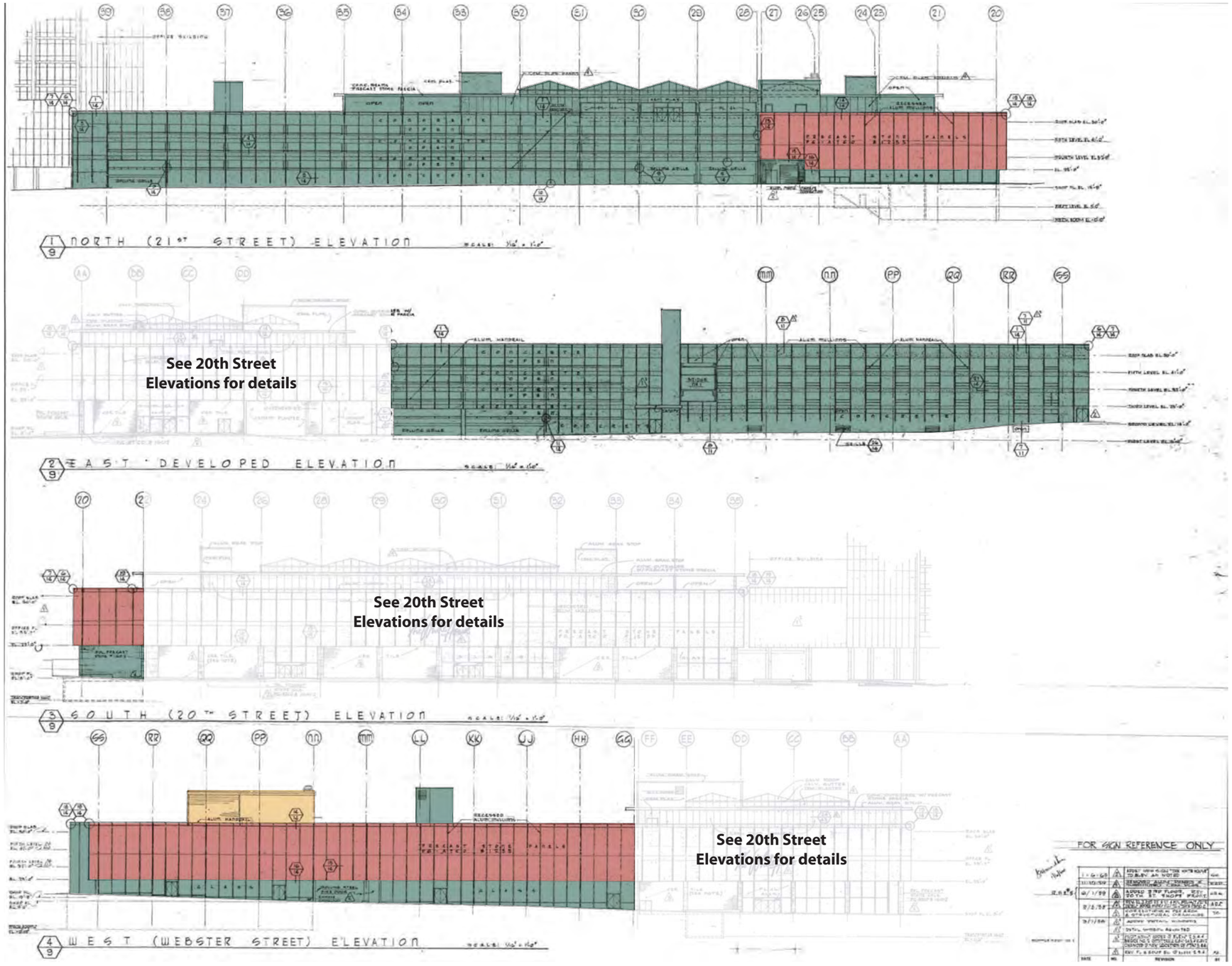
Kaiser Center
Office Tower

Upper Floors

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PLANTING
SCREEN
SHELTER
THIS AREA
LAWN
EXIST. BLDG.
EXISTING POOL
BRIDGE
PLANTING
PLANTING
PLANTING



Significant

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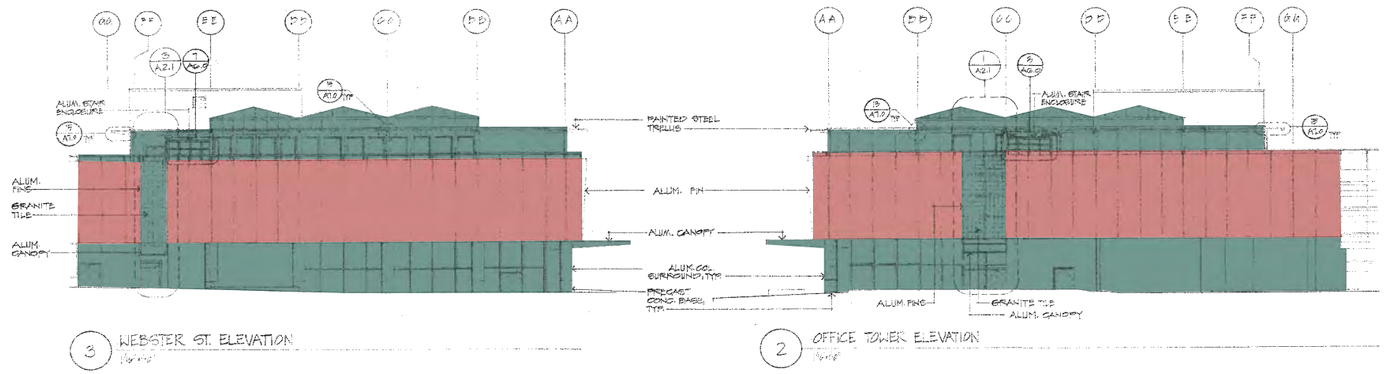
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Kaiser Center
Mall Building

Elevations

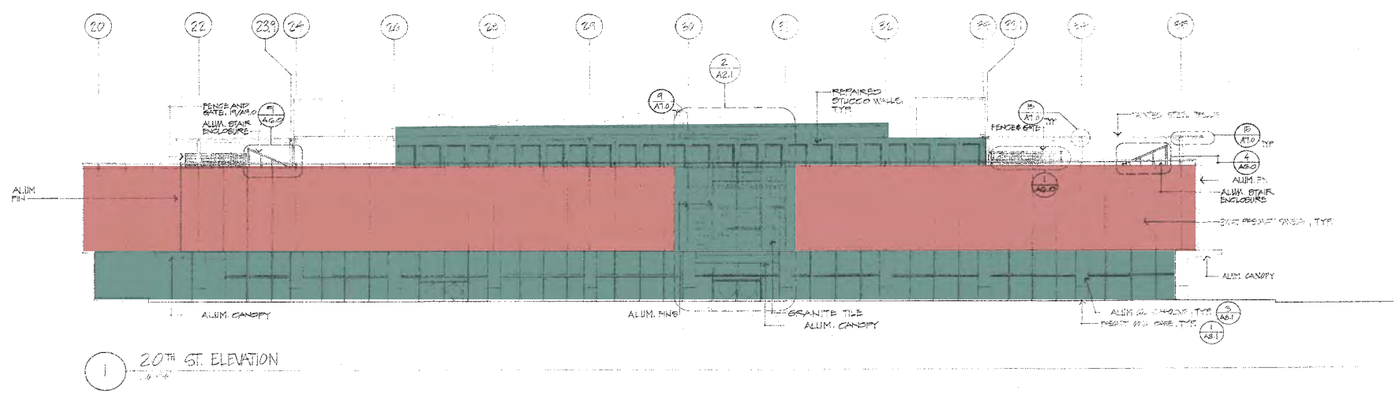
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3 WEBSTER ST. ELEVATION

2 OFFICE TOWER ELEVATION



1 20TH ST. ELEVATION

Significant

Contributing

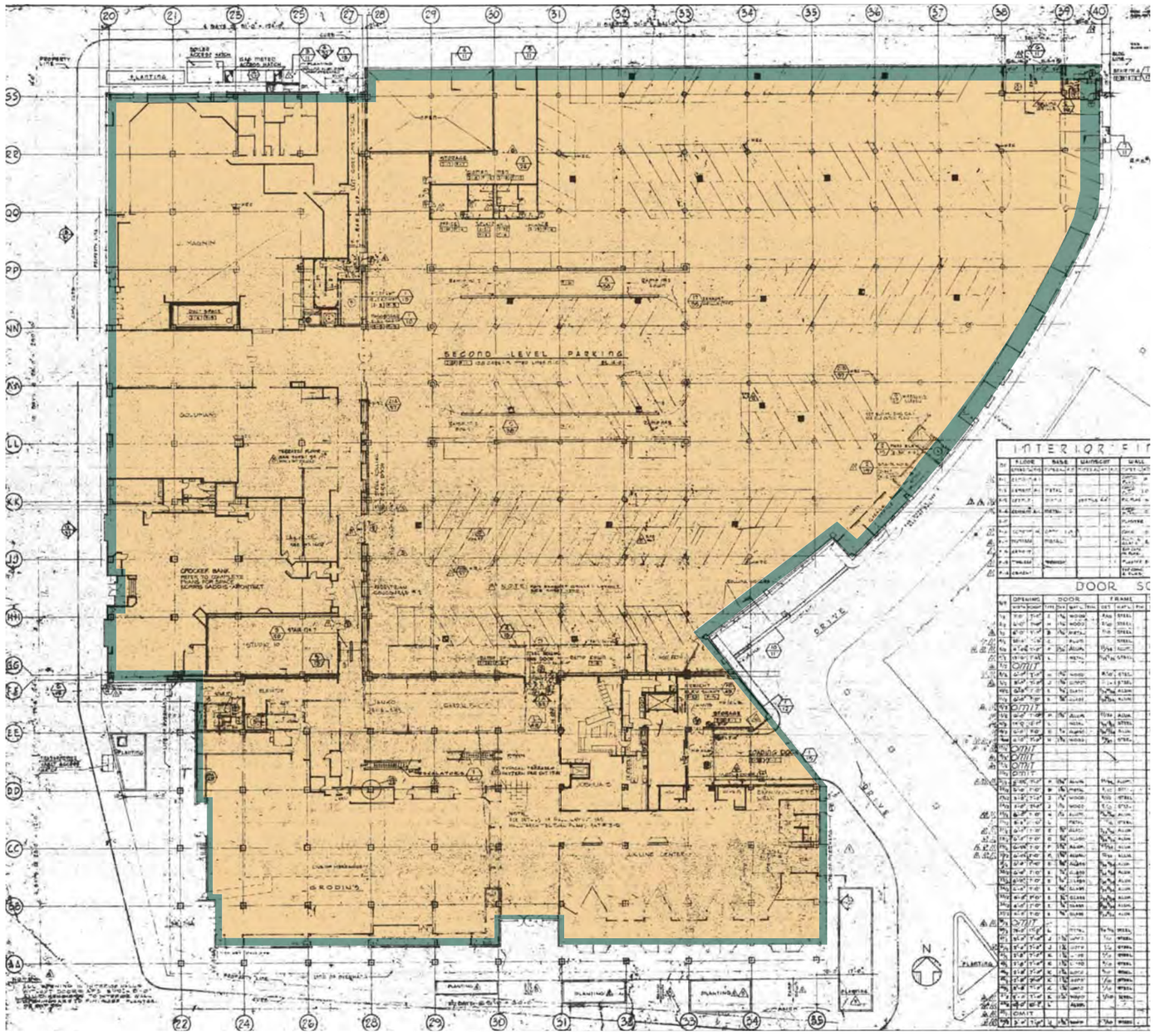
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Kaiser Center
Mall Building

20th Street Building
Elevations

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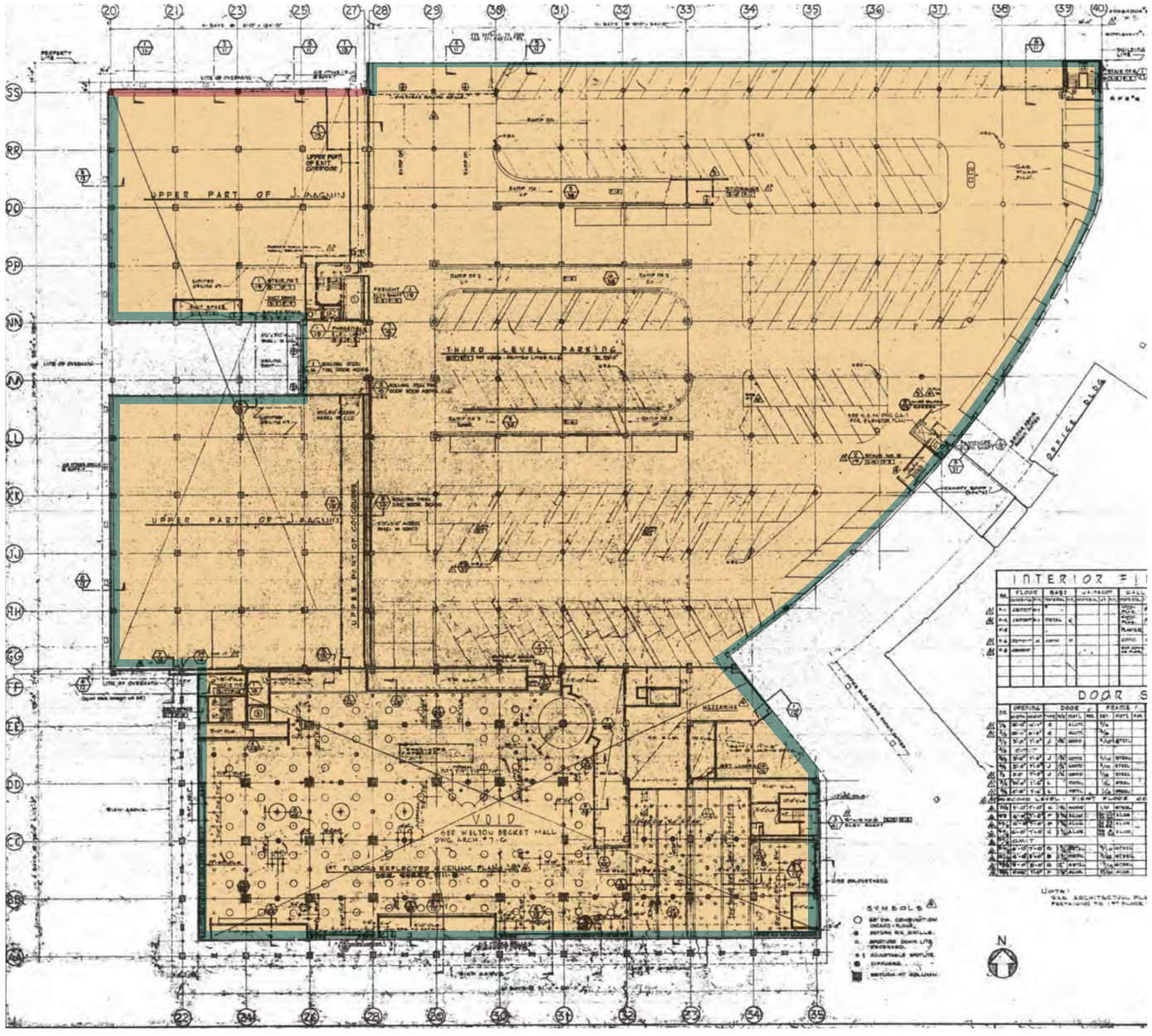
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Kaiser Center
Mall Building

First Floor Shops/
Second Level Parking

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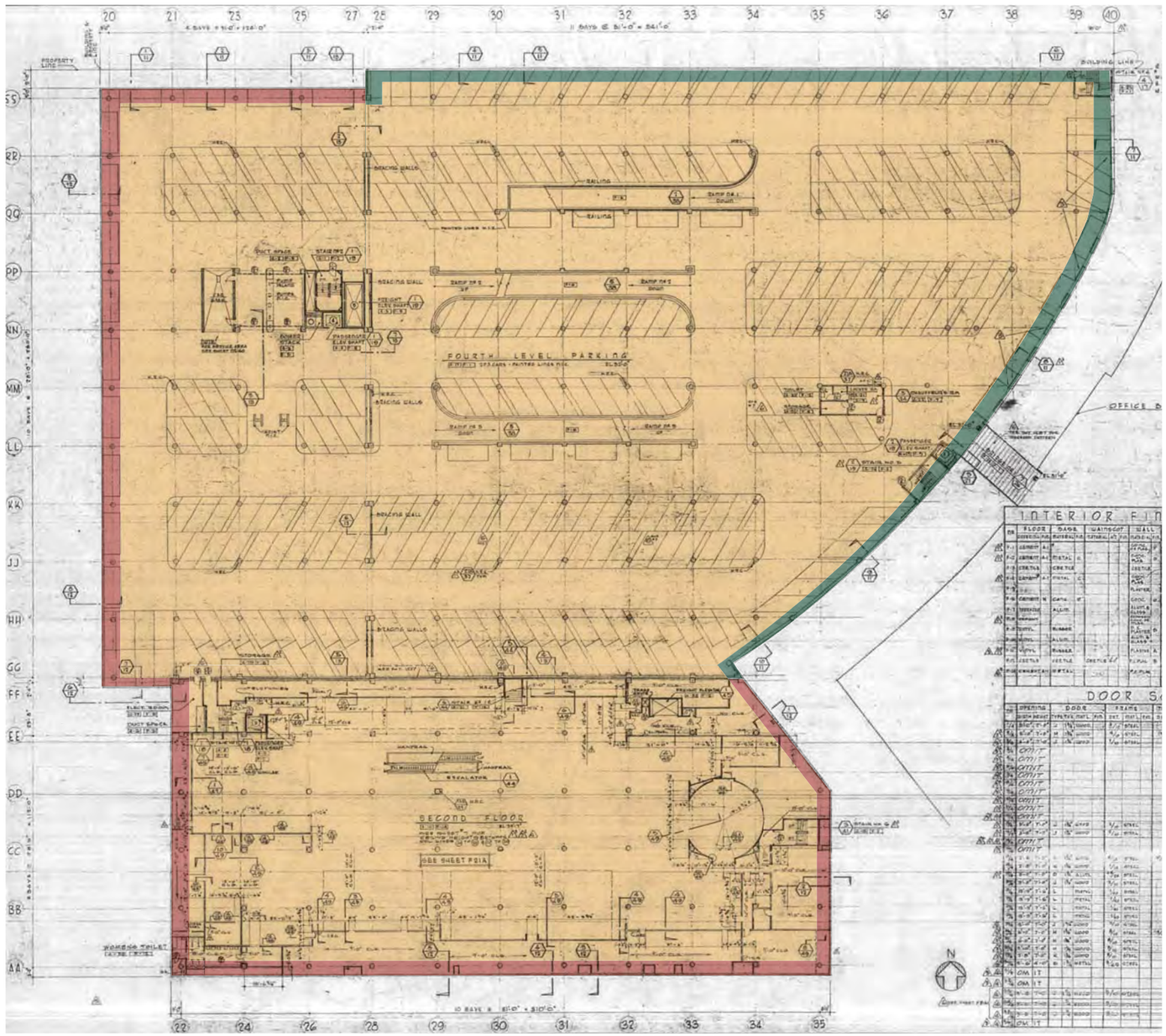
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Kaiser Center
Mall Building

First Floor Shops/
Third Level Parking

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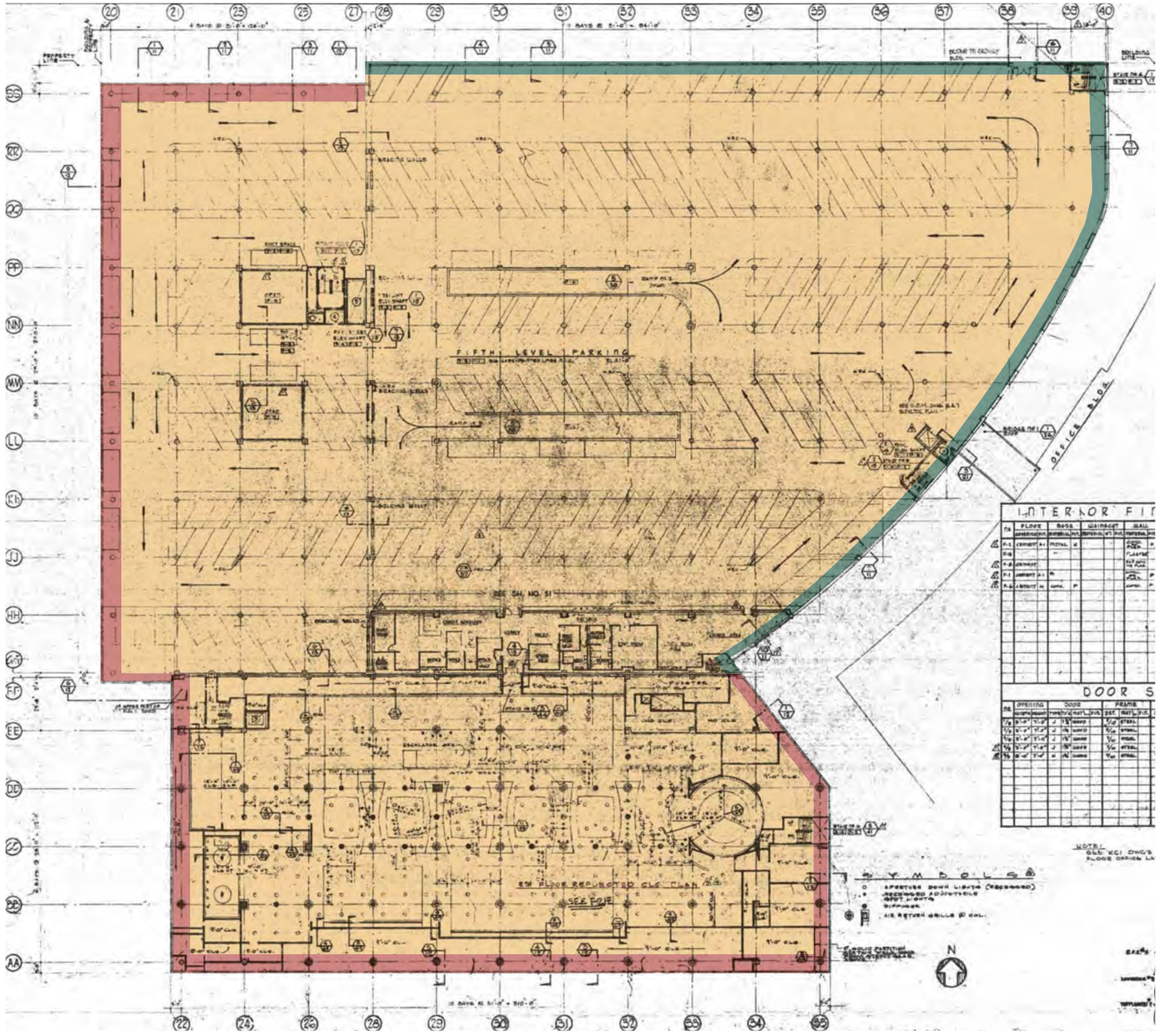
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Kaiser Center
Mall Building

Second Floor Offices /
Fourth Floor Parking

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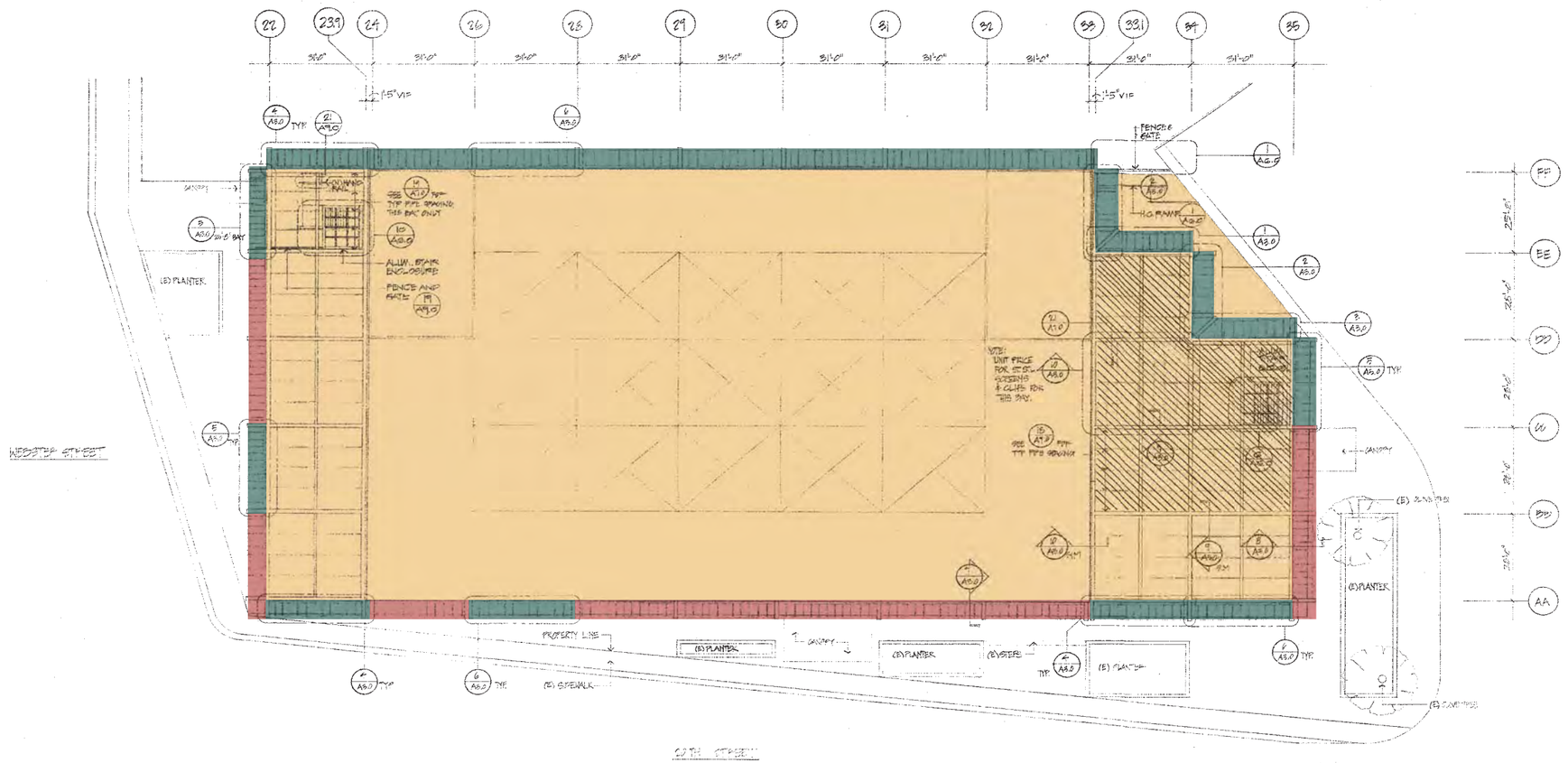
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Kaiser Center
Mall Building

Second Floor Offices / Fifth Floor Parking

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ROOF TRELLIS PLAN
1/16" = 1'-0"

RAISED SCREENED AREA

Significant

Contributing

Non-Contributing

Kaiser Center
Mall Building

20th Street Building
Roof Terrace

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APPENDIX D

DPR 523 A & B Form

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary #_____
HRI #_____
Trinomial_____
NRHP Status Code_____
Other Listings_____
Review Code_____ Reviewer_____ Date_____

 Resource name(s) or number(assigned by recorder) Kaiser Center and Roof Garden

P1. Other Identifier:
***P2. Location:** ☐Not for Publication ☒Unrestricted ***a. County** Alameda
***b. USGS 7.5' Quad** Oakland, CA. **Date:** 1995
***c. Address** 300 Lakeside Drive **City** Oakland **Zip** 94612
***e. Other Locational Data:** Assessor's Parcel Number Block: 652 Lot: 1-5

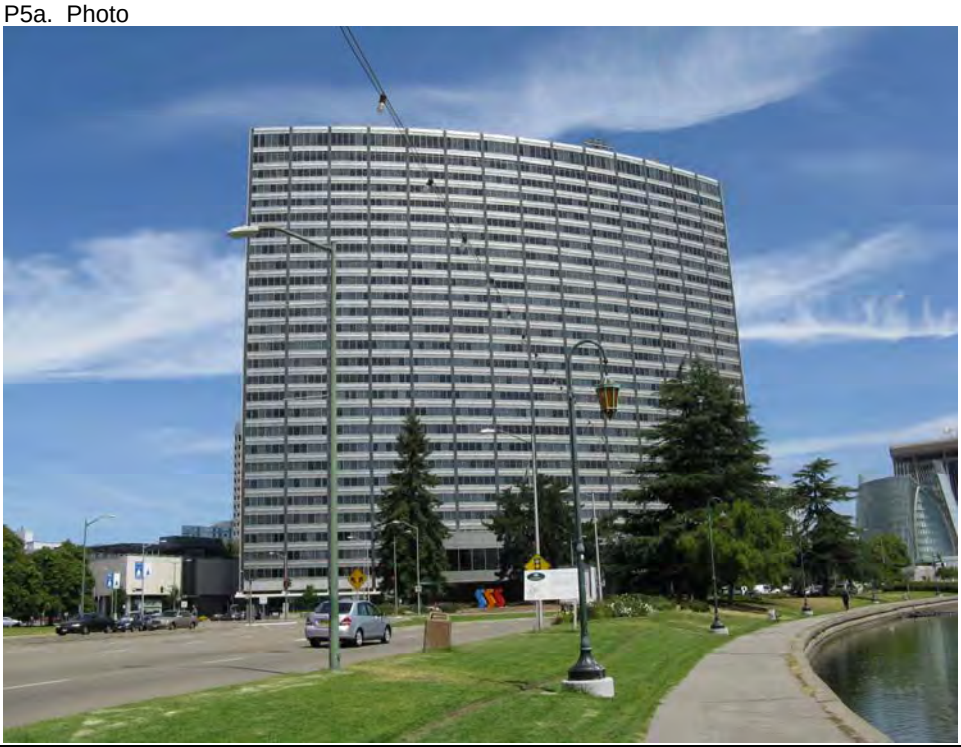
***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries.)
The Kaiser Center complex is on a large, irregularly shaped block bounded by 20th, Harrison, 21st, and Webster streets. The Kaiser Center complex consists of a twenty-eight-story Office Tower, the three-story and basement 20th Street Mall Building, the two-and-three-story Webster Street Mall Building, a three-and-four-story parking garade, and the Roof Garden on the top level parking garage. The Mall Buildings appear as a strong horizontal base that contrasts the verticality of the tower. The complex was designed by Welton Becket & Associates and completed in 1959. The roof garden was designed by the landscape architecture firm Osmundson & Staley and completed in 1960.

The office tower is made up of two basic components: a T-shaped tower with a straight stem and curved wings; and an asymmetrically located two-story podium supported by square piers at the first floor that extends beyond the plane of the T-shaped tower and follows the curve of the main façade. The main façade of the tower features fourteen bays separated by burnished aluminum piers. Each bay includes six windows surrounded by gold toned and natural aluminum frames. The side facades of the curved plane feature concrete panels with dolomite, a rock-like mineral product, aggregate. Other than the penthouse floor which features a higher ceiling height, all floors and bays on the main façade are identical. The straight vertical portion or stem of the tower features the same fenestration pattern as the main façade at the east and west façade and the same concrete panels with dolomite aggregate at the north and south façades. The north façade features signage reading, "Kaiser." The office tower has undergone few exterior alterations. The only interior alterations include an early-1990s renovation of the lobby and the conversion of the original cafeteria space into tenant space.
(continued)

***P3b. Resource Attributes:** (list attributes and codes) HP6 1-3 story commercial building, HP7 3+ story commercial building, HP29 Landscape Architecture

***P4. Resources Present:** ☒Building ☐Structure ☐Object ☒Site ☐District ☐Element of District ☐Other

P5a. Photo



P5b. Photo: (view and date)
Office Tower, View from south; June 16, 2008

***P6. Date Constructed/Age and Sources:** ☒historic
1959 (buildings); 1960 (roof garden)

***P7. Owner and Address:**
Swig Company
220 Montgomery, Floor 20
San Francisco, CA 94104

***P8. Recorded by:**
Page & Turnbull, Inc.
724 Pine Street
San Francisco, CA 94108

***P9. Date Recorded:** July 2008

***P10. Survey Type:**
Reconnaissance

***P11. Report Citation:** (Cite survey report and other sources, or enter "none")
Page & Turnbull, Historic Resource Evaluation, "Kaiser Center," Sept. 2008.

***Attachments:** ☐None ☐Location Map ☐Sketch Map ☒Continuation Sheet ☒Building, Structure, and Object Record
☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photograph Record ☐ Other (list)

The parking garage is a three-and-four-story reinforced concrete rectangular plan building with a curved east façade that parallels the tower. The building is utilitarian and the only ornamentation present on the parking lot is a grid of narrow aluminum ribs and aluminum signage reading, "Kaiser Center Garage." The top level of the building is occupied by the Kaiser Center Roof Garden.

The 20th Street Mall building is a three-story and building located at the corner of 20th and Webster streets with a rectangular plan and flat roof. The building features oversize circular piers and glazed aluminum storefronts at the first floor giving the main mass of the building the appearance of floating. The first floor features stucco and white brick veneer cladding. The second floor has no fenestration but feature dolomite concrete panels with aluminum cantilevered canopies and vertical granite panels and aluminum fins above the entrances. The penthouse level occupies approximately three-quarters of the floor plate and is set back from the plane of the lower floors. The penthouse level features stucco cladding and closely arranged aluminum sash windows. The remainder of the penthouse level features an aluminum pergola. As of the date of this evaluation, a portion of this floor is vacant, but has traditionally been occupied by a restaurant that accesses the roof garden.

The Webster Street Mall building is a two-and-three-story building located at the corner of 21st and Webster streets with a rectangular plan and a flat roof covered by the roof garden. The first floor features stucco cladding and fixed full-height aluminum windows. The upper two floors feature slightly protruding dolomite concrete panels with no fenestration. Similar to the 20th Street Mall Building, the main mass of the building appears to float above the first floor.

The Kaiser Center Roof Garden is located on the top level of the parking garage at the northwest corner of the complex. The roof garden is rectangular in plan, except at the eastern edge, where the garden parallels the arc of the tower's main façade. The garden features curvilinear aggregate pathways, a series of irregularly-shaped undulating lawns, a circular lawn located in the center of the garden, low concrete curbing, specimen trees, shrub plantings, concrete benches and related site furnishings, and an 8,800 square foot reflecting pool. The pool features a wood bridge which was added between 1973 and 1975. A visual axis begins at the main entrance to the garden at the 20th Street Mall Building and runs through the reflecting pool and central circular lawn. A concrete HVAC building is located in the northwest corner of the garden. The building is approximately eighteen feet in height, clad in stucco and capped by a flat roof. The HVAC building is screened by specimen trees to alleviate the visual intrusion of this building within the garden.

The buildings and roof garden appear to be in excellent condition.

BUILDING, STRUCTURE, AND OBJECT RECORD

***NRHP Status Code** 3B

***Resource Name or #** Kaiser Center

B1. Historic name: Kaiser Center
B2. Common name: Kaiser Center
B3. Original Use: Commercial, Garden B4. Present use: Commercial, Garden
***B5. Architectural Style:** Modern
***B6. Construction History:** (Construction date, alterations, and date of alterations) The Kaiser Center buildings were constructed in 1959. The Roof Garden was completed in 1960. No major exterior alterations have been made. The Mall Buildings have undergone the most alterations, including changes to the storefronts, and cosmetic changes at the entrances (1960s and 1990s). The interior of the Mall buildings have been substantially altered due to tenant improvements. The cafeteria of the office tower was converted to office space (date unknown), and the lobby of the office tower was renovated in the early-1990s. The wood bridge, a later addition, was installed in the roof garden between 1973 and 1975.

***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:**_____ **Original Location:**_____
***B8. Related Features:**

B9a. Architect: Welton Becket & Associates (buildings); Osmundson & Staley (roof garden) b. Builder: Robert E. McKee
***B10. Significance: Theme** Commercial Development, Modern Architecture and Landscape Architecture **Area** Oakland
Period of Significance 1959 **Property Type** Commercial; Landscape Architecture **Applicable Criteria** 1, 2, 3
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity)
The Kaiser Center Office Tower and Roof Garden is recognized as one of the symbols of Oakland. The 1960 Modern office complex with curved tower anchors the northwest corner of Lake Merritt in the heart of Oakland. Henry J. Kaiser, the magnate of the Kaiser Industries empire commissioned the iconic office complex to serve as the company's headquarters. Kaiser commissioned Welton Becket & Associates, an acclaimed commercial architecture firm, to design the new complex with office tower, retail buildings, parking garage, and roof garden. The complex is also significant for containing the first modern office tower constructed on the shores of Lake Merritt. The Roof Garden, at the top level of the parking garage, was designed by Osmundson & Staley, important landscape architects who created the largest contiguous roof garden in North America at the time of its completion. The roof garden is an important example of Bay Area Modern landscape architecture. Today the Kaiser Center complex stands as a tangible reminder of the importance of Oakland as an industrial and commercial center in the 1950s and 1960s, as an excellent example of the elegance of the Modern style, and the versatility of a master architect, Welton Becket & Associates.
(continued)

B11. Additional Resource Attributes: (List attributes and codes)_____
***B12. References:**
See "References Cited" in Page & Turnbull, Historic Resource Evaluation, Kaiser Center, July 2008.

B13. Remarks: None

Sketch Map



***B14. Evaluator:** Cora Palmer

***Date of Evaluation:** September 2008

(This space reserved for official comments.)

***B10. Significance (cont.):**

Criterion 1 (Events)

The Kaiser Center appears to be eligible under Criterion 1 (Events) as a complex that reflects "events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States." In this case, the event is the influence of the Kaiser Industries on the history of California and the West Coast. As the only remaining headquarters building of Kaiser Industries, the multinational corporation that influenced the World War II war effort, infrastructure in California, and throughout the West Coast, and changed the health care industry, the Kaiser Center is a significant landmark testifying to an important industrial institution that helped Oakland remain a significant site of commercial and industrial activities in the post-War era.

The complex is also significant as a reminder of the movement of Oakland's Downtown commercial core toward Grand Avenue and Lake Merritt. The Kaiser Center led the shift of the commercial core from 14th and Broadway in downtown Oakland to Lake Merritt. While earlier residential towers such as the Lake Merritt Hotel (1927) and the Bellevue-Staten Building (1929) had been present on the lake, the Kaiser Center was the first true modern commercial skyscraper complex to be located on Lake Merritt. Other modern office towers followed the shift away from downtown including the Ordway Building (1970), the twenty-seven-story Lake Merritt Plaza (1985) at 1999 Harrison Street, and a number of skyscraper office buildings dating from the 1970s to the 1990s are located on prominent intersections in the immediate area.

Criterion 2 (Persons)

The Kaiser Center appears eligible for the California Register under Criterion 2 (Persons) for its association with Henry J. Kaiser. Kaiser is significant as an innovative industrialist with a larger than life personality who built more ships than any other builder during World War II, completed massive construction projects like the Hoover Dam, headed the first company to manufacture steel on the West Coast, and developed a health care organization for workers that became a model for Health Maintenance Organizations (HMOs) across the country. Kaiser was influential in the design of the Kaiser Center; purportedly telling the management team and the architects to "double it" when asked his opinion of the proposed size of the building. Kaiser is also frequently credited for the creation of the roof garden. Additionally, Kaiser held his offices, where he oversaw his multitude of companies and had an apartment at the 27th floor of the building. While many of Kaiser's industrial buildings still exist, the Kaiser Center in Oakland is the only remaining corporate headquarters connected to Kaiser Industries. Kaiser's earlier Oakland headquarters building, at 1924 Broadway, was demolished in the 1990s and therefore the Kaiser Center is an important building that expresses the importance of Oakland as the world headquarters of Kaiser Industries.

Criterion 3 (Architecture)

The Kaiser Center appears eligible for the California Register under Criterion 3 for embodying the distinctive characteristics of the Modern style. The Kaiser Center is a well-preserved example of the style as applied to a corporate headquarters complex. Characteristic features of the complex include its variety of building types: office tower, retail wings, and parking garage all designed in a compatible style; its site in a landscaped plaza with views to Lake Merritt. The complex appears as a strong horizontal base that is contrasted by a vertical office tower. The office tower features structural piers elevating the building's mass above the plaza, a mezzanine podium at the base, a T-shaped plan, a sweeping curved façade, flat roof, polychrome aluminum and glazed wall surfaces, aggregate concrete panels at secondary facades, and standardized bays with little variation. The Mall Buildings are completed in the same style and feature rectangular plans, flat roofs, structural piers elevating the building's mass above the first floor, and dolomite panel cladding. The materials used throughout the complex were selected to showcase the variety of Kaiser manufactured materials including aluminum and dolomite.

The Kaiser Center is also important as a designed office and retail complex, with an office tower, retail, landscaped open space, and parking incorporated on one site. Kaiser's headquarters was not envisioned as solely an office building, but as a group of associated buildings and landscapes that were intended to be used by both Kaiser Industries employees and Oakland community members.

In addition to being an example of a type, the Kaiser Center is also significant as the work of a master, Welton Becket & Associates. Welton Becket & Associates was an important modernist architecture firm working throughout the United States. The firm specialized in corporate headquarters, hotels, and cultural centers and was the largest architecture firm in the United States in the 1950s. The Kaiser Center is an excellent example of Welton Becket's work for corporate clients, who relied upon the firm to embody the corporation's philosophy in physical form. Welton Becket's design for the Kaiser Center showcases not only the materials produced by Kaiser Industries but also the characteristics Kaiser Industries were known for: innovation, in the use of a curved façade; and concern for employee well-being embodied in the inclusion of a roof garden.

The roof garden is significant for its design and as the largest contiguous roof garden in North America at the time of its construction. The garden features many of the hallmarks of modern landscape design including undulating topography, curvilinear pathways, geometrically shaped lawns, simple materials such as concrete pathways, planters, and benches; (continued)

***B10. Significance (cont.):**

trimmed hedges, shrubs, specimen trees, and an asymmetrical pool. The design by Osmundson & Staley is indicative of the Bay Area Modern landscape architecture popularized by designers such as Thomas Church, Robert Royston, and Lawrence Halprin. The Kaiser Center roof garden by Osmundson & Staley exemplifies the mid-century California Style first popularized by Church and his contemporaries in the 1940s. The California Style emphasized the importance of indoor/outdoor living and relied heavily on a modern landscape architectural vocabulary to achieve this effect. The decision to include a roof garden as part of the Kaiser Center complex marked an important recognition of the potential of the roof garden to create a more healthful and attractive office environment within the city.

Criterion 4 (Information Potential)

This property was not fully assessed for its potential to yield information important in prehistory or history, per California Register Criterion 4 (Information Potential).

The Kaiser Center complex retains its integrity, and the only significant alterations to public spaces include the renovation of the lobby and replacement of the cafeteria by tenant space. The exterior of the complex has seen few alterations, other than storefront alterations, signage changes, and the installation of ornament at the Mall Building entrances. The roof garden also retains integrity and though many of the plantings have been replaced over time, the new plantings are consistent with the original design. Overall, the complex retains sufficient integrity to convey its historical significance.



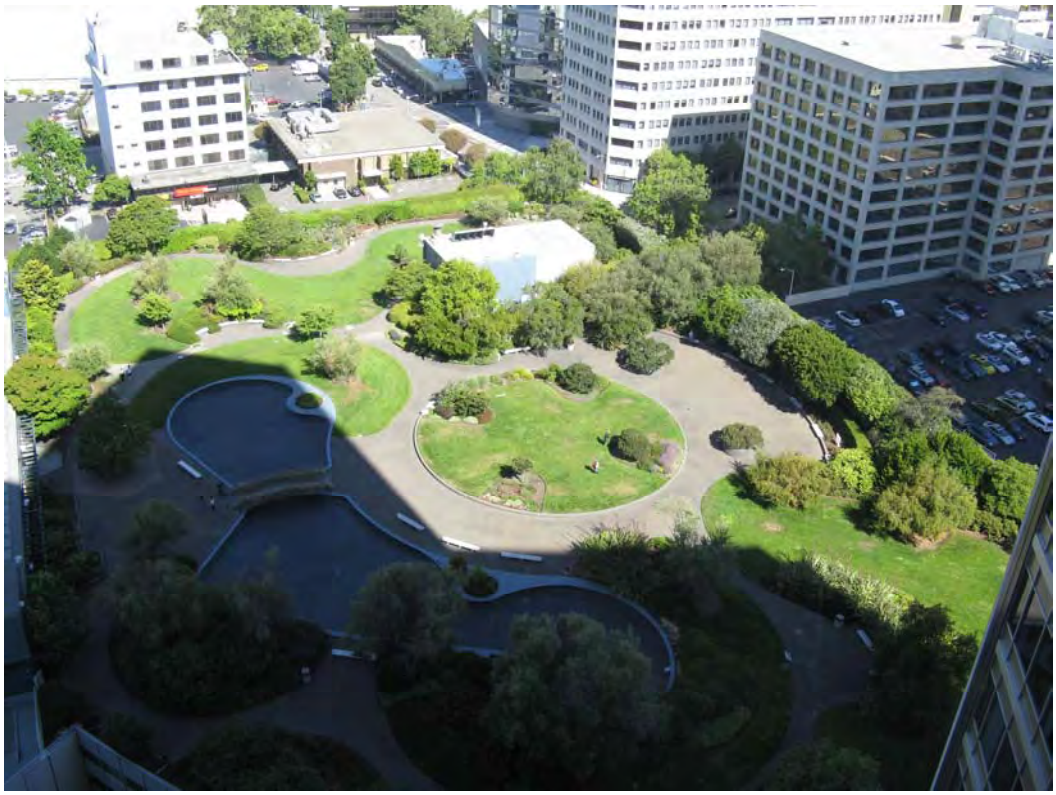
Parking Garage, north façade. Source: Page & Turnbull, June 2008.



20th Street Mall, southeast corner. Source: Page & Turnbull, June 2008



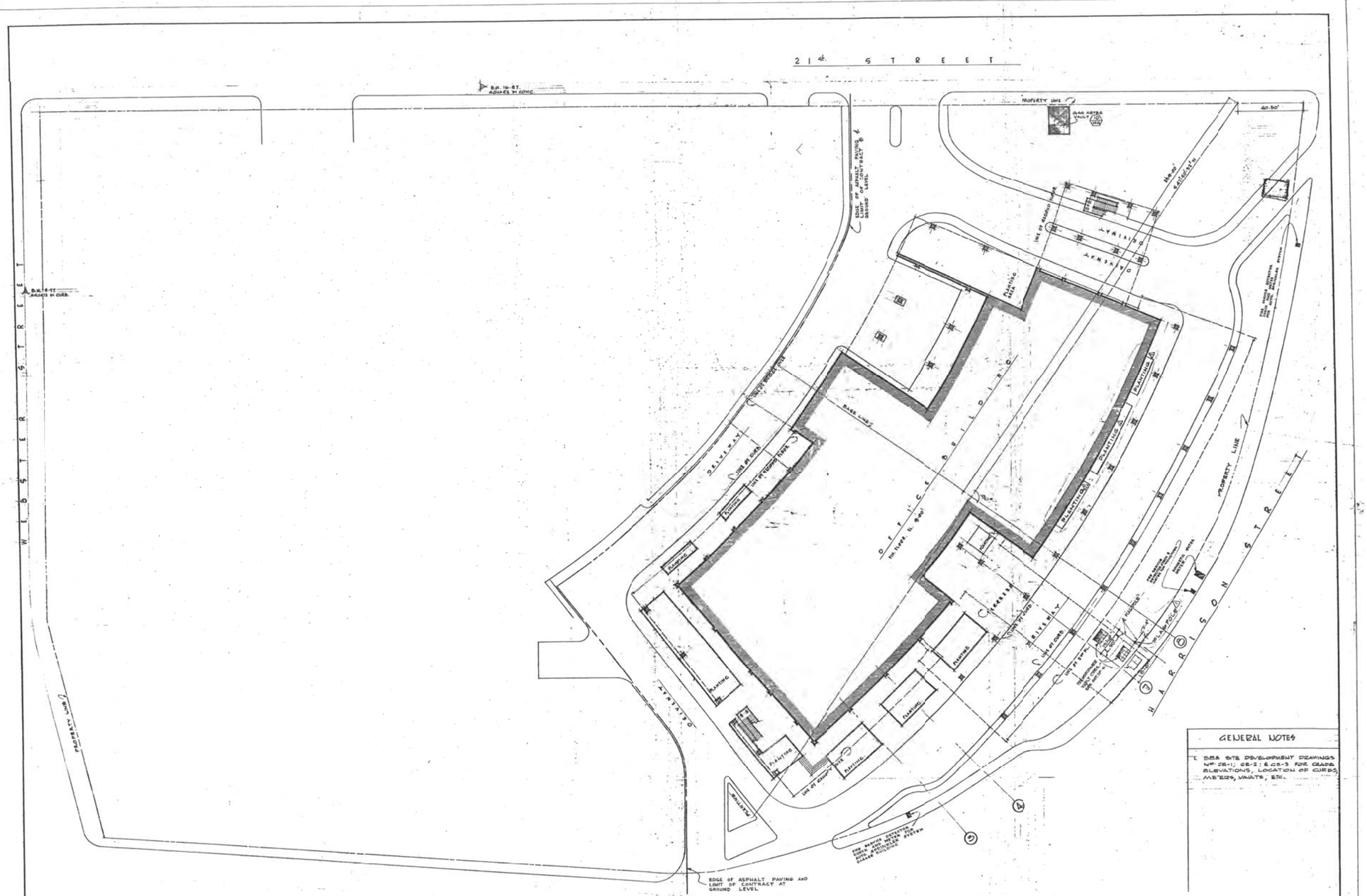
Webster Street Mall, northwest corner. Source: Page & Turnbull, June 2008.



Roof Garden, view from Office Tower. Source: Page & Turnbull, June 2008

APPENDIX E

Historic Drawings



MURRAY ERICC ASSOCIATES
STRUCTURAL ENGINEERS — LOS ANGELES, CAL F.

DUDLEY DEANE & ASSOCIATES
MECHANICAL & ELECTRICAL ENGINEERS — SAN FRANCISCO, CA.IF.

KAISER CENTER
OAKLAND, CALIFORNIA

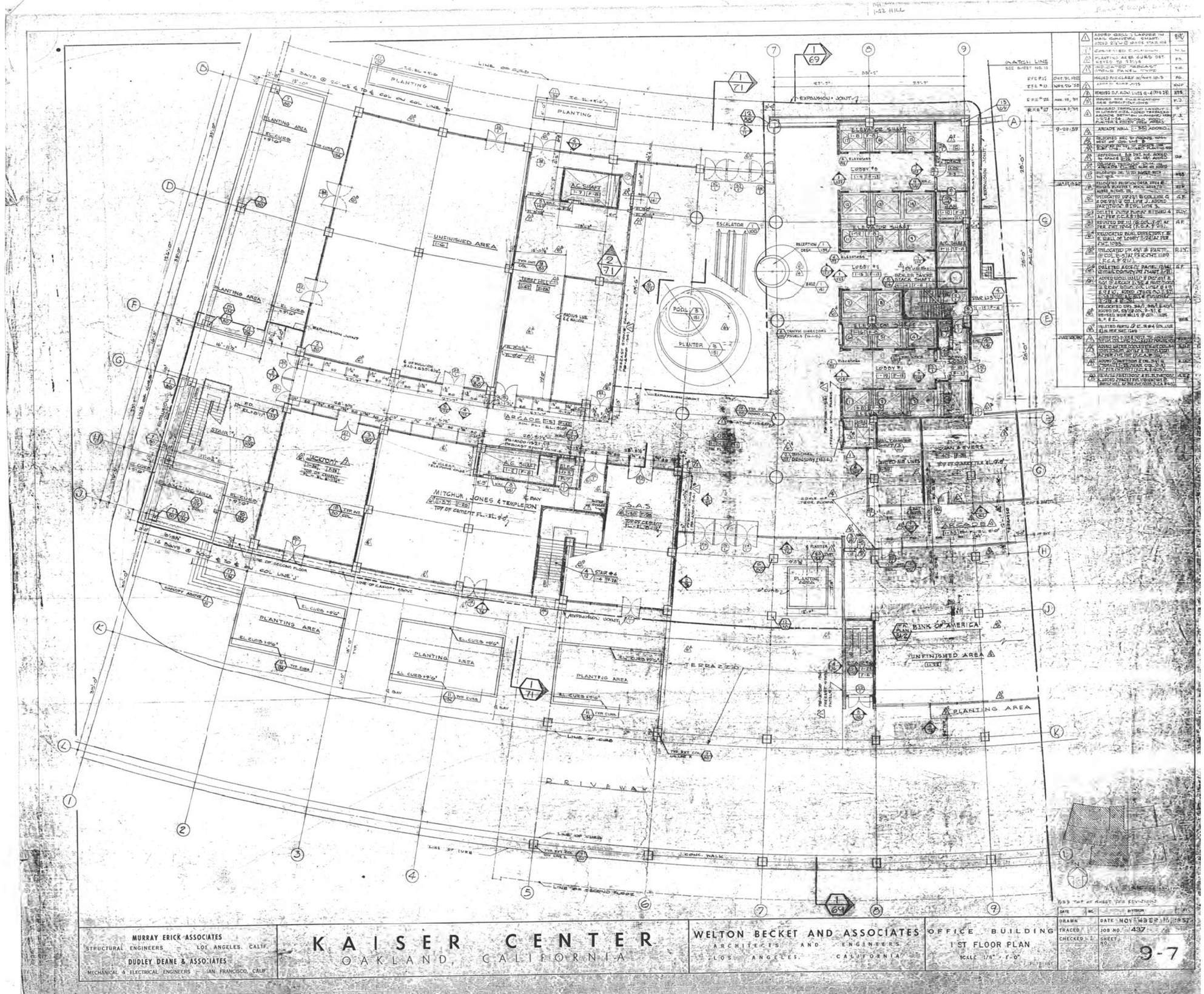
WELTON BECKET AND ASSOCIATES
ARCHITICTS AND ENGINEERS
LOS ANGELES, CALIFORNIA

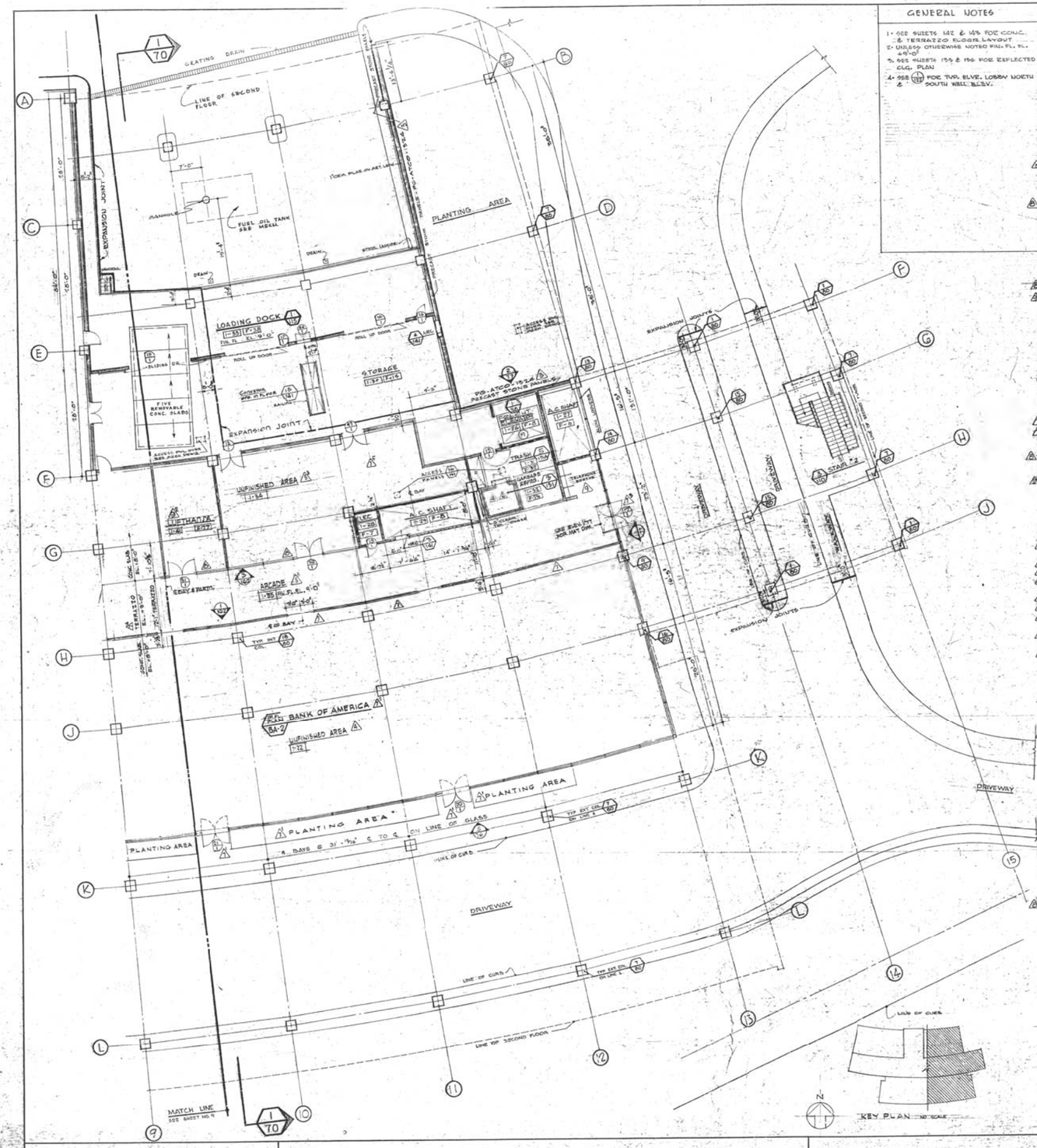
OFFICE BUILDING
PLOT PLAN
SCALE 1" - 20'-0"

DATE	NO.	REVISION	BY
JULY 25, 57	1	REVISED PLANTING AREA & PART OF SOUTH WALL AT PER BANK OF AMERICA DRAWING	G.K.
	2	REVISED BUILDING AS PER SEPT. 1957	W.L.K.

DRAWN
TRACED
CHECKED

DATE NOVEMBER 15, 1957
JOB NO. 1437
SHEET NO. 2-1


PLANTING
PLANTING
PLANTING AREA
UNFINISHED AREA
ARCADE
STAIR #1
STAIR #2
STAIR #3
STAIR #4
ELEVATOR SHAFT
ELEVATOR SHAFT
ELEVATOR SHAFT
LOBBY #1
LOBBY #2
LOBBY #3
ESCALATOR
POOL
PLANTER
RECEPTION DESK
EXPANSION JOINT
MITCHUM, JONES & TEMPLETON
BANK OF AMERICA
UNFINISHED AREA
PLANTING AREA
TERRAZZO
PLANTING AREA
PLANTING AREA
PLANTING AREA
PLANTING AREA
DRIVEWAY
CONC. WALK
LINE OF CURB
LINE OF CANOPY ABOVE
MATCH LINE
SEE SHEET NO. 12
ARCADE WALL (-55) ADDED
ADDED GRILL, LADDER TO WALL CONCRETE SHAFT
ADDED 2'6"W CONC STAIR #3B
PLANTING AREA GURD DET
REVISED PER CLARIFICATION SEE SPECIFICATIONS
REVISED TRENCHED LAYOUT IN LOBBY #2A, ADDED TERRACED AREA @ BETTMAN UNIVERSITY ARCHIVES, ADDED PLANTER & REVISED PAVING
RELOCATED PARTITION @ COLLINE G OR DRWG @ LINE J, ADDED PARTITIONS @ COL. LINE 3
DELETE INTERIOR PARTITIONS
REVISED PER (1) @ COL. 7-J & AT TRK. ENT. 19-K & 7-J & 2-J
RELOCATED BULL DIRECTORY BD. @ WALL OF LOBBY 1, 2 & AT PER FIELD COND.
RELOCATED PR. 45° ∠ PARTN. @ COL. 8-5/4" FROM CENTERLINE
DELETED ACCENT PANEL @ WALL ADJACENT TO PLANT #1
ADDED WOOD WALLS & PARTNS @ ARCADE & PARTITIONS @ SEAT WALL @ LINE F & ADDED TRUCK RAMP @ LINE F & J
RELOCATED GRILL SHAFT & ADDED DR. 69/18 CO. P-31 & REVISED WORK @ COL. LINES E & 2.
DELETED PARTN. @ ℄ SHAFT @ LINE A & SEE SEC 13/A5
ADDED WATER HOSE BIBB @ COL. LINE 7 & TERRACE
REVISED PARTITIONS @ ELEVATOR
ADDED PARTITIONS @ COL. 8-J & REVISED PARTITIONS @ COL. 8-A
SEE TOP OF SHEET FOR REVISIONS
MURRAY ERICK ASSOCIATES
STRUCTURAL ENGINEERS — LOS ANGELES, CALIF.
DUDLEY DEANE & ASSOCIATES
MECHANICAL & ELECTRICAL ENGINEERS — SAN FRANCISCO, CALIF.
KAISER CENTER
OAKLAND, CALIFORNIA
WELTON BECKET AND ASSOCIATES
ARCHITECTS AND ENGINEERS
LOS ANGELES, CALIFORNIA
OFFICE BUILDING
1ST FLOOR PLAN
SCALE 1/8" = 1'-0"
DRAWN
TRACED
CHECKED
DATE NOVEMBER 15, 1957
JOB NO. 437
SHEET NO. 9-7



GENERAL NOTES

1. SEE SHEETS 1.02 & 1.03 FOR CONC. & TERRAZZO FLOOR LAYOUT
2. UNLESS OTHERWISE NOTED FIN. FL. EL. +0'-0"
3. SEE SHEETS 1.35 & 1.36 FOR REFLECTED CLG. PLAN
4. SEE (1.20) FOR TYP. ELEV. LOBBY NORTH & SOUTH WALL ELEV.

INTERIOR FINISH SCHEDULE

FIN. NO.	FLOOR COVERING	BASE	MATERIAL	FIN	WAINSCOT MATERIAL	HT.	FIN	WALL MATERIAL	FIN	CEILING MATERIAL	FIN	TRIM MATERIAL	FIN	REMARKS
F-1	VINYL TILE	–	RUBBER	–	NONE			PUTTY COAT PLASTER	B	PUTTY COAT PLASTER	B	METAL	C	
F-3	ASPHALT TILE	–	RUBBER	–	NONE			PUTTY COAT PLASTER	A	PUTTY COAT PLASTER	A	METAL	C	SEE SHEET 1.35 FOR HEIGHT OF SOFFIT & CLG. HT. OF SPACE
F-3B	CEMENT	D	METAL	D	NONE			PUTTY COAT PLASTER	D	EXPOSED STRUCTURE	D	METAL	D	
F-5	NONE		NONE		NONE			MARBOLITE PLASTER		NONE		NONE		
F-7	CEMENT	A	METAL	C	NONE			HARDWALL PLASTER		EXPOSED STRUCTURE		METAL	C	
F-1E	VINYL TILE	–	RUBBER	–	NONE			KEENE'S CEMENT	A	KEENE'S CEMENT	A	METAL	C	
F-13	TERRAZZO	–	TERRAZZO	–	NONE			ALUMINUM & WOOD	6'0	ACOUSTIC PLASTIC	6'0	–	–	SEE DETAILS
F-15	QUARRY TILE	–	QUARRY TILE	–	NONE			MINERAL CEMENT		MINERAL CEMENT		METAL	C	SEE REFRIGERATOR DETAILS FOR CEILING HEIGHTS
F-18	CEMENT	D	METAL	C	NONE			PUTTY COAT PLASTER	B	ACOUSTIC PLASTIC	6'0"	P	METAL	C	SEE SHEET 1.35 FOR HEIGHT OF SOFFIT & CLG. HT. OF SPACE
F-14	CEMENT	A	METAL	C	NONE			PUTTY COAT PLASTER	B	PUTTY COAT PLASTER	B	P	METAL	C	SEE DETAILS FOR CLG. HT.
F-32	CEMENT	F	WOOD	–	METAL	6'0	E	KEENE'S CEMENT	A	KEENE'S CEMENT	A	A	METAL	C	
F-50	EXPOSED STRUCTURE	–	WOOD	–	NONE			EXPOSED STRUCTURE		EXPOSED STRUCTURE			NONE		
F-36	CEMENT	F	WOOD	–	METAL	6'0	E	WOOD & SEMI PLAS.	6'0	D		SEMI PLAS.	6'0	D	METAL	C	
F-40	TERRAZZO	–	TERRAZZO	–	NONE			PRESET TERRAZZO & STAIRS		ACOUSTIC PLASTIC	6'0	P	METAL	C	
F-76	QUARRY TILE	–	QUARRY TILE	–	NONE			PUTTY COAT PLASTER		ACOUSTIC PLASTIC	6'0	P			4" HIGH BASE
F-77	VINYL TILE	–	RUBBER	–	NONE			PUTTY COAT PLASTER		ACOUSTIC PLASTIC	6'0	P			

DOOR SCHEDULE - CONTINUED

DOOR NO.	OPENING WIDTH	HT.	DOOR TYPE	THK.	MATERIAL	FIN.	FRAME DETAIL	FRAME MATERIAL	FIN.	THRESHOLD DETAIL	THRESHOLD MATERIAL	LOUVER SIZE	HARD WARE	FIRE LABEL	REMARKS
43	3'0"	7'-0"	1 3/8		WOOD		9/11	STL	–	–	–	–	36	–	EXPOSED CLOSERS-FR. 5'-0" HIGH PLATE
44	2'-8"	7'-0"	1 3/4	A	18" ALUM		9/13	STL	–	9/16	METAL	–	37	–	
45	3'-0"	7'-1"	MAN. DR.		TEMP. GL.		–	ALUM.		11/16	–	–	22		SEE 3/1601 FR. EL. CLOSERS
50	3'-0"	7'-1"	MAN. DR.		TEMP. GL.		–	ALUM.		11/16	–	–	22		SEE 3/1601 FR. EL. CLOSERS
51	3'-0"	7'-1"	MAN. DR.		TEMP. GL.		–	ALUM.		11/16	–	–	22		SEE 3/1601 FR. EL. CLOSERS
52	3'-0"	7'-1"	MAN. DR.		TEMP. GL.		–	ALUM.		11/16	–	–	22		SEE 3/1601 FR. EL. CLOSERS
53	3'-0"	7'-0"	1 3/8		WOOD		9/11	STL	–	–	–	–	36	–	SEE 6/123 FR. EL. CLOSERS
54	3'-0"	7'-0"	1 3/8		WOOD		9/11	STL	–	–	–	–	36	–	

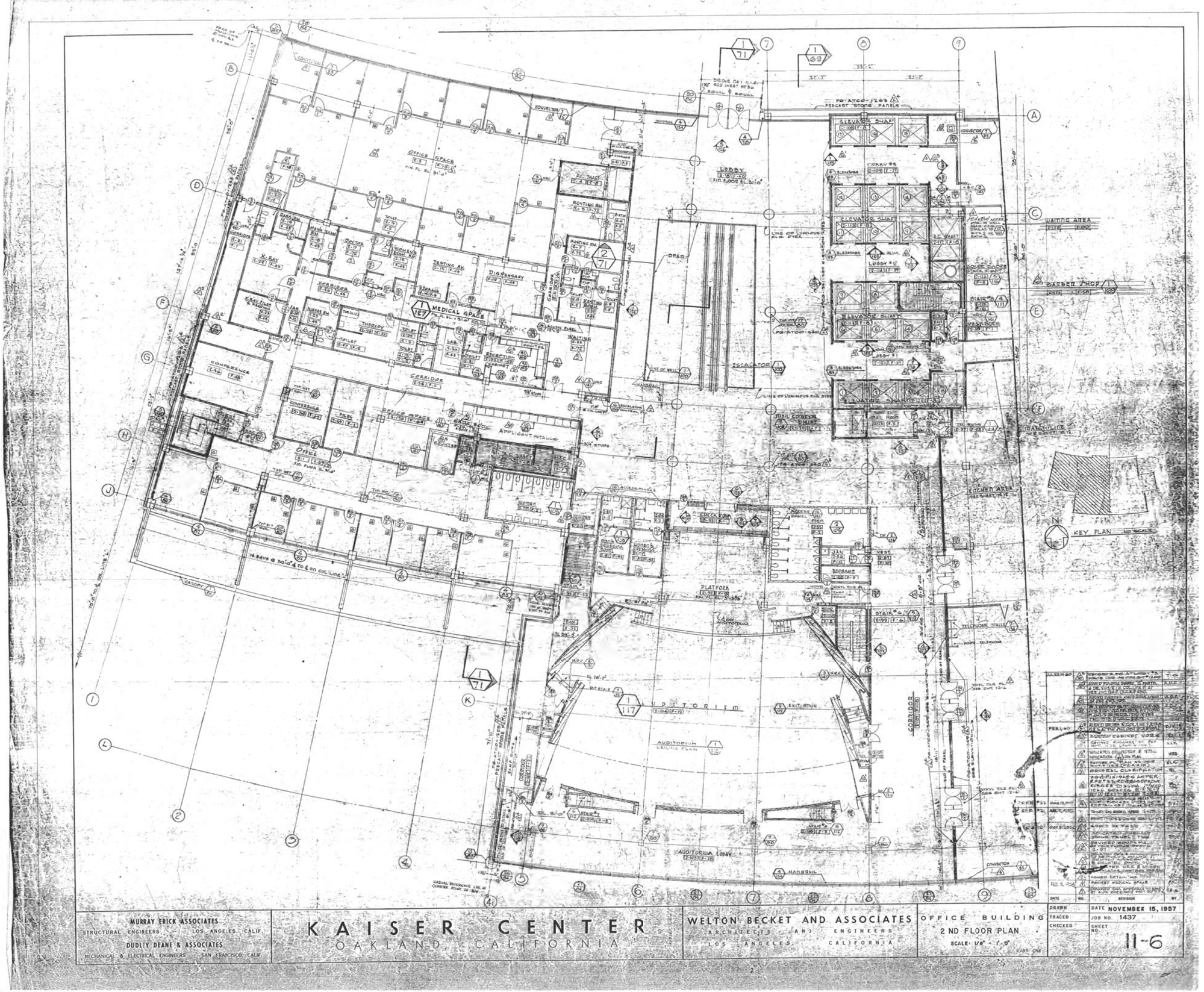
DOOR SCHEDULE

DOOR NO.	OPENING WIDTH	HT.	DOOR TYPE	THK.	MATERIAL	FIN.	FRAME DETAIL	FRAME MATERIAL	FIN.	THRESHOLD DETAIL	THRESHOLD MATERIAL	LOUVER SIZE	HARD WARE	FIRE LABEL	REMARKS
1/1	2'-8"	7'-0"	1 3/4	A	ALUM.		9/13	STL	–	–	–	–	9	B	EXPOSED CLOSERS
2/1	2'-8"	7'-0"	1 3/4	A	ALUM.		9/13	STL	–	–	–	–	9	B	EXPOSED CLOSERS
3/1	2'-8"	7'-0"	1 3/4	A	ALUM.		9/13	STL	–	–	–	–	9	B	EXPOSED CLOSERS
4/1	2'-8"	7'-0"	1 3/4	A	ALUM.		9/13	STL	–	–	–	–	9	B	EXPOSED CLOSERS
5/1	2'-8"	7'-0"	1 3/4	A	ALUM.		9/13	STL	–	–	–	–	9	B	EXPOSED CLOSERS
6/1	2'-8"	7'-0"	1 3/4	A	ALUM.		9/13	STL	–	–	–	–	9	B	EXPOSED CLOSERS
7/1	2'-8"	7'-0"	1 3/4	A	ALUM.		9/13	STL	–	–	–	–	9	B	EXPOSED CLOSERS
8/1	2'-8"	7'-0"	1 3/4	A	ALUM.		9/13	STL	–	–	–	–	9	B	EXPOSED CLOSERS
9/1	3'-0"	7'-0"	1 3/8		WOOD		9/11	STL	–	–	–	–	36	–	EXPOSED CLOSERS
10/1	3'-0"	7'-0"	1 3/8		WOOD		9/11	STL	–	–	–	–	36	–	EXPOSED CLOSERS-FR. 5'-0" HIGH PLATE
11/1	3'-0"	7'-0"	1 3/4	A	18" ALUM.		9/13	STL	–	–	–	–	9	B	EXPOSED CLOSER
12/1	3'-0"	7'-0"	1 3/4	A	18" ALUM.		9/13	STL	–	–	–	–	9	B	EXPOSED CLOSER
13/1	3'-0"	7'-0"	1 3/4	A	18" ALUM.		9/13	STL	–	–	–	–	9	B	EXPOSED CLOSER
14/1	3'-0"	7'-0"	1 3/4	A	18" ALUM.		9/13	STL	–	–	–	–	9	B	EXPOSED CLOSER
15/1	3'-0"	7'-0"	1 3/4	H	18" WOOD		9/13	STL	–	–	–	–	36	–	EXPOSED CLOSER-FR. 5'-0" HIGH PLATE
16/1	3'-0"	7'-0"			ALUM.										SEE 9/16
17/1	3'-0"	7'-0"			ALUM.										SEE 9/16
18/1	3'-0"	7'-0"			ALUM.										SEE 9/16 - FR. EL.
19/1	3'-0"	7'-0"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
20/1	3'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
21/1	3'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
22/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
23/1	6'-0"	7'-1"	1 3/4	A	ALUM.		–	ALUM.		10/16	METAL	–	20	–	SEE 9/16 - FR. EL. CLOSERS
24/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		10/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
25/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		10/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
26/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
27/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
28/1	6'-0"	7'-1"	1 3/4	A	ALUM.		–	ALUM.		11/16	METAL	–	21	–	SEE 9/16 - FR. EL. CLOSERS
29/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
30/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
31/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
32/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
33/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
34/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
35/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
36/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
37/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
38/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/16 - FR. EL. CLOSERS
39/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	–	–	22	–	SEE 9/16 - FR. EL. CLOSERS
40/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	–	–	22	–	SEE 9/16 - FR. EL. CLOSERS
42/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	–	–	22	–	SEE 9/16 - FR. EL. CLOSERS
43/1	6'-0"	7'-1"	1 3/4	A	TEMP. GL.		–	ALUM.		11/16	–	–	22	–	SEE 9/16 - FR. EL. CLOSERS
44/1	3'-0"	8'-0"	1 3/4		METAL		9/13	STL		9/16	STL	–	36	B	SEE 9/16 - FR. EL.
45/1	3'-0"	8'-0"	1 3/4		WOOD		9/13	STL		–	–	–	–	–	
46/1	6'-0"	7'-1"	1 3/4	H	TEMP. GL.		–	ALUM.		11/16	METAL	–	19	–	SEE 9/17 - FR. EL. CLOSERS

FOR SOUTH ELEVATIONS OF DOOR SCHEDULE SEE ABOVE

JULY 11, 1960	4	ADDED TELEPHONE BOOTHS AS PER SKETCH 10 R & (P.C.A. # 340)
	5	REVISED DOORS DETAILS AND DOOR SCHEDULE AS PER SHEETS 1.20-2 & 1.20-3, REVISED HARDWARE HEADING ON SHEET & WIDTH OF FR. OPENINGS 3/4" & 4'-0" IN OTHER
	6	REVISED PR'(11) IN SCHEDULE AS PER CHG'D 1044 (P.C.A. # 218)
	7	ADDED PARTY LINE DAY STOR. CO. LINES B-4.6 & WIDE WALL & DOORS 101 & 201 (P.C.A. # 340)
8-29-60	8	DOOR 49A ADDED
	9	TELEGRAPH DRS. 7-2 & 3 ADDED DR. 47/1 TO AGREE W/DWG. 12.4
	10	CHG'D 6" SQ. TERRAZZO DIA. @ ARCADE TO 12" SQUARE, NOS 9 SMALL ADDED

	1	ADDED DOOR NO. 1A, 1B, 1C, 1D, 1E, 1F ALONG SHEL LINE N. ADDED 1G
	2	ADDED DOOR NO. 1H ALONG SHEL LINE N.
	3	CHANGED DOOR NO. 1E TO 1E-1 & ADDED DOOR NO. 1E-2
	4	ADDED DOOR NO. 1J ALONG SHEL LINE N.
	5	ADDED DOOR NO. 1K ALONG SHEL LINE N.
	6	ADDED DOOR NO. 1L ALONG SHEL LINE N.
	7	ADDED DOOR NO. 1M ALONG SHEL LINE N.
	8	ADDED DOOR NO. 1N ALONG SHEL LINE N.
	9	ADDED DOOR NO. 1P ALONG SHEL LINE N.
	10	ADDED DOOR NO. 1Q ALONG SHEL LINE N.
	11	ADDED DOOR NO. 1R ALONG SHEL LINE N.
	12	ADDED DOOR NO. 1S ALONG SHEL LINE N.
	13	ADDED DOOR NO. 1T ALONG SHEL LINE N.
	14	ADDED DOOR NO. 1U ALONG SHEL LINE N.
	15	ADDED DOOR NO. 1V ALONG SHEL LINE N.
	16	ADDED DOOR NO. 1W ALONG SHEL LINE N.
	17	ADDED DOOR NO. 1X ALONG SHEL LINE N.
	18	ADDED DOOR NO. 1Y ALONG SHEL LINE N.
	19	ADDED DOOR NO. 1Z ALONG SHEL LINE N.
	20	ADDED DOOR NO. 1AA ALONG SHEL LINE N.
	21	ADDED DOOR NO. 1BB ALONG SHEL LINE N.
	22	ADDED DOOR NO. 1CC ALONG SHEL LINE N.
	23	ADDED DOOR NO. 1DD ALONG SHEL LINE N.
	24	ADDED DOOR NO. 1EE ALONG SHEL LINE N.
	25	ADDED DOOR NO. 1FF ALONG SHEL LINE N.
	26	ADDED DOOR NO. 1GG ALONG SHEL LINE N.
	27	ADDED DOOR NO. 1HH ALONG SHEL LINE N.
	28	ADDED DOOR NO. 1II ALONG SHEL LINE N.
	29	ADDED DOOR NO. 1JJ ALONG SHEL LINE N.
	30	ADDED DOOR NO. 1KK ALONG SHEL LINE N.
	31	ADDED DOOR NO. 1LL ALONG SHEL LINE N.
	32	ADDED DOOR NO. 1MM ALONG SHEL LINE N.
	33	ADDED DOOR NO. 1NN ALONG SHEL LINE N.
	34	ADDED DOOR NO. 1OO ALONG SHEL LINE N.
	35	ADDED DOOR NO. 1PP ALONG SHEL LINE N.
	36	ADDED DOOR NO. 1QQ ALONG SHEL LINE N.
	37	ADDED DOOR NO. 1RR ALONG SHEL LINE N.
	38	ADDED DOOR NO. 1SS ALONG SHEL LINE N.
	39	ADDED DOOR NO. 1TT ALONG SHEL LINE N.
	40	ADDED DOOR NO. 1UU ALONG SHEL LINE N.
	41	ADDED DOOR NO. 1VV ALONG SHEL LINE N.
	42	ADDED DOOR NO. 1WW ALONG SHEL LINE N.
	43	ADDED DOOR NO. 1XX ALONG SHEL LINE N.
	44	ADDED DOOR NO. 1YY ALONG SHEL LINE N.
	45	ADDED DOOR NO. 1ZZ ALONG SHEL LINE N.
	46	ADDED DOOR NO. 1AAA ALONG SHEL LINE N.
	47	ADDED DOOR NO. 1BBB ALONG SHEL LINE N.
	48	ADDED DOOR NO. 1CCC ALONG SHEL LINE N.
	49	ADDED DOOR NO. 1DDD ALONG SHEL LINE N.
	50	ADDED DOOR NO. 1EEE ALONG SHEL LINE N.
	51	ADDED DOOR NO. 1FFF ALONG SHEL LINE N.
	52	ADDED DOOR NO. 1GGG ALONG SHEL LINE N.
	53	ADDED DOOR NO. 1HHH ALONG SHEL LINE N.
	54	ADDED DOOR NO. 1III ALONG SHEL LINE N.
	55	ADDED DOOR NO. 1JJJ ALONG SHEL LINE N.
	56	ADDED DOOR NO. 1KKK ALONG SHEL LINE N.
	57	ADDED DOOR NO. 1LLL ALONG SHEL LINE N.
	58	ADDED DOOR NO. 1MMM ALONG SHEL LINE N.
	59	ADDED DOOR NO. 1NNN ALONG SHEL LINE N.
	60	ADDED DOOR NO. 1OOO ALONG SHEL LINE N.
	61	ADDED DOOR NO. 1PPP ALONG SHEL LINE N.
	62	ADDED DOOR NO. 1QQQ ALONG SHEL LINE N.
	63	ADDED DOOR NO. 1RRR ALONG SHEL LINE N.
	64	ADDED DOOR NO. 1SSS ALONG SHEL LINE N.
	65	ADDED DOOR NO. 1TTT ALONG SHEL LINE N.
	66	ADDED DOOR NO. 1UUU ALONG SHEL LINE N.
	67	ADDED DOOR NO. 1VVV ALONG SHEL LINE N.
	68	ADDED DOOR NO. 1WWW ALONG SHEL LINE N.
	69	ADDED DOOR NO. 1XXX ALONG SHEL LINE N.
	70	ADDED DOOR NO. 1YYY ALONG SHEL LINE N.
	71	ADDED DOOR NO. 1ZZZ ALONG SHEL LINE N.
	72	ADDED DOOR NO. 1AAAA ALONG SHEL LINE N.
	73	ADDED DOOR NO. 1BBBB ALONG SHEL LINE N.
	74	ADDED DOOR NO. 1CCCC ALONG SHEL LINE N.
	75	ADDED DOOR NO. 1DDDD ALONG SHEL LINE N.
	76	ADDED DOOR NO. 1EEEE ALONG SHEL LINE N.
	77	ADDED DOOR NO. 1FFFF ALONG SHEL LINE N.
	78	ADDED DOOR NO. 1GGGG ALONG SHEL LINE N.
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	80	ADDED DOOR NO. 1IIII ALONG SHEL LINE N.
	81	ADDED DOOR NO. 1JJJJ ALONG SHEL LINE N.
	82	ADDED DOOR NO. 1KKKK ALONG SHEL LINE N.
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	86	ADDED DOOR NO. 1OOOO ALONG SHEL LINE N.
	87	ADDED DOOR NO. 1PPPP ALONG SHEL LINE N.
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	89	ADDED DOOR NO. 1RRRR ALONG SHEL LINE N.
	90	ADDED DOOR NO. 1SSSS ALONG SHEL LINE N.
	91	ADDED DOOR NO. 1TTTT ALONG SHEL LINE N.
	92	ADDED DOOR NO. 1UUUU ALONG SHEL LINE N.
	93	ADDED DOOR NO. 1VVVV ALONG SHEL LINE N.
	94	ADDED DOOR NO. 1WWWW ALONG SHEL LINE N.
	95	ADDED DOOR NO. 1XXXX ALONG SHEL LINE N.
	96	ADDED DOOR NO. 1YYYY ALONG SHEL LINE N.
	97	ADDED DOOR NO. 1ZZZZ ALONG SHEL LINE N.
	98	ADDED DOOR NO. 1AAAAA ALONG SHEL LINE N.
	99	ADDED DOOR NO. 1BBBBB ALONG SHEL LINE N.
	100	ADDED DOOR NO. 1CCCCC ALONG SHEL LINE N.
	101	ADDED DOOR NO. 1DDDDD ALONG SHEL LINE N.
	102	ADDED DOOR NO. 1EEEEE ALONG SHEL LINE N.
	103	ADDED DOOR NO. 1FFFFF ALONG SHEL LINE N.
	104	ADDED DOOR NO. 1GGGGG ALONG SHEL LINE N.
	105	ADDED DOOR NO. 1HHHHH ALONG SHEL LINE N.
	106	ADDED DOOR NO. 1IIIII ALONG SHEL LINE N.
	107	ADDED DOOR NO. 1JJJJJ ALONG SHEL LINE N.
	108	ADDED DOOR NO. 1KKKKK ALONG SHEL LINE N.
	109	ADDED DOOR NO. 1LLLLL ALONG SHEL LINE N.
	110	ADDED DOOR NO. 1MMMMM ALONG SHEL LINE N.
	111	ADDED DOOR NO. 1NNNNN ALONG SHEL LINE N.
	112	ADDED DOOR NO. 1OOOOO ALONG SHEL LINE N.
	113	ADDED DOOR NO. 1PPPPP ALONG SHEL LINE N.
	114	ADDED DOOR NO. 1QQQQQ ALONG SHEL LINE N.
	115	ADDED DOOR NO. 1RRRRR ALONG SHEL LINE N.
	116	ADDED DOOR NO. 1SSSSS ALONG SHEL LINE N.
	117	ADDED DOOR NO. 1TTTTT ALONG SHEL LINE N.
	118	ADDED DOOR NO. 1UUUUU ALONG SHEL LINE N.
	119	ADDED DOOR NO. 1VVVVV ALONG SHEL LINE N.
	120	ADDED DOOR NO. 1WWWWW ALONG SHEL LINE N.
	121	ADDED DOOR NO. 1XXXXX ALONG SHEL LINE N.
	122	ADDED DOOR NO. 1YYYYY ALONG SHEL LINE N.
	123	ADDED DOOR NO. 1ZZZZZ ALONG SHEL LINE N.
	124	ADDED DOOR NO. 1AAAAAA ALONG SHEL LINE N.
	125	ADDED DOOR NO. 1BBBBBB ALONG SHEL LINE N.
	126	ADDED DOOR NO. 1CCCCCC ALONG SHEL LINE N.
	127	ADDED DOOR NO. 1DDDDDD ALONG SHEL LINE N.
	128	ADDED DOOR NO. 1EEEEEE ALONG SHEL LINE N.
	129	ADDED DOOR NO. 1FFFFFF ALONG SHEL LINE N.
	130	ADDED DOOR NO. 1GGGGGG ALONG SHEL LINE N.
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	134	ADDED DOOR NO. 1KKKKKK ALONG SHEL LINE N.
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	140	ADDED DOOR NO. 1QQQQQQ ALONG SHEL LINE N.
	141	ADDED DOOR NO. 1RRRRRR ALONG SHEL LINE N.
	142	ADDED DOOR NO. 1SSSSSS ALONG SHEL LINE N.
	143	ADDED DOOR NO. 1TTTTTT ALONG SHEL LINE N.
	144	ADDED DOOR NO. 1UUUUUU ALONG SHEL LINE N.
	145	ADDED DOOR NO. 1VVVVVV ALONG SHEL LINE N.
	146	ADDED DOOR NO. 1WWWWWW ALONG SHEL LINE N.
	147	ADDED DOOR NO. 1XXXXXX ALONG SHEL LINE N.
	148	ADDED DOOR NO. 1YYYYYY ALONG SHEL LINE N.
	149	ADDED DOOR NO. 1ZZZZZZ ALONG SHEL LINE N.
	150	ADDED DOOR NO. 1AAAAAAA ALONG SHEL LINE N.
	151	ADDED DOOR NO. 1BBBBBBB ALONG SHEL LINE N.
	152	ADDED DOOR NO. 1CCCCCCC ALONG SHEL LINE N.
	153	ADDED DOOR NO. 1DDDDDDD ALONG SHEL LINE N.
	154	ADDED DOOR NO. 1EEEEEEE ALONG SHEL LINE N.
	155	ADDED DOOR NO. 1FFFFFFF ALONG SHEL LINE N.
	156	ADDED DOOR NO. 1GGGGGGG ALONG SHEL LINE N.
	157	ADDED DOOR NO. 1HHHHHHH ALONG SHEL LINE N.
	158	ADDED DOOR NO. 1IIIIIII ALONG SHEL LINE N.
	159	ADDED DOOR NO. 1JJJJJJJ ALONG SHEL LINE N.
	160	ADDED DOOR NO. 1KKKKKKK ALONG SHEL LINE N.
	161	ADDED DOOR NO. 1LLLLLLL ALONG SHEL LINE N.
	162	ADDED DOOR NO. 1MMMMMMM ALONG SHEL LINE N.
	163	ADDED DOOR NO. 1NNNNNNN ALONG SHEL LINE N.
	164	ADDED DOOR NO. 1OOOOOOO ALONG SHEL LINE N.
	165	ADDED DOOR NO. 1PPPPPPP ALONG SHEL LINE N.
	166	ADDED DOOR NO. 1QQQQQQQ ALONG SHEL LINE N.
	167	ADDED DOOR NO. 1RRRRRRR ALONG SHEL LINE N.
	168	ADDED DOOR NO. 1SSSSSSS ALONG SHEL LINE N.
	169	ADDED DOOR NO. 1TTTTTTT ALONG SHEL LINE N.
	170	ADDED DOOR NO. 1UUUUUUU ALONG SHEL LINE N.
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	172	ADDED DOOR NO. 1WWWWWWW ALONG SHEL LINE N.
	173	ADDED DOOR NO. 1XXXXXXX ALONG SHEL LINE N.
	174	ADDED DOOR NO. 1YYYYYYY ALONG SHEL LINE N.
	175	ADDED DOOR NO. 1ZZZZZZZ ALONG SHEL LINE N.
	176	ADDED DOOR NO. 1AAAAAAAA ALONG SHEL LINE N.
	177	ADDED DOOR NO. 1BBBBBBBB ALONG SHEL LINE N.
	178	ADDED DOOR NO. 1CCCCCCCC ALONG SHEL LINE N.
	179	ADDED DOOR NO. 1DDDDDDDD ALONG SHEL LINE N.
	180	ADDED DOOR NO. 1EEEEEEEE ALONG SHEL LINE N.
	181	ADDED DOOR NO. 1FFFFFFFF ALONG SHEL LINE N.
	182	ADDED DOOR NO. 1GGGGGGGG ALONG SHEL LINE N.
	183	ADDED DOOR NO. 1HHHHHHHH ALONG SHEL LINE N.
	184	ADDED DOOR NO. 1IIIIIIII ALONG SHEL LINE N.
	185	ADDED DOOR NO. 1JJJJJJJJ ALONG SHEL LINE N.
	186	ADDED DOOR NO. 1KKKKKKKK ALONG SHEL LINE N.
	187	ADDED DOOR NO. 1LLLLLLLL ALONG SHEL LINE N.
	188	ADDED DOOR NO. 1MMMMMMMM ALONG SHEL LINE N.
	189	ADDED DOOR NO. 1NNNNNNNN ALONG SHEL LINE N.
	190	ADDED DOOR NO. 1OOOOOOOO ALONG SHEL LINE N.
	191	ADDED DOOR NO. 1PPPPPPPP ALONG SHEL LINE N.
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	193	ADDED DOOR NO. 1RRRRRRRR ALONG SHEL LINE N.
	194	ADDED DOOR NO. 1SSSSSSSS ALONG SHEL LINE N.
	195	ADDED DOOR NO. 1TTTTTTTT ALONG SHEL LINE N.
	196	ADDED DOOR NO. 1UUUUUUUU ALONG SHEL LINE N.
	197	ADDED DOOR NO. 1VVVVVVVV ALONG SHEL LINE N.
	198	ADDED DOOR NO. 1WWWWWWWW ALONG SHEL LINE N.
	199	ADDED DOOR NO. 1XXXXXXXX ALONG SHEL LINE N.
	200	ADDED DOOR NO. 1YYYYYYYY ALONG SHEL LINE N.
	201	ADDED DOOR NO. 1ZZZZZZZZ ALONG SHEL LINE N.
	202	ADDED DOOR NO. 1AAAAAAAAA ALONG SHEL LINE N.
	203	ADDED DOOR NO. 1BBBBBBBBB ALONG SHEL LINE N.
	204	ADDED DOOR NO. 1CCCCCCCCC ALONG SHEL LINE N.
	205	ADDED DOOR NO. 1DDDDDDDDD ALONG SHEL LINE N.
	206	ADDED DOOR NO. 1EEEEEEEEE ALONG SHEL LINE N.
	207	ADDED DOOR NO. 1FFFFFFFFF ALONG SHEL LINE N.
	208	ADDED DOOR NO. 1GGGGGGGGG ALONG SHEL LINE N.
	209	ADDED DOOR NO. 1HHHHHHHHH ALONG SHEL LINE N.
	210	ADDED DOOR NO. 1IIIIIIIII ALONG SHEL LINE N.
	211	ADDED DOOR NO. 1JJJJJJJJJ ALONG SHEL LINE N.
	212	ADDED DOOR NO. 1KKKKKKKKK ALONG SHEL LINE N.
	213	ADDED DOOR NO. 1LLLLLLLLL ALONG SHEL LINE N.
	214	ADDED DOOR NO. 1MMMMMMMMM ALONG SHEL LINE N.
	215	ADDED DOOR NO. 1NNNNNNNNN ALONG SHEL LINE N.
	216	ADDED DOOR NO. 1OOOOOOOOO ALONG SHEL LINE N.
	217	ADDED DOOR NO. 1PPPPPPPPP ALONG SHEL LINE N.
	218	ADDED DOOR NO. 1QQQQQQQQQ ALONG SHEL LINE N.
	219	ADDED DOOR NO. 1RRRRRRRRR ALONG SHEL LINE N.
	220	ADDED DOOR NO. 1SSSSSSSSS ALONG SHEL LINE N.
	221	ADDED DOOR NO. 1TTTTTTTTT ALONG SHEL LINE N.



MURRAY ERICK ASSOCIATES
STRUCTURAL ENGINEERS LOS ANGELES, CALIF.

DUDLEY DEANE & ASSOCIATES
MECHANICAL & ELECTRICAL ENGINEERS SAN FRANCISCO, CALIF.

KAISER CENTER
OAKLAND, CALIFORNIA

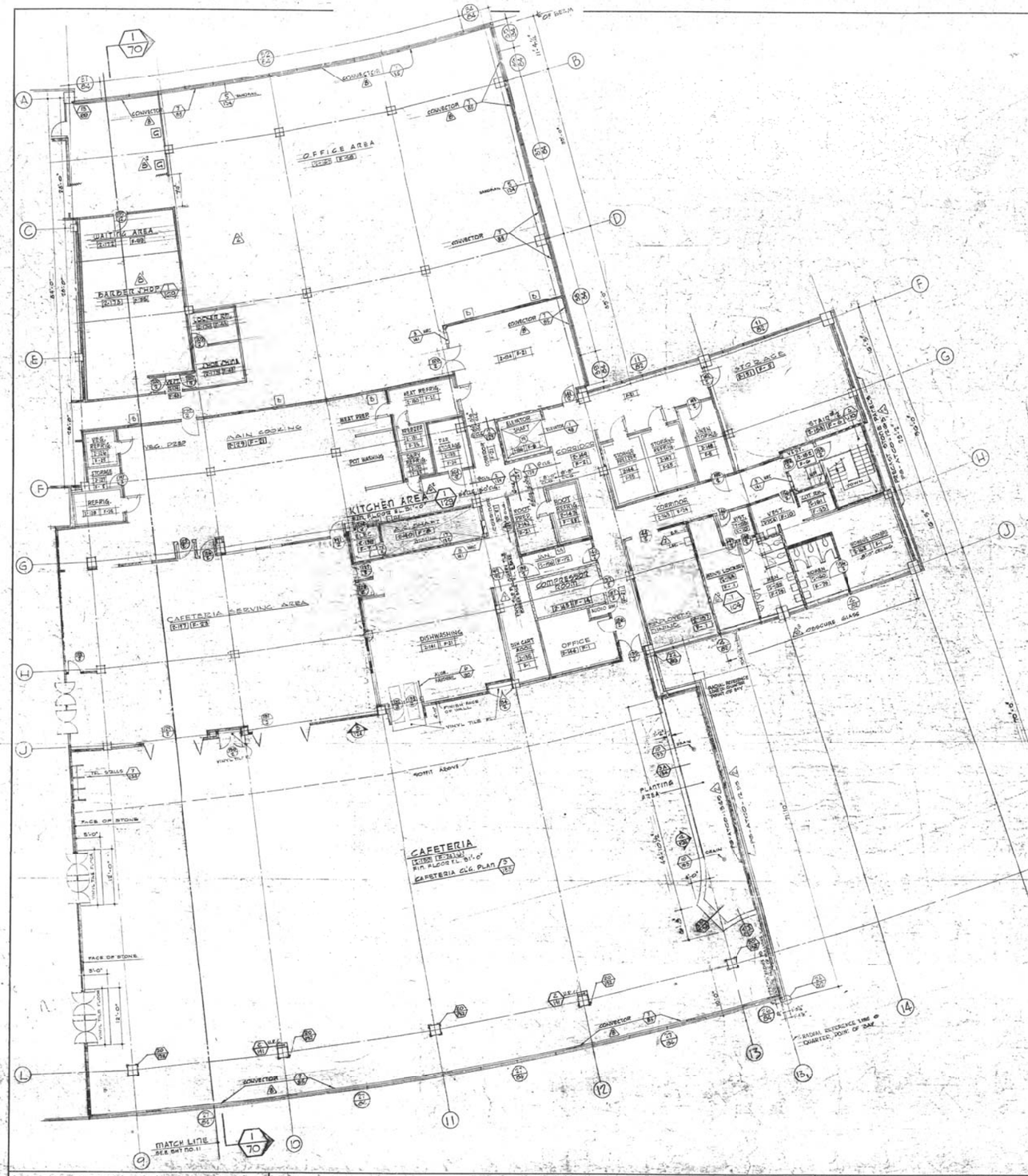
WELTON BECKET AND ASSOCIATES
ARCHITECTS AND ENGINEERS
LOS ANGELES CALIFORNIA

OFFICE BUILDING
2 ND FLOOR PLAN
SCALE: 1/8" = 1'-0"

DATE	NO.	REVISION	BY

DRAWN
TRACED
CHECKED

DATE NOVEMBER 15, 1957
JOB NO. 1437
SHEET NO. 11-6

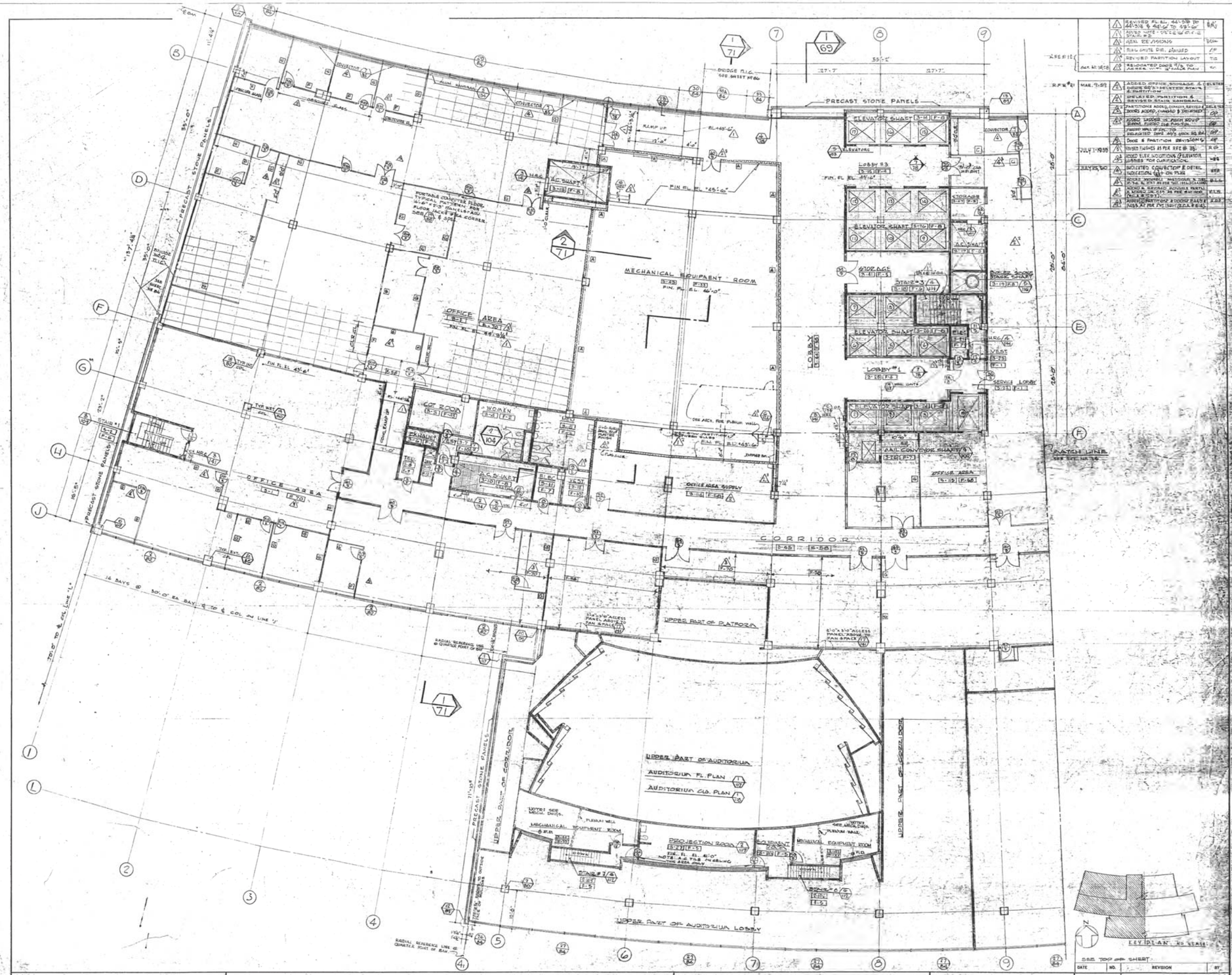


INTERIOR FINISH SCHEDULE

TYPE NO.	FLOOR COVERING	FIN	BASE MATERIAL	FIN	WAINSCOT MATERIAL	HT.	FIN	WALL MATERIAL	FIN	CEILING MATERIAL	FIN	TRIM MATERIAL	FIN	REMARKS
F-1	VINYL TILE	—	RUBBER	—	NONE			PUTTYCOAT PLASTER	B	PUTTYCOAT PLASTER	B	METAL	C	* 60" GG @ SPACE 1-10B
F-2	CERAMIC TILE		CERAMIC TILE		NONE			CERAMIC TILE		ACOUSTIC TILE		METAL	C	
F-3	VINYL TILE	—	RUBBER	—	NONE			PUTTYCOAT PLASTER	B	METAL AC. TILE		METAL	C	* 8'-0" GG @ SPACE 1-10B
F-5	ASPHALT TILE	—	RUBBER	—	NONE			PUTTYCOAT PLASTER	A	PUTTYCOAT PLASTER		METAL	C	
F-6	CEMENT	D	METAL	D	NONE			PUTTYCOAT PLASTER	D	EXPOSED STRUCTURE	—	METAL	D	
F-7	CEMENT	A	METAL	C	NONE			HARDWALL PLASTER	—	EXPOSED STRUCTURE	—	METAL	C	
F-8	NONE		NONE		NONE			HARDWALL PLASTER		NONE		NONE		EXPOSED CONC. @ RAD SHAFT WALLS & PIT FLOOR
F-12	VINYL TILE	—	RUBBER	—	NONE			KEENE'S CEMENT	A	KEENE'S CEMENT		METAL	C	
F-14	CEMENT	A1	METAL	C	NONE			PUTTYCOAT PLASTER	B	PUTTYCOAT PLASTER	B	METAL	C	* SEE DETAILS FOR G.G. AT...
F-16	CARPET & PAD (MIC.)		ALUM.		NONE			STONE & WOOD	—	ACOUSTIC TILE		METAL	C	* G.G. 1-5 THRU 8 ALUM. COVERED. 8'-0" G.G. AS SHOWN ON RAD.
F-19	CARPET & PAD (MIC.)		WOOD, RUBBER & METAL	—	NONE			ACOUSTIC PLASTIC TILE		AC. PLASTIC TILE		METAL	C	* SEE DETAILS FOR CEILING HEIGHTS
F-20	HARDWOOD		HARDWOOD		NONE			*PUTTYCOAT PLASTER	A	ACOUSTIC TILE		METAL	C	* GRAY IRON STAKE TO 20'-0", TO ABUT EXPOSED TILE IN MR. OFFICE. SEE G.G. #1, ROOF WALKWAY & CONNECTIONS.
F-21	QUARRY TILE		QUARRY TILE		NONE			CERAMIC TILE		METAL ACTILE		METAL	C	* 8'-0" G.G. AS SHOWN ON PLAN
F-23	VINYL		RUBBER	—	NONE			VINYL		HIT. AC. TILE		METAL	C	COLUMNS: VINYL COVERED * SEE DETAILS FOR CEILING HEIGHTS
F-24	QUARRY TILE		QUARRY TILE		NONE			PUTTYCOAT PLASTER	A	PUTTYCOAT PLASTER	B	METAL	C	
F-25	QUARRY TILE		QUARRY TILE		NONE			MINERAL CEMENT		MINERAL CEMENT	R	METAL	C	SEE REFRIGERATOR DETAILS FOR CEILING HEIGHT
F-26	CARPET & PAD (MIC.)		RUBBER	—	NONE			PUTTYCOAT PLASTER	A	AC. PLASTIC TILE	P	METAL	C	* SEE DETAILS FOR CEILING HEIGHT
F-35	CERAMIC TILE		CERAMIC TILE		CERAMIC TILE	6'-0"		KEENE'S CEMENT	B	KEENE'S CEMENT	B	METAL	C	
F-37	CEMENT	E	NONE		METAL	3'-0"	E	KEENE'S CEMENT	A	KEENE'S CEMENT		METAL	C	* FINISH KEENE'S CEMENT
F-40	CARPET & PAD (MIC.)		ALUM.		NONE			PUTTYCOAT PLASTER	B	METAL TILE		METAL	C	ALUM. TRIM @ G.G. SEE DETAIL
F-45	TERRAZZO		TERRAZZO		NONE			WOOD, METAL OR PLASTIC PLASTER	A	AC. PLASTIC TILE	P	METAL	C	SEE DETAILS FOR CEILING HTS.
F-46	TERRAZZO		TERRAZZO		NONE			PUTTYCOAT PLASTER	B	METAL AC. TILE		METAL	C	SAME AS F-45
F-47	VINYL TILE	—	RUBBER	—	NONE			PUTTYCOAT PLASTER	B	PUTTYCOAT PLASTER	B	METAL	C	
F-49	CERAMIC TILE		CERAMIC TILE		CERAMIC TILE	6'-0"		KEENE'S CEMENT	B	KEENE'S CEMENT	B	METAL	C	
F-50	VINYL TILE	—	ALUM.	—	NONE			*PUTTYCOAT PLASTER	B	METAL AC. TILE		METAL	C	ALUM. TRIM @ G.G. SEE DETAIL
F-59	TERRAZZO		TERRAZZO		NONE			RUB.		M. PLASTIC	P	METAL	C	
F-65	VINYL TILE	—	RUBBER	—	NONE			PUTTYCOAT PLASTER	B	ACOUSTIC TILE		METAL	C	
F-66	TERRAZZO		TERRAZZO		NONE			FIRE PLACE STONE BASE		AC. PLASTIC	P	METAL	C	SAME AS F-45
F-72	CARPET & PAD (MIC.)		ALUM.		SHOWER			PUTTYCOAT PLASTER	D	ACOUSTIC TILE		METAL	C	
F-73	VINYL TILE	—	RUBBER	—	NONE			WOOD, METAL & PLASTIC PLASTER	A	AC. PLASTIC TILE		METAL	C	
F-78	CARPET & PAD (MIC.)		ALUM.		NONE			PUTTYCOAT PLASTER	B	METAL AC. TILE		METAL	C	

GENERAL NOTES

- * SEE DETAILS FOR CEILING HEIGHTS
- * FINISH AS SHOWN ON ROOM FINISH SCHEDULE
- * SEE DETAILS FOR CEILING HEIGHTS
- * SEE DETAILS FOR CEILING HEIGHTS
- * SEE DETAILS FOR CEILING HEIGHTS



1	REVISED FL EL. 44'-5½" TO 44'-3½" & 46'-0" TO 45'-8"	BW
1	SOME MINOR REVISIONS	SOM
1	MINOR DIMENSIONS	RP
1	REVISED PARTITION LAYOUT	TG
2	RELOCATED DOOR 9/D TO ADMIN. W.C.	TG
3	ADDED OFFICE, STORAGE & SHAFT ENCLOSURES & DELETED STAIR & PARTITION	
3	DELETED PARTITION & REVISED STAIR NUMBERING	
3	PARTITIONS ADDED, CHANGED, REVISED & DOORS ADDED, CHANGED & DELETED	SHEET 12
3	ADDED LADDER OR RUNG GROUP BEAMS, FURRED OUT PARTITION	RP
	PARTIAL WALL OF CMU DELINEATED SHAFT WALLS WHERE REQ'D	RP
3	DOOR & PARTITION REVISIONS	RP
1	MINOR FLOORS AS PER RFE # 33	RG
2	ADDED ELEV. SOLUTIONS & ELEVATOR LOBBIES FOR CLARIFICATION	WBS
2	ROOFTOP CONVECTOR & DETAIL INDICATION SET ON PLAN	WBS
3	MINOR PARTITION & DOOR REVISIONS	BLS
3	ADDED & REVISED WALLS, PARTITIONS & DOORS, ENLARGED PLANS & ADDED ENLARGED PLANS	BLS
3	ADDED PARTITIONS & DOORS AS PER RFE # 43	RGD

MAR. 9-59 · JULY 1-1959 · JULY 15, '60

KEY PLAN NO SCALE

SEE TOP OF SHEET

DATE	NO.	REVISION	BY

DRAWN	DATE NOVEMBER 15, 1957
TRACED	JOB NO. 1437
CHECKED	SHEET NO. 13-4

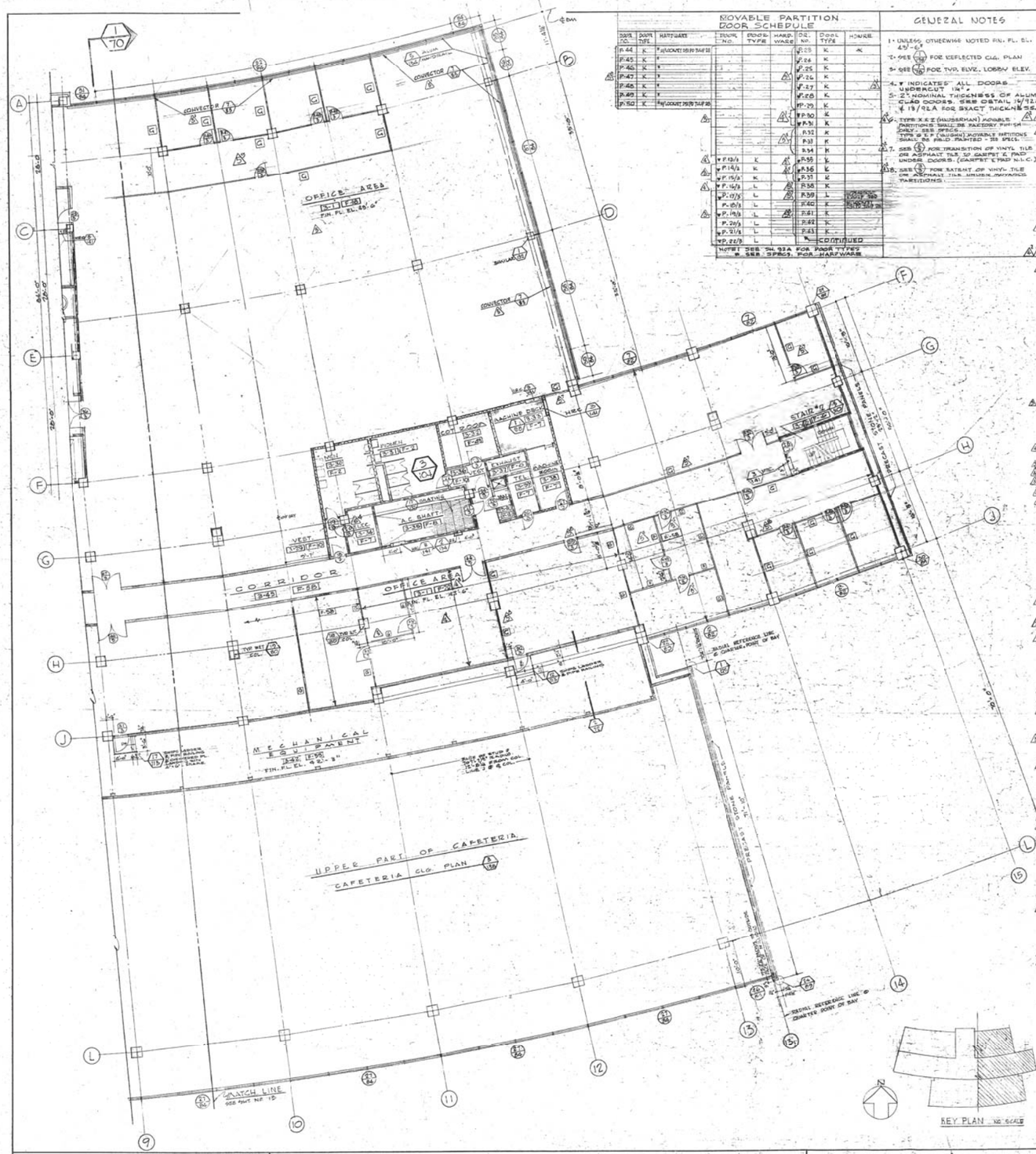
MURRAY ERICK ASSOCIATES
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LOS ANGELES CALIFORNIA

OFFICE BUILDING
3 RD FLOOR PLAN
SCALE: 1/8" = 1'-0"
PART ONE



MOVABLE PARTITION DOOR SCHEDULE

DOOR NO.	DOOR TYPE	HARDWARE
P-44	K	* (ADJACENT DOOR TYP.)
P-45	K	*
P-46	K	*
P-47	K	*
P-48	K	*
P-49	K	*
P-50	K	* (ADJACENT DOOR TYP.)

DR. NO.	DOOR TYPE	HOURS
P-23	K	
P-24	K	
P-25	K	
P-26	K	
P-27	K	
P-28	K	
P-29	K	
P-30	K	
P-31	K	
P-32	K	
P-33	K	
P-34	K	
P-35	K	
P-36	K	
P-37	K	
P-38	K	
P-39	L	
P-40	K	
P-41	K	
P-42	K	
P-43	K	

CONTINUED

NOTE: SEE SH. 92A FOR DOOR TYPES & SEE SPEC'S. FOR HARDWARE

GENERAL NOTES

1. UNLESS OTHERWISE NOTED FIN. FL. EL. 45'-6"
2. SEE (1/10) FOR REFLECTED CLG. PLAN
3. SEE (1/10) FOR TYP. ELEV., LOBBY ELEV.
4. ▼ INDICATES ALL DOORS UNDERCUT 1/8".
5. 2" NOMINAL THICKNESS OF ALUM. CLAD DOORS. SEE DETAIL 1/92A & 1/91A FOR EXACT THICKNESS.
6. TYPE K & E (HAUSSMAN) MOVABLE PARTITIONS SHALL BE FACTORY PUNCH ONLY - SEE SPECS. TYPE G & F (WAUGH) MOVABLE PARTITIONS SHALL BE FIELD PAINTED - SEE SPEC.
7. SEE (5/69) FOR TRANSITION OF VINYL TILE OR ASPHALT TILE TO CARPET & PAD UNDER DOORS. (CARPET & PAD N.I.C.)
8. SEE (3/69) FOR PATENT OF VINYL TILE ON OR ASPHALT TILE UNDER MOVABLE PARTITIONS.

INTERIOR FINISH SCHEDULE

FIN. NO.	FLOOR COVERING	FLOOR RIN	BASE MATERIAL	BASE RIN	WAINSCOT MATERIAL	WAINSCOT HT.	WAINSCOT FIN	WALL MATERIAL	WALL FIN	CEILING MATERIAL	CEILING RMD	CEILING FIN	TRIM MATERIAL	TRIM FIN	REMARKS
F-1	VINYL TILE	-	RUBBER	-	NONE			PUTTYCOAT PLASTER	B	PUTTYCOAT PLASTER	8-0	B	METAL	C	
F-2	CERAMIC TILE	-	CERAMIC TILE	-	NONE			CERAMIC TILE	-	ACOUSTIC TILE	8-0	R	METAL	C	
F-3															
F-4	VINYL TILE	-	ALUM	-	NONE			ALUMINUM	-	AL. PLASTIC	8-0	D	ALUM.	-	SEE (4/69)
F-5	ASPHALT TILE	-	RUBBER	-	NONE			PUTTYCOAT PLASTER	A	PUTTYCOAT PLASTER	8-0	A	METAL	C	
F-6	CEMENT	D	METAL	O	NONE			PUTTYCOAT PLASTER	O	EXPOSED STRUCTURE		O	METAL	O	
F-8	NONE		NONE		NONE			HARDWALL PLASTER		NONE			NONE		CONSTRUCTION (5-38) (6-10)
F-10	VINYL TILE	-	RUBBER	-	NONE			PUTTYCOAT PLASTER	B	PUTTYCOAT PLASTER	8-0	B	METAL	C	
F-12	VINYL TILE	-	RUBBER	-	NONE			CEMENT PLASTER	A	CEMENT PLASTER	8-0	A	METAL	C	
F-7	CEMENT	A	METAL	C	NONE			HARDWALL PLASTER	-	EXPOSED STRUCT.	-	-	METAL	C	
F-45	VINYL TILE	-	RUBBER	-	NONE			PUTTYCOAT PLASTER	B	ACOUSTIC TILE	8-0	R	METAL	C	
F-39	BITUMINOUS	-	BITUMINOUS	-	LIQUID			HARDWALL PLASTER	A	EXPOSED STRUCTURE		N	METAL	C	
F-98	VINYL TILE	-	ALUM	-	NONE			PUTTYCOAT PLASTER	B	METAL ACOUSTILE	9'-8"	-	METAL	C	ALUM. TRIM @ CLG. SEE (4/69)
F-70	CARPET & PAD (N.I.C.)	-	ALUM	-	NONE			PUTTYCOAT PLASTER	B	METAL AC. TILE	9'-0"	-	METAL	C	ALUM. TRIM @ CLG. SEE (4/69)

DOOR SCHEDULE (CONTINUED)

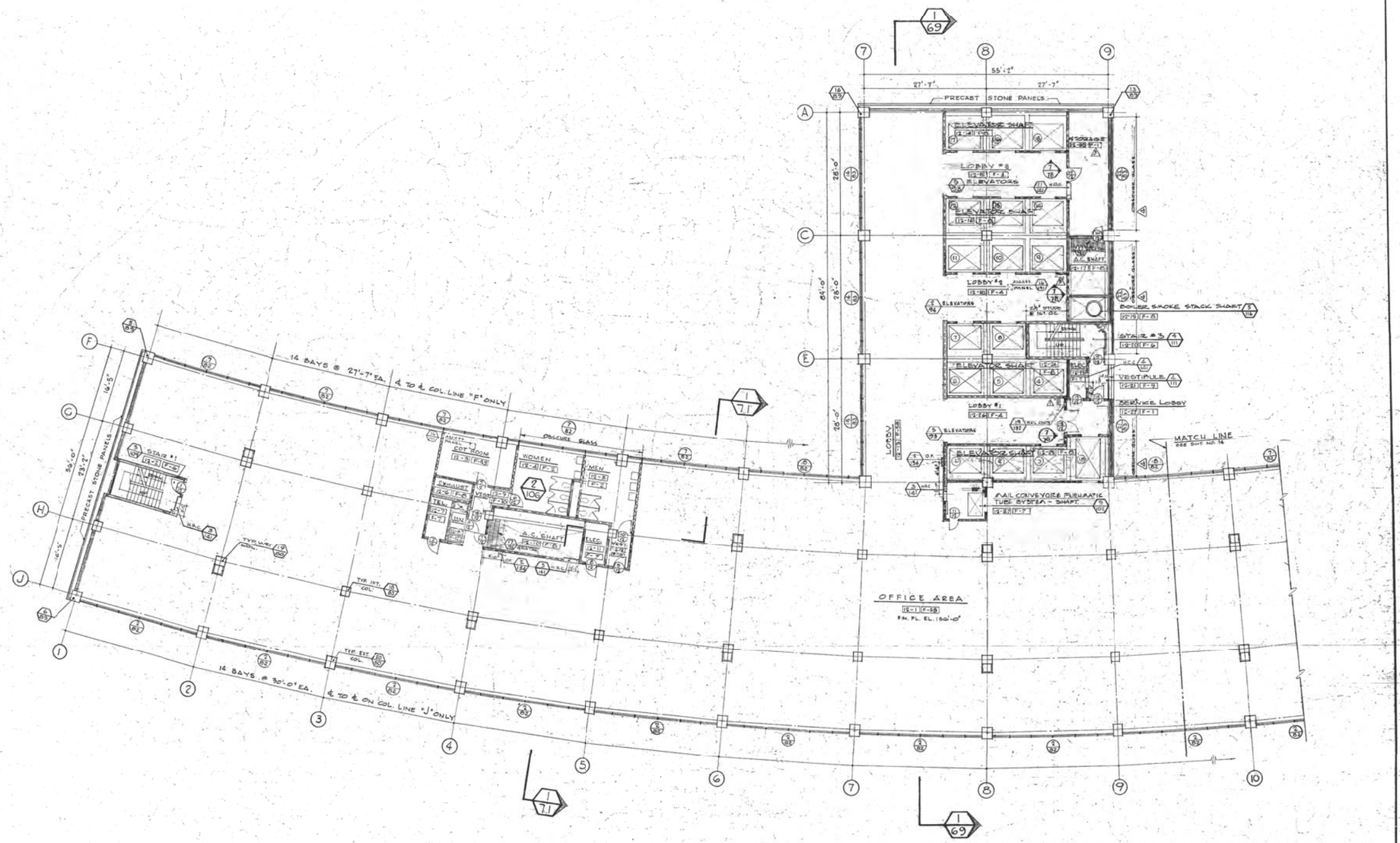
DOOR NO.	OPENING WIDTH	OPENING HT.	DOOR TYPE	DOOR IN.	DOOR MATERIAL	DOOR THK.	FRAME DETAIL	FRAME MATERIAL	THRESHOLD LOWER SILL	THRESHOLD RAISED THRES.	THRESHOLD TRIM	REMARKS
97/3	3'-0"	8'-0"	P/92A	2"	ALUM		P/92A	ALUM			34	
▼99/3	6'-0"	8'-0"	P/92A	2"	ALUM		P/92A	ALUM			45	PR. EXPOSED CLOSERS
▼40/3	6'-0"	8'-0"	P/92A	2"	ALUM		P/92A	ALUM			45	PR. EXPOSED CLOSERS
▼84/3	6'-0"	8'-0"	P/92A	2"	ALUM		P/92A	ALUM			45	PR. EXPOSED CLOSERS
18/3	3'-0"	8'-0"	P/92A	2"	ALUM		P/92A	ALUM			45	PR. EXPOSED CLOSERS
44/3	3'-0"	8'-0"	P/92A	2"	ALUM		P/92A	ALUM			45	PR. EXPOSED CLOSERS
28/3	3'-0"	8'-0"	P/92A	2"	ALUM		P/92A	ALUM			12	

DOOR SCHEDULE

DOOR NO.	OPENING WIDTH	OPENING HT.	DOOR TYP.	DOOR IN.	DOOR MATERIAL	DOOR THK.	FRAME DETAIL	FRAME MATERIAL	THRESHOLD LOWER SILL	THRESHOLD RAISED THRES.	THRESHOLD TRIM	REMARKS
4/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.			B	EXPOSED CLOSER
1/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.			B	EXPOSED CLOSER
3/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.			11	EXPOSED CLOSER
4/3	3'-0"	7'-0"	P/92A	2"	ALUM.		11/92	STL.	23/92	METAL 7-8"	B	EXPOSED CLOSER
5/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.		7-8"	11	EXPOSED CLOSER
6/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.			B	EXPOSED CLOSER
7/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.		MARBLE 7-8"	3	EXPOSED CLOSER
8/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.			B	EXPOSED CLOSER
9/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.	23/92	MARBLE 7-8"	3	EXPOSED CLOSER
10/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.			B	EXPOSED CLOSER
11/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.			37	EXPOSED CLOSER
12/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.			17	EXPOSED CLOSER, NO LATCH
13/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.			17	EXPOSED CLOSER, NO LATCH
14/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.			3	EXPOSED CLOSER
15/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.			5	EXPOSED CLOSER
16/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.	23/92	MARBLE 7-8"	5	EXPOSED CLOSER
20/3	3'-0"	7'-0"	P/92A	2"	ALUM.		11/92	STL.			B	EXPOSED CLOSER
21/3	3'-0"	7'-0"	P/92A	2"	ALUM.		11/92	STL.	23/92	METAL	B	EXPOSED CLOSER
22/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.	23/92	MARBLE 7-8"	3	EXPOSED CLOSER
23/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.			37	EXPOSED CLOSER
24/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.			5	EXPOSED CLOSER
25/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.		7-8"	11	
26/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.			B	EXPOSED CLOSER
27/3	3'-0"	7'-0"	P/92A	2"	ALUM.		A/92A	STL.	23/92	METAL	B	EXPOSED CLOSER, SOUND INSUL.
28/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.			1	EXPOSED CLOSER
29/3	6'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	ALUM.	45-9"		41	EXPOSED CLOSERS PR.
30/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.	23/92	METAL	37	EXPOSED CLOSER
31/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	STL.	23/92	METAL	37	EXPOSED CLOSER
95/3	6'-0"	8'-0"	P/92A	2"	ALUM.		P/92A	ALUM	—	—	45	PR. EXPOSED CLOSERS
93/3	6'-0"	8'-9"	P/92A	2"	ALUM.		P/92A	ALUM	—	—	45	PR. EXPOSED CLOSERS
94/3	6'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	ALUM	—	—	44	EXPOSED CLOSERS, PR.
95/3	5'-0"	7'-0"	P/92A	2"	ALUM.		15/92	ALUM.	—	—	42	PR. FL. CLOSERS - SEE ELEV. 1/38
96/3	5'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	ALUM.	—	—	26	PR. FL. CLOSERS -
78/3	7'-8"	6'-8"	P/92A	2"	ALUM.		11/92	STL.	23/92	METAL	17	B EXPOSED CLOSER
98/3	7'-8"	6'-8"	P/92A	2"	ALUM.		11/92	STL.	23/92	METAL	17	B EXPOSED CLOSER
42/3	6'-0"	7'-0"	P/92A	2"	ALUM.		6/92A	ALUM.	—	—	45	PR. FLOOR CLOSERS
43/3	6'-0"	8'-9"	P/92A	2"	ALUM.		P/92A	ALUM	—	—	45	PR. EXPOSED CLOSERS
45/3	6'-0"	8'-9"	P/92A	2"	ALUM.		P/92A	ALUM	—	—	45	PR. EXPOSED CLOSERS
▼44/3	6'-0"	8'-9"	P/92A	2"	ALUM.		P/92A	ALUM	—	—	45	PR. EXPOSED CLOSERS
46/3	3'-0"	7'-0"	P/92A	2"	ALUM.		P/92A	ALUM.	—	—	49	EXP. CLOSER.
66/3	6'-0"	6'-8"	P/92A	2"	ALUM.		P/92A	ALUM.	—	—	45	EXP. CLOSERS, PR.
67/3	6'-0"	6'-8"	P/92A	2"	ALUM.		P/92A	ALUM.	—	—	45	EXP. CLOSERS, PR.

CONTINUED

JULY 25, 1960	20	ADDED TO SCHEDULE DOOR NO. 2-3/3		
	21	ADDED TO SCHEDULE DOOR NO. 2-4/3		
	22	ADDED DOOR NO. 2-5/3		
	23	ADDED DOOR NO. 2-6/3		
	24	ADDED DOOR NO.



JULY 25, 58	4	REVISED CAPACITIES OF ELEC. LIFTS AS PER ELEVATOR CONTRACT	A.P.C.
JULY 1, 1958	3	FENCE BLOCK INDICATED ON REMARKS CHANGED TEEL CLARIFICATION	GF
	2	REVISED EDGES OF ROOF AS PER SHT.	WCG
MARCH 4, 1958	1	MOVED THE CLASSIC WIDTH, 92'-4" INCREASED TO 93'-0" FURTHER PLAN WITH "C" FLOOR PLAN	EB
MAY 28, 58	0	TEL & SHAFT DIM. CHANGED.	GF
DATE	NO.	REVISION	BY

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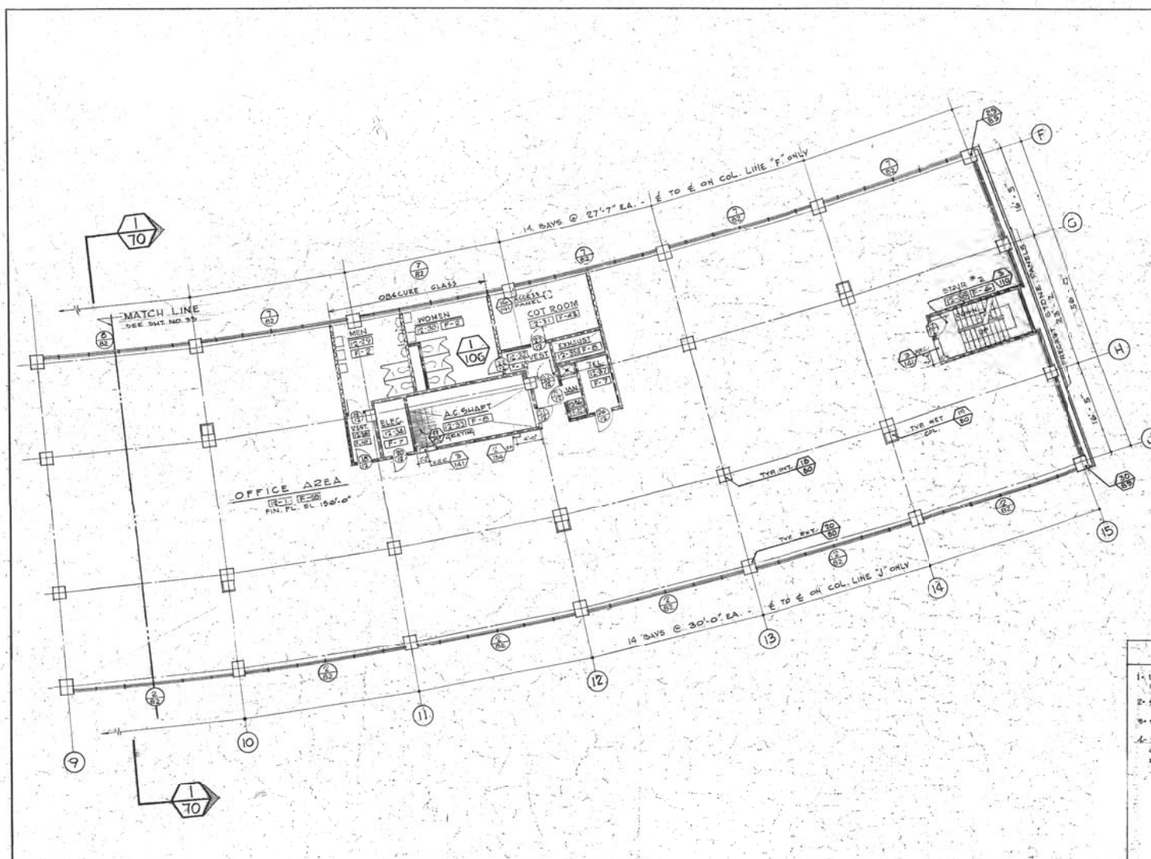
KAISER CENTER
OAKLAND, CALIFORNIA

WELTON BECKET AND ASSOCIATES
ARCHITECTS AND ENGINEERS
LOS ANGELES, CALIFORNIA

OFFICE BUILDING
12 TH FLOOR PLAN
SCALE: 1/8" = 1'-0"
PART ONE

DRAWN
TRACED
CHECKED

DATE NOVEMBER 15, 1957
JOB NO. 1437
SHEET NO. 31-4



INTERIOR FINISH SCHEDULE

FIN NO	FLOOR COVERING	FLOOR FIN	BASE MATERIAL	BASE FIN	VAINSCOT MATERIAL	VAINSCOT HT.	VAINSCOT FIN	WALL MATERIAL	WALL FIN	CEILING MATERIAL	CEILING FIN	TRIM HT.	TRIM FIN	TRIM MATERIAL	TRIM FIN	REMARKS
F-1	VINYL TILE	–	RUBBER	–	NONE			PUTTYCOAT PLASTER	A	PUTTYCOAT PLASTER	B	9'-0"	D	METAL	C	* TYPE "A" WALL @ ELEV. FIN. @ SPACE (E-55)
F-2	CERAMIC TILE	–	CERAMIC TILE	–	NONE			CERAMIC TILE	–	ACOUSTIC TILE	C	9'-0"	R	METAL	C	
F-3	VINYL TILE	–	RUBBER	–	NONE			PUTTYCOAT PLASTER	B	METAL ACOUSTILE	C	9'-0"	–	METAL	C	
F-4	VINYL TILE	–	ALUM	–	WOOD			ALUMINUM	–	AC. PLASTIC	C	9'-0"	P	ALUM	–	SEE (6/A5)
F-5	CEMENT	D	METAL	C	NONE			PUTTYCOAT PLASTER	C	EXPOSED STRUCT.	–		C	METAL	C	
F-7	CEMENT	A	METAL	C	NONE			WALLBOARD PLASTER	–	EXPOSED STRUCT.	–		–	METAL	C	
F-8	NONE	–	NONE	–	NONE			WALLBOARD PLASTER	–	NONE	–		–	NONE	–	QUARRY AT (E-53) (E-55) (E-56)
F-9	CEMENT	A1	CEMENT	A1	NONE			CEMENT PLASTER	C	CEMENT PLASTER	C	8'-0"	D	METAL	C	
F-10	VINYL TILE	–	RUBBER	–	NONE			PUTTYCOAT PLASTER	B	PUTTYCOAT PLASTER	B	9'-0"	B	METAL	C	
F-11	VINYL TILE	–	RUBBER	–	NONE			KERNS CEMENT	A	KERNS CEMENT	A	9'-0"	A	METAL	C	
F-12	VINYL TILE	–	RUBBER	–	WOOD			PUTTYCOAT PLASTER	B	ACOUSTIC TILE	C	9'-0"	R	METAL	C	
F-13	VINYL TILE	–	ALUM	–	NONE			PUTTYCOAT PLASTER	–	METAL	C	9'-0"	–	METAL	C	ALUM. TRIM @ ELEV. SEE DET. (4/A5)

GENERAL NOTES

1. UNLESS OTHERWISE NOTED FIN. FL. EL. 100'-0"
2. SEE (1/A8) FOR REFLECTED CLG. PLAN
3. SEE (1/A8) FOR TYP. ELEVR. LOBBY ELEV.
4. 2" NOMINAL THICKNESS OF ALUM. CLAD DOORS. SEE DETAIL 14/92A & 13/92A FOR EXACT THICKNESS

DOOR SCHEDULE

DOOR NO	OPENING WIDTH	OPENING HT.	DOOR TYP TH	DOOR MATERIAL	DOOR FIN	FRAME DETAIL	FRAME MATERIAL	FRAME FIN	THRESHOLD DETAIL	THRESHOLD MATERIAL	CLOSER SIZE	CLOSER	HARD-WARE SET	FIRE LABEL	REMARKS
1	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		–	–	–	1	D		EXPOSED CLOSER
2	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		–	–	–	B	D		EXPOSED CLOSER
3	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		–	–	1'-0"x9"	12	D		
4	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		–	–	–	3			EXPOSED CLOSER
5	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		–	–	1'-0"x9"	37			EXPOSED CLOSER
6	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		5/92	MARBLE	1'-0"x9"	3			EXPOSED CLOSER
7	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		11/92	METAL	–	B	D		EXPOSED CLOSER
8	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		–	–	–	B	D		EXPOSED CLOSER
9	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		–	–	–	3			EXPOSED CLOSER
10	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		2/92	MARBLE	1'-0"x9"	3			EXPOSED CLOSER
11	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		–	–	–	82	D		EXPOSED CLOSER
11	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	ALUM.		–	–	–	49			EXPOSED CLOSER - PR.
11	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		–	–	–	8	B		EXPOSED CLOSER
11	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		5/92	METAL	–	3	E		EXPOSED CLOSER - EXT. GRADE DR.
11	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		5/92	METAL	–	1	D		EXPOSED CLOSER - EXT. GRADE DR.
12	2'-0"	7'-0"	B 1¾	WOOD		11/92	STL.		5/92	METAL	–	5	B		EXPOSED CLOSER
13	3'-0"	7'-0"	A 1¾	ALUM.		10/92	ALUM.		–	–	–	13			EXPOSED CLOSER
14	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		–	–	–	3			EXPOSED CLOSER
15	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		2/92	MARBLE	1'-0"x9"	3			EXPOSED CLOSER
22	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		–	–	–	B	D		EXPOSED CLOSER
21	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		11/92	METAL	–	8	B		EXPOSED CLOSER
22	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		2/92	MARBLE	1'-0"x9"	3			EXPOSED CLOSER
23	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		–	–	1'-0"x9"	37			EXPOSED CLOSER
24	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		–	–	–	3			EXPOSED CLOSER
25	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		–	–	1'-0"x9"	12			
26	3'-0"	7'-0"	B 1¾	ALUM.	2"	A/92A	STL.		–	–	–	B	D		EXPOSED CLOSER
27	3'-0"	7'-0"	A 1¾	ALUM.	2"	A/92A	STL.		–	–	–	1	B		EXPOSED CLOSER

DATE	NO.	REVISION	BY
JULY 25, 1958	6	DELETE LOUVERS, DOOR 8 & 9, ELEVS. & REF. FLR. PLAN	DJV
JULY 1, 1958	5	REVISED DOOR SCHEDULE AS PER SPEC. SPS #30	RGE
	4	REVISED DOOR SCHEDULE, ADD. CLOSER INFORMATION	RG
	3	CLOSERS OR CLOSERS PER SHT. D05-3	R.L.S.
AUG 13, 1958	2	DR. SCHEDULE REVISIONS	TG
OCT. 31, 1958	1	REV. RUBBER BASE TO ALUM. AT P-4, ADDED P-5 & P-6 ELEVS. & CHANGED TO 6-0" AT P-4	TG
		REVISED DR. SCHED.	
MAY 26, 58		REVISED BOARD WITH FLOOR PLAN WITH 12TH FLOOR PLAN	TG
DEC. 14, 1957	1	REVISED FIN. FLOORS AS PER SHT. 101 OF SPEC.	F.B.
		ADDED HARDWARE SCHEDULE	R. L.

REF. NO. 12
REF. NO. 2

DRAWN	DATE NOVEMBER 15, 1957
TRACED	JOB NO. 1437
CHECKED	SHEET NO. 32-6

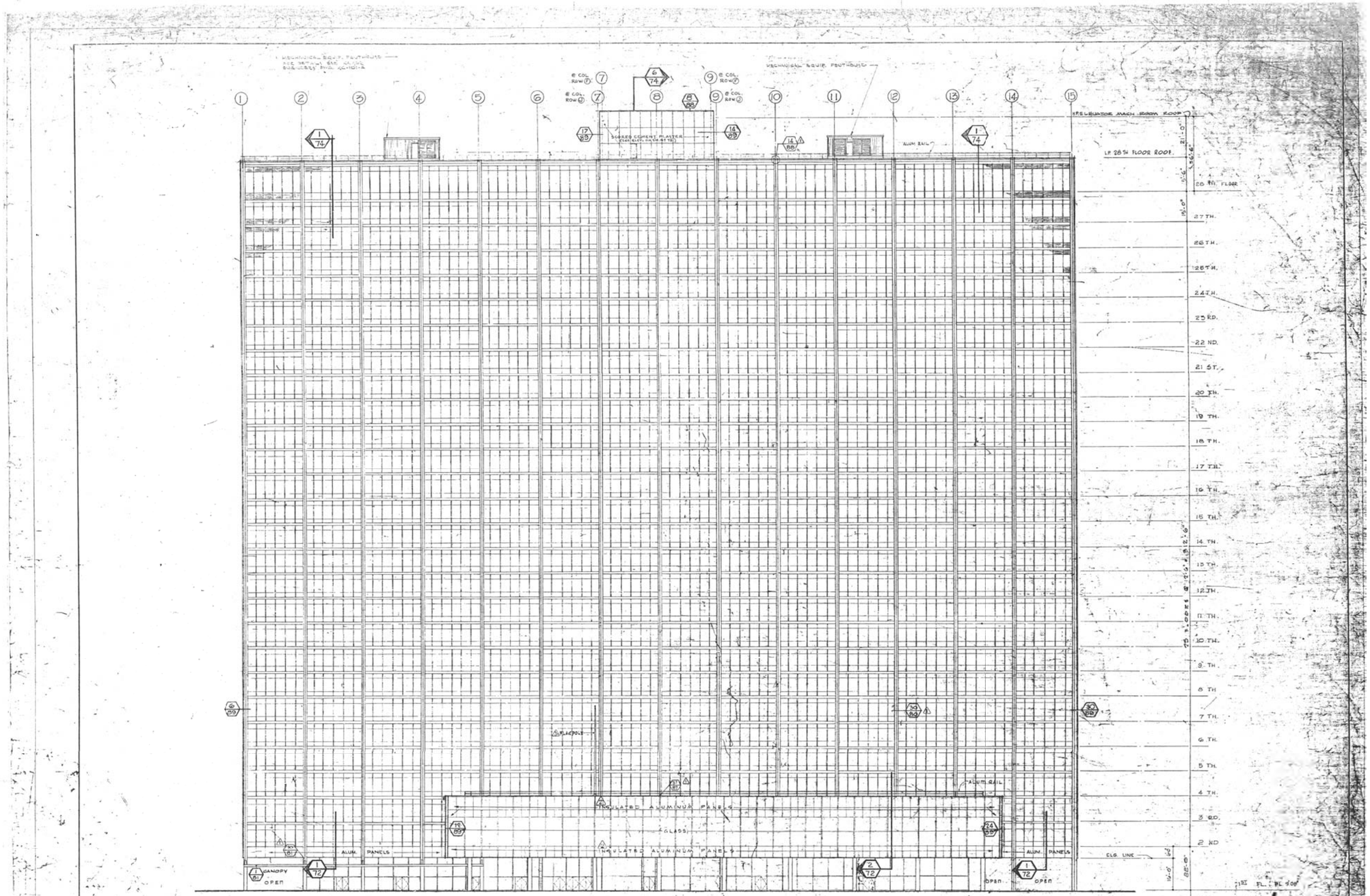
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OFFICE BUILDING
12TH FLOOR PLAN
SCALE: 1/8" = 1'-0"
PART TWO



SOUTH ELEVATION

SCALE 1/16" = 1'-0"

NOTE: SEE SHEETS 76 & 77 FOR 1/4" SCALE 1ST FLOOR EXT ELEVATIONS.

MAY 1957	△	ADDITIONAL BUILDING EQUIPMENT	
JULY 25, 1957	△	ADDED PLANTER & WINDOW AT 1ST FLOOR	
7-15-58	△	CHANGED SCUPPERS, SCREEN & CONCRETE WALL	
FEB. 2, 1959	△	SCATTERED FACE FOR KNOWN	
DATE	NO.	REVISION	BY

DRAWN
TRACED
CHECKED

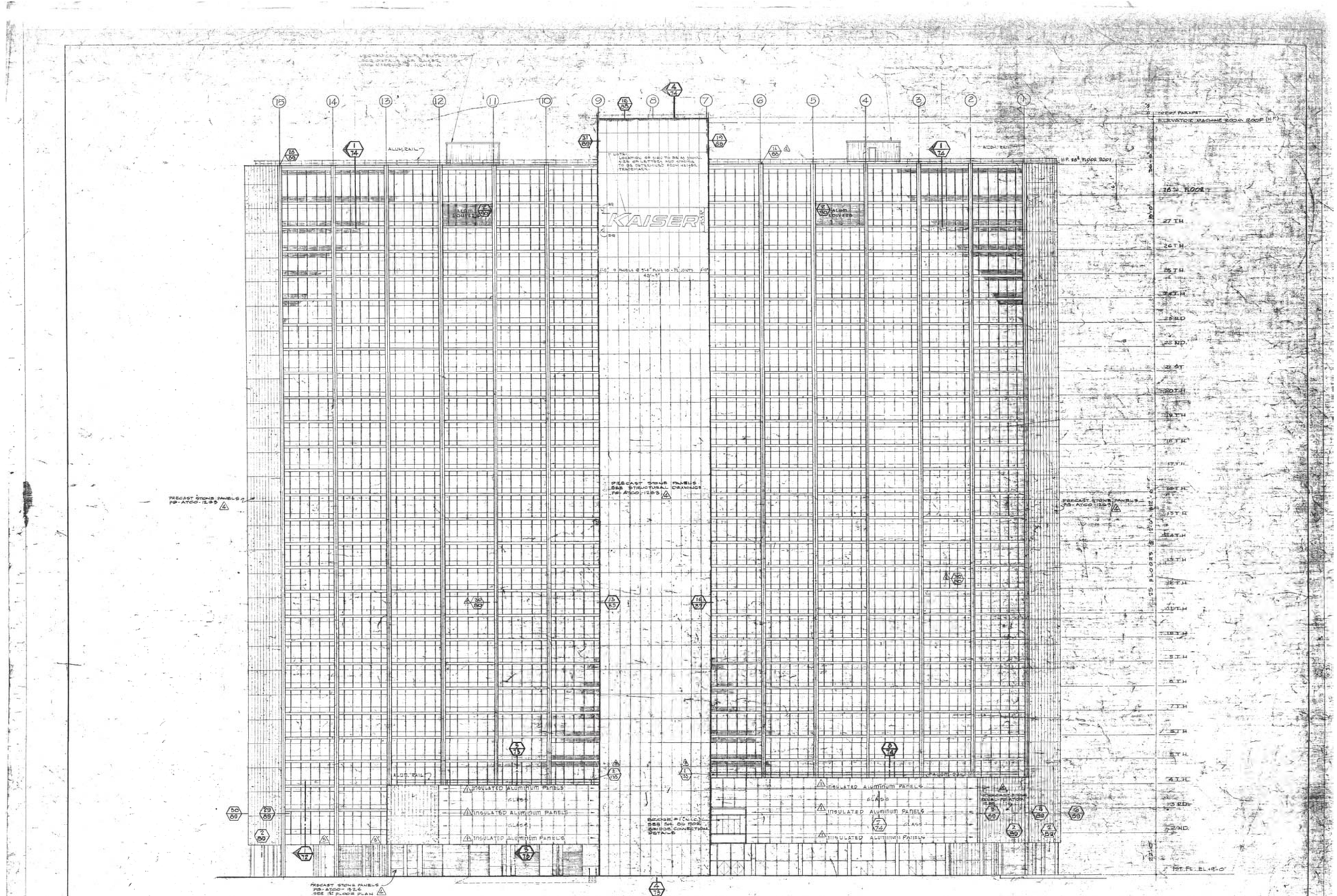
DATE NOVEMBER 15, 1957
JOB NO. 1437
SHEET NO. 66-4

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OFFICE BUILDING
SOUTH ELEVATION
SCALE 1/16" = 1'-0"



NORTH ELEVATION

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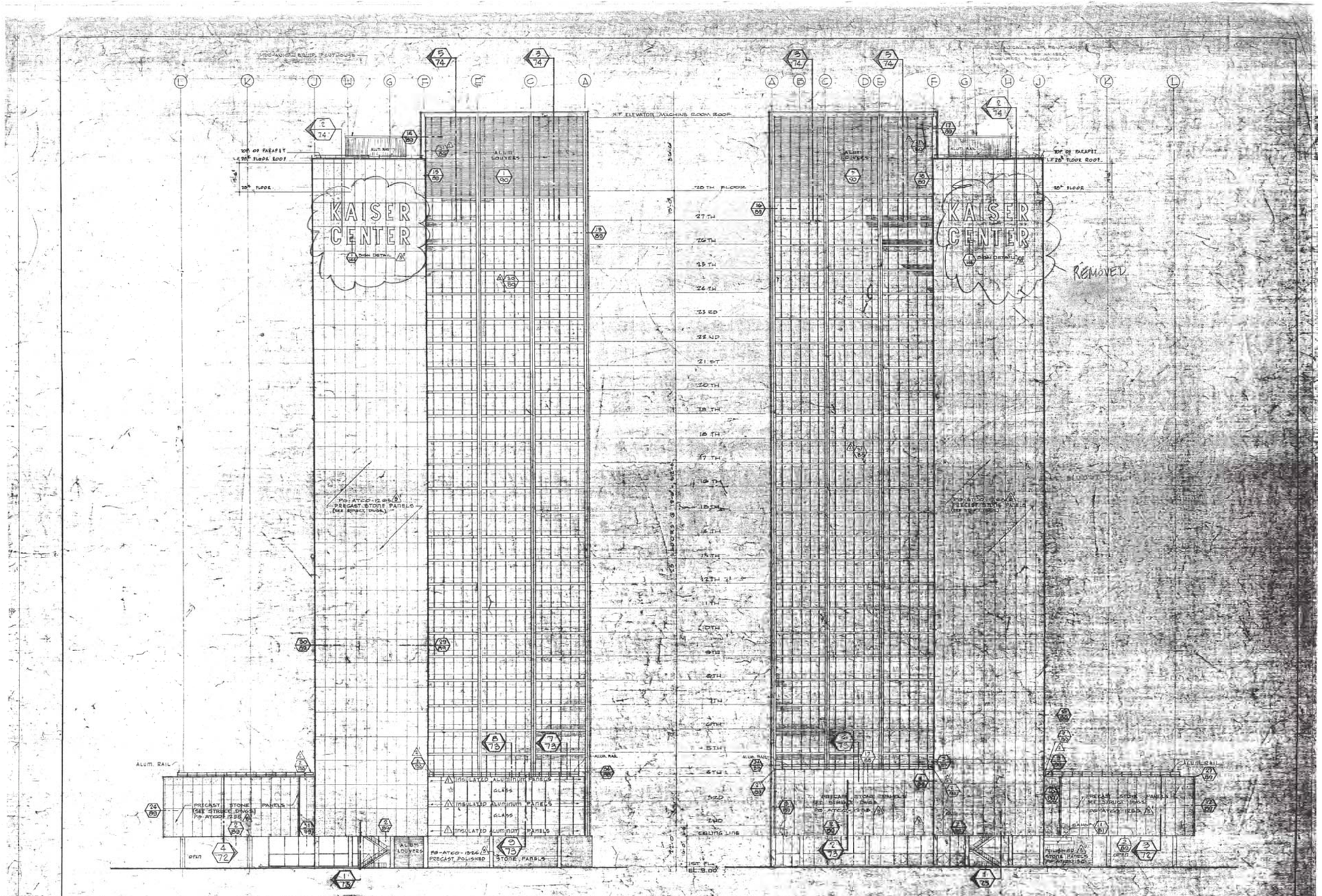
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OFFICE BUILDING
NORTH ELEVATION

DRAWN
TRACED
CHECKED

DATE NOVEMBER 16, 1957
JOB NO. 1457
SHEET A-67-6



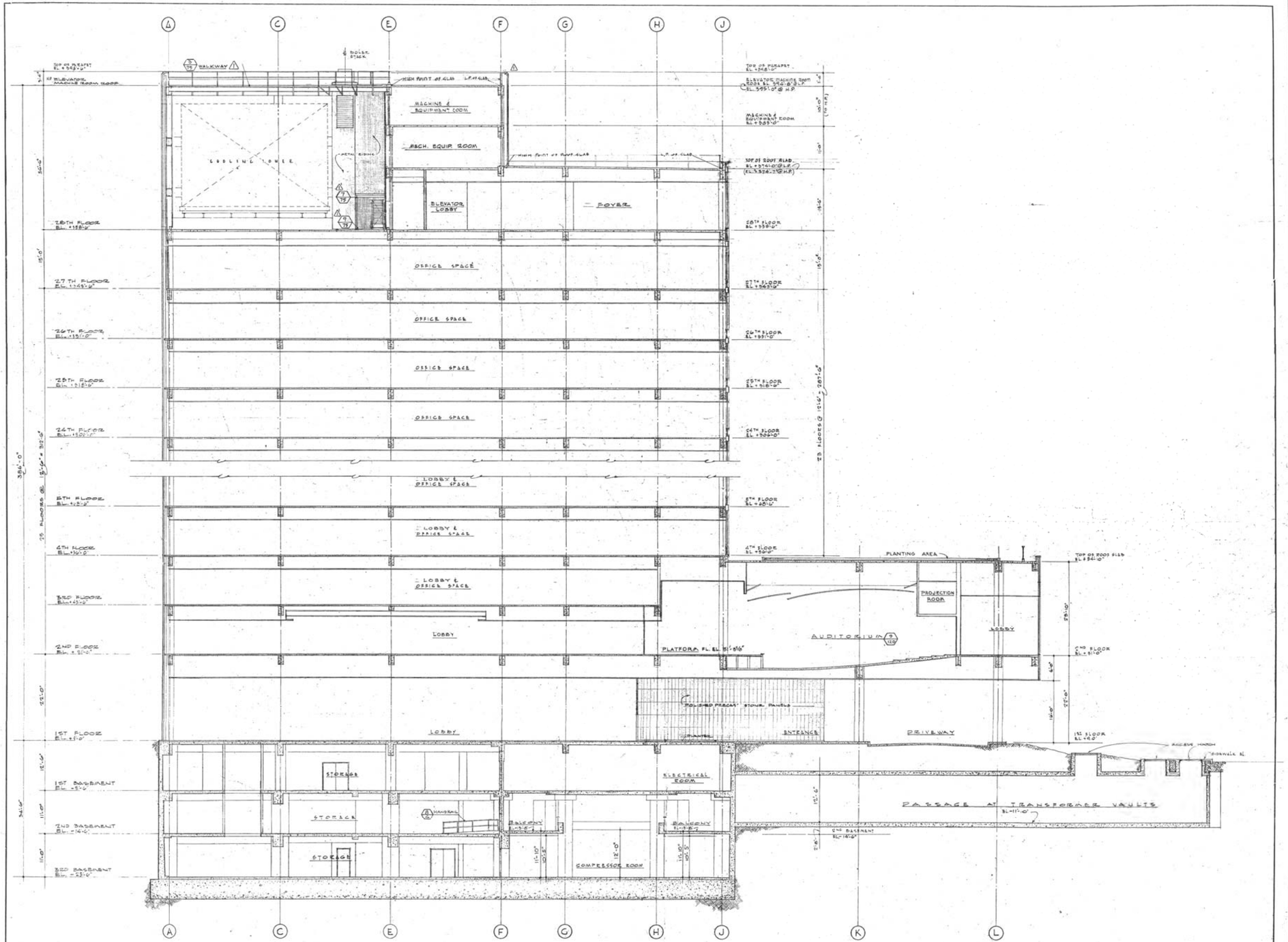
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OFFICE BUILDING
EAST & WEST ELEVATIONS
SCALE 1/8" = 1'-0"

DRAWN
TRACED
CHECKED
DATE
DATE ISSUED FOR BID
JOB NO. 7156
SHEET NO. 68



SECTION
SCALE 1/8"=1'-0"

	⚠	COLUMN @ COMPRESSOR AREA	R.I.
APR. 11, 1958	⚠	EXPOSED WALKWAY AT COOLING TOWER & COPING	T.C.
DATE	NO.	REVISION	BY

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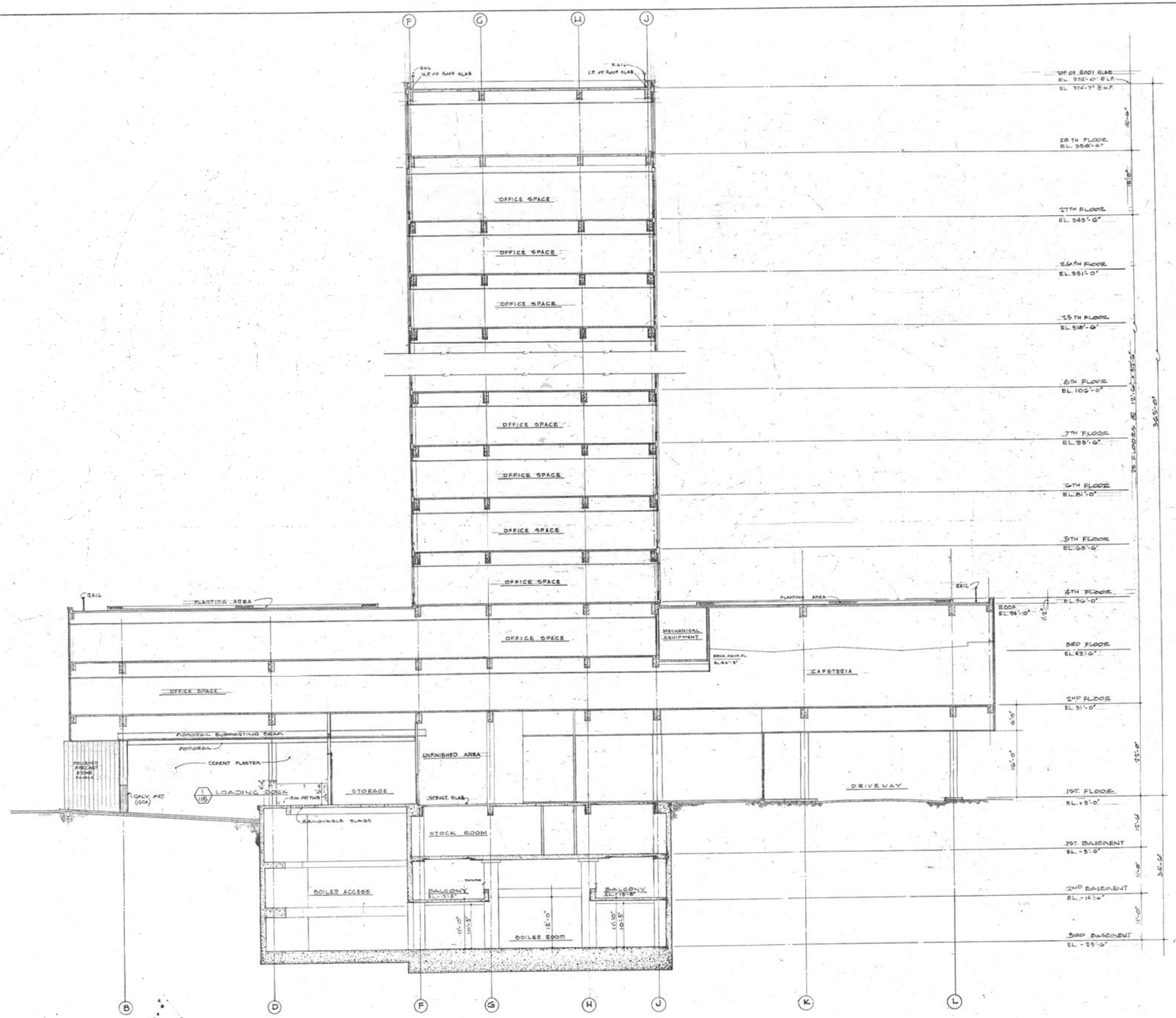
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OFFICE BUILDING
CROSS SECTION
SCALE: 1/8" = 1'-0"

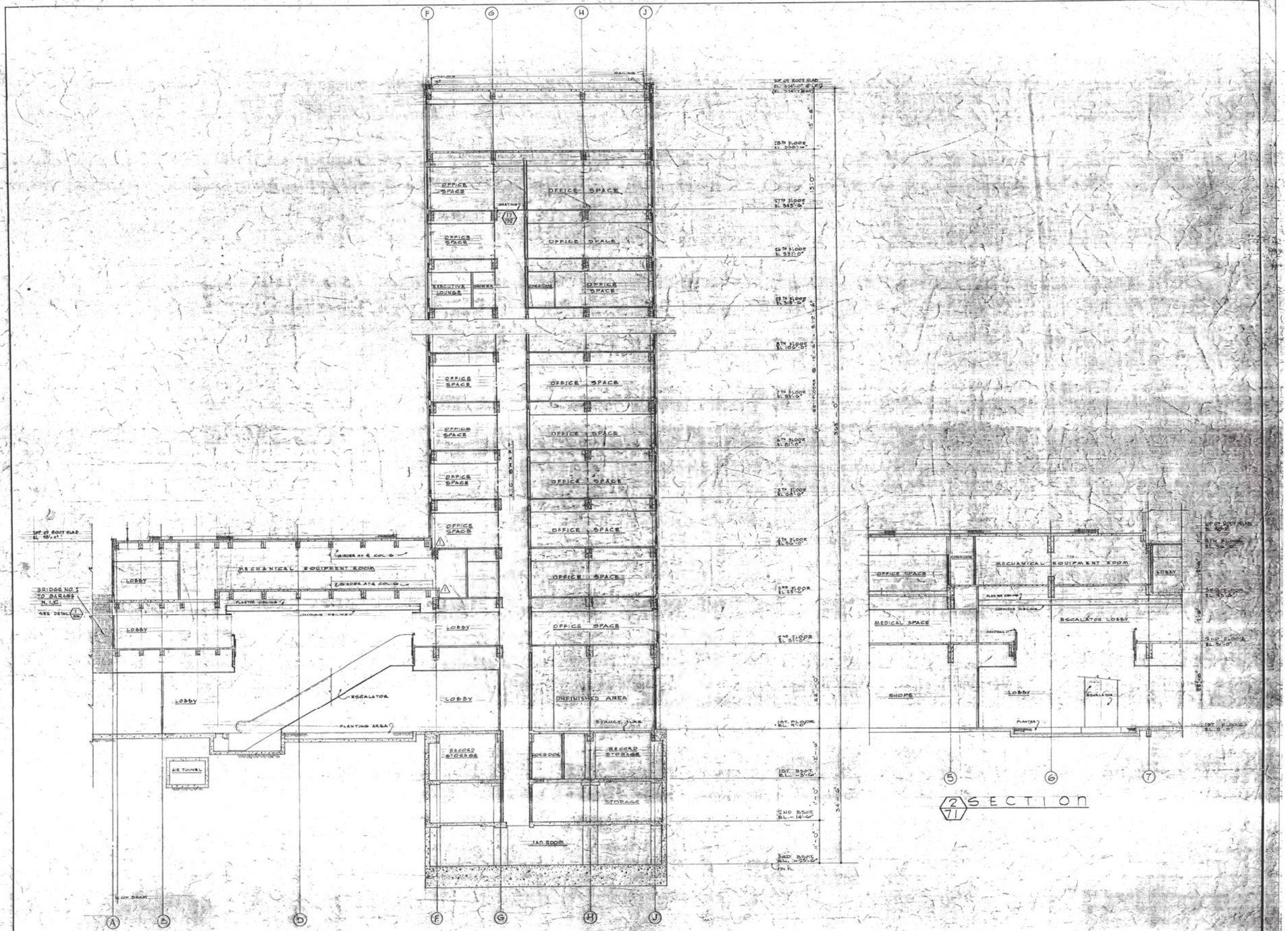
DRAWN	DATE NOVEMBER 15, 1957
TRACED	JOB NO. 1437
CHECKED	SHEET NO. 69-1



70 SECTION

MURRAY ERICK ASSOCIATES STRUCTURAL ENGINEERS — LOS ANGELES, CALIF. DUDLEY DEANE & ASSOCIATES MECHANICAL & ELECTRICAL ENGINEERS — SAN FRANCISCO, CALIF.	KAISER CENTER OAKLAND, CALIFORNIA
WELTON BECKET AND ASSOCIATES ARCHITECTS AND ENGINEERS LOS ANGELES, CALIFORNIA	OFFICE BUILDING CROSS SECTION SCALE: 1/8" = 1'-0"

DATE	NO.	REVISION	BY
DRAWN		DATE NOVEMBER 15, 1957	
TRACED		JOB NO. 1437	
CHECKED		SHEET NO. 70	



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WELTON BECKET AND ASSOCIATES
ARCHITECTS AND ENGINEERS
LOS ANGELES CALIFORNIA

OFFICE BUILDING
CROSS SECTION
SCALE: 1/8" = 1'-0"

JOB NO.		RELOCATED DRAWN & LIMITED APPROVAL PURPOSES
DATE	NO.	REVISION
DRAWN		DATE NOVEMBER 15, 1957
TRACED		JOB NO. 1437
CHECKED		SHEET NO. 71-1

21 ST STREET

WEST ST.

20TH STREET

GARAGE PARKING

5TH LEVEL -	550
4TH LEVEL -	298
3RD LEVEL -	198
2ND LEVEL -	184
1ST LEVEL -	565
TOTAL CARS -	1345 CARS

GARAGE & SHOPS

GENERAL NOTES

1. THIS DRAWING IS FOR GENERAL REFERENCE ONLY. SEE SHEETS C-1 THRU C-3 FOR SITE DEVELOPMENT PLAN, GRADE ELEVATIONS, CURBS, WALKS & DRIVES.

1. SIDEWALK EXPANSION JOINTS TO BE 1/2" ASPHALT IMPREGNATED PREMOULD STRIPS. - SEE SPECS.

THE WHITE HOUSE

OFFICE BUILDING

HARRISON ST.

DRIVE

PLANTING

EXISTING CURB TO BE REMOVED BY CITY OF OAKLAND

LIMIT OF CONTRACT AT GROUND LEVEL

VICINITY MAP NO SCALE

7-30-57	1	SUPERSEDES SHT. 2 OF THESE DRAWINGS	
5-1-56	1	CHART PLATE 15	
DATE	NO.	REVISION	BY

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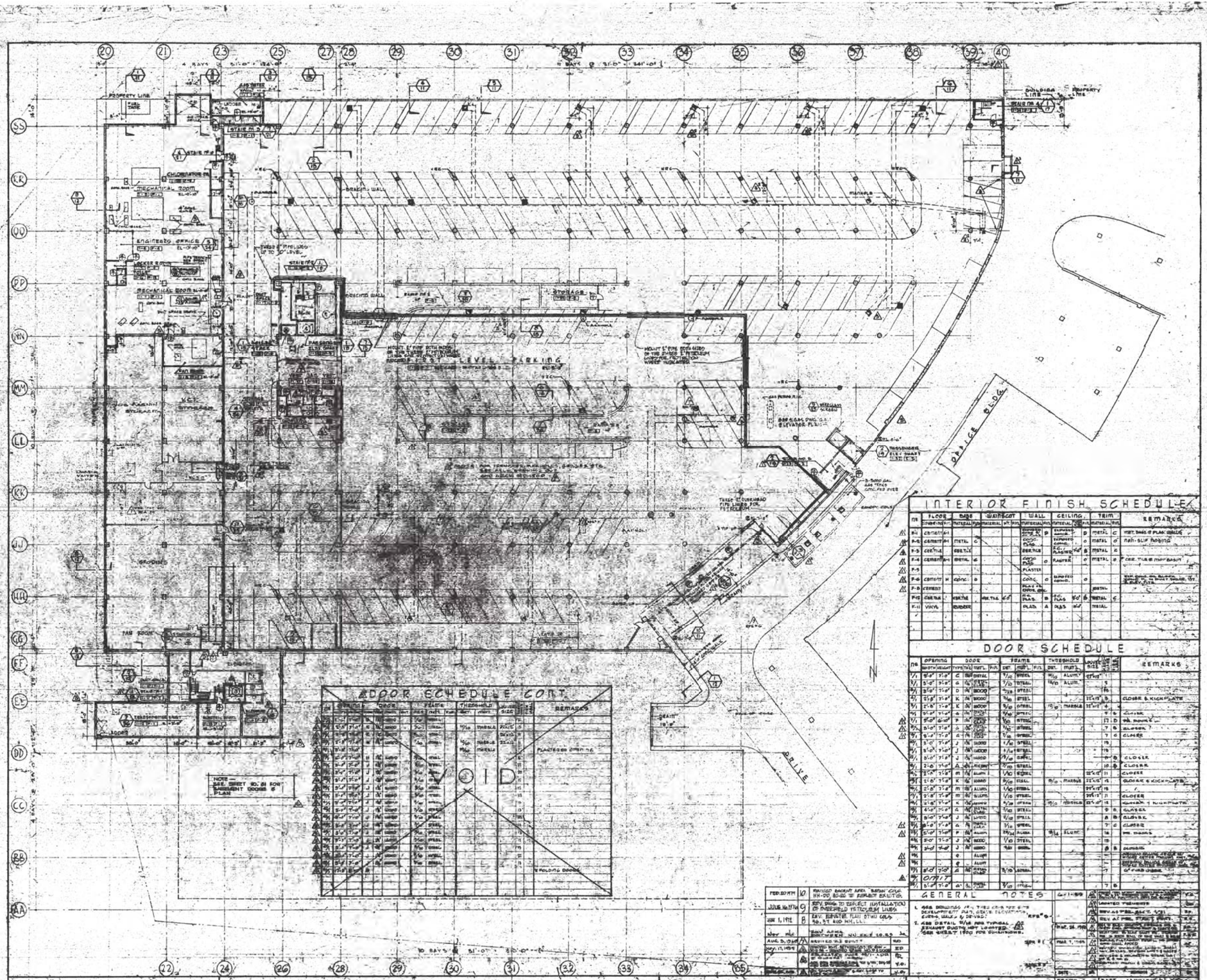
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PARKING GARAGE & SHOPS
SITE PLAN
SCALE: 1" = 10'-0"

DRAWN
TRACED
CHECKED

DATE: JANUARY 31, 1956
JOB NOS. 4037 & 4049
SHEET NO. 2-2



INTERIOR FINISH SCHEDULE

TYP	FLOOR	BASE	WAINSCOT	WALL	CEILING	TRIM	REMARKS
	CONSISTENCY / MATERIAL / FIN.	MATERIAL / FIN.	MATERIAL / HT. / FIN.	MATERIAL / FIN.	MATERIAL / FIN.	MATERIAL / FIN.	
F-1	CEMENT / H				EXPOSED CONC.	P METAL C	VERT. BARS @ PLAN GRADE
F-2	CEMENT / H	METAL C			EXPOSED CONC.	O METAL O	NON-SLIP NOSING
F-3	CERAMIC	CERAMIC			CERAMIC	P PLASTER	
F-4	CEMENT / H	METAL C			ACOUS. PANEL	O PLASTER O	METAL P CER. TILE @ MEN'S ROOM
F-5					PLASTER		
F-6	CEMENT / H	CONC. O			CONC. O	EXPOSED CONC. O	
F-7	CEMENT				PLAS.	B FGS FLAS 60'	METAL C
F-8	CERAMIC	CERAMIC		METAL 6'0"	PLAS.	B FGS FLAS 60'	METAL C
F-11	VINYL	RUBBER			PLAS.	A FGS 60'	METAL

DOOR SCHEDULE

NO	OPENING WIDTH	OPENING HEIGHT	DOOR TYPE	DOOR MAT.	DOOR FIN.	FRAME DET.	FRAME MAT.	FRAME FIN.	THRESHOLD DET.	THRESHOLD MAT.	WEATHER STRIP SIZE	WEATHER STRIP MAT.	REMARKS
1/1	6'-0"	7'-0"	C	IN	BRONZE		7/10	STEEL		10/10	ALUM.	6	
2/1	3'-0"	7'-0"	G	IN	BRONZE		7/10	STEEL		10/10	ALUM.	5	
3/1	3'-0"	7'-0"	D	IN	BRONZE		7/10	STEEL				15	
4/1	3'-0"	7'-0"	K	IN	BRONZE		7/10	STEEL				15	
5/1	3'-0"	7'-0"	K	IN	BRONZE		7/10	STEEL		10/10	MARBLE	15	CLOSER & KICK PLATE
6/1	3'-0"	7'-0"	K	IN	BRONZE		7/10	STEEL		10/10	MARBLE	15	
7/1	3'-0"	7'-0"	A	IN	WOOD		7/10	STEEL				7	C CLOSER
8/1	3'-0"	7'-0"	P	IN	WOOD		7/10	STEEL				7	D PUSH PLATE
9/1	3'-0"	7'-0"	A	IN	WOOD		7/10	STEEL				7	B CLOSER
10/1	3'-0"	7'-0"	A	IN	WOOD		7/10	STEEL				7	C CLOSER
11/1	3'-0"	7'-0"	J	IN	WOOD		7/10	STEEL				15	
12/1	3'-0"	7'-0"	J	IN	WOOD		7/10	STEEL				15	
13/1	3'-0"	7'-0"	J	IN	WOOD		7/10	STEEL				10	B CLOSER
14/1	3'-0"	7'-0"	A	IN	WOOD		7/10	STEEL				10	B CLOSER
15/1	3'-0"	7'-0"	m	IN	ALUM.		7/10	STEEL				15	CLOSER
16/1	3'-0"	7'-0"	K	IN	WOOD		7/10	STEEL		10/10	MARBLE	15	CLOSER & KICK PLATE
17/1	3'-0"	7'-0"	m	IN	ALUM.		7/10	STEEL				15	CLOSER
18/1	3'-0"	7'-0"	m	IN	ALUM.		7/10	STEEL				15	CLOSER
19/1	3'-0"	7'-0"	K	IN	WOOD		7/10	STEEL		10/10	MARBLE	15	CLOSER & KICK PLATE
20/1	3'-0"	7'-0"	K	IN	WOOD		7/10	STEEL				9	B CLOSER
21/1	3'-0"	7'-0"	J	IN	WOOD		7/10	STEEL				A	B CLOSER
22/1	3'-0"	7'-0"	A	IN	WOOD		7/10	STEEL				7	C CLOSER
23/1	3'-0"	7'-0"	P	IN	ALUM.		7/10	ALUM.		10/10	ALUM.	15	
24/1	3'-0"	7'-0"	J	IN	WOOD		7/10	STEEL				15	
25/1	3'-0"	7'-0"	J	IN	WOOD		7/10	STEEL				9	B CLOSER
26/1			G		ALUM.								
27/1	3'-0"	7'-0"	A	IN	METAL CLAD		7/10	STEEL				7	C CLOSER
28/1			OMIT										
29/1	3'-0"	7'-0"	a1	IN	PANEL		7/10	STEEL				7	B

GENERAL NOTES

1. SEE DRAWINGS A1, T1 FOR CODE AND SITE DEVELOPMENT PLOT, GRADE ELEVATIONS, "EPS" CURBS, WALLS, & DRIVES.
2. SEE DETAIL 9/A6 FOR TYPICAL SEGMENT DUCTING NOT LOCATED. SEE SHEET T1/00 FOR CONDITIONS.

REVISIONS	
LIMITED THICKNESS	
REV. AS PER ADD'L 1/21	
REV AT MEN. STRUCT. WALL	
REVISED PER ADDENDUM	
REVISED PER ADDENDUM	

DRAWN	DATE JANUARY, 31, 1969
TRACED	JOB NOS. 6017 & 6018
CHECKED	SHEET 3-10

REV.	DATE	DESCRIPTION
10	FEB. 20 1970	REVISED BACKUP AREA, BASTIAN COAL HW-DD 60-22 TO ASPHALT SOLUTION
G	JUNE 16 1970	REV. DRWG. TO REFLECT INSTALLATION OF FIRE SHIELD PETROLEUM LINES
B	JUNE 1, 1970	REV. BERMTOP, FLAT STAIR COLS. 40, ST. AND MH, LL
		EAST APRON SHIFTED N.W. 60.0' TO 60.83
	AUG. 5, 1969	REVISED W.S. CONST.
	JULY 17, 1969	

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OAKLAND, CALIFORNIA

WELTON BECKET AND ASSOCIATES
ARCHITECTS AND ENGINEERS
LOS ANGELES, CALIFORNIA

PARKING GARAGE & SHOPS
A LEVEL PARKING
BSMT. WEBSTER ST.

SECOND LEVEL PARKING

GROCERY BANK
REFER TO COMPLETE DRAWINGS FOR SPACE
BOWES GADDIS - ARCHITECT

GROCERY BANK
REFER TO COMPLETE DRAWINGS FOR SPACE
BOWES GADDIS - ARCHITECT

GRODIN'S

JOSHUA'S

AIKLING CENTER

DRIVE

SERVICE BLDG.

PROPERTY LINE

PLANTING

STORAGE

OPEN

RAMP NO. 2 DOWN

RAMP NO. 3 UP

RAMP NO. 4 DOWN

RAMP NO. 5 UP

RAMP NO. 6 DOWN

RAMP NO. 7 UP

RAMP NO. 8 DOWN

STEEL ROLLING FIRE DOOR

ELEVATOR

ESCALATORS

LOADING DOCK

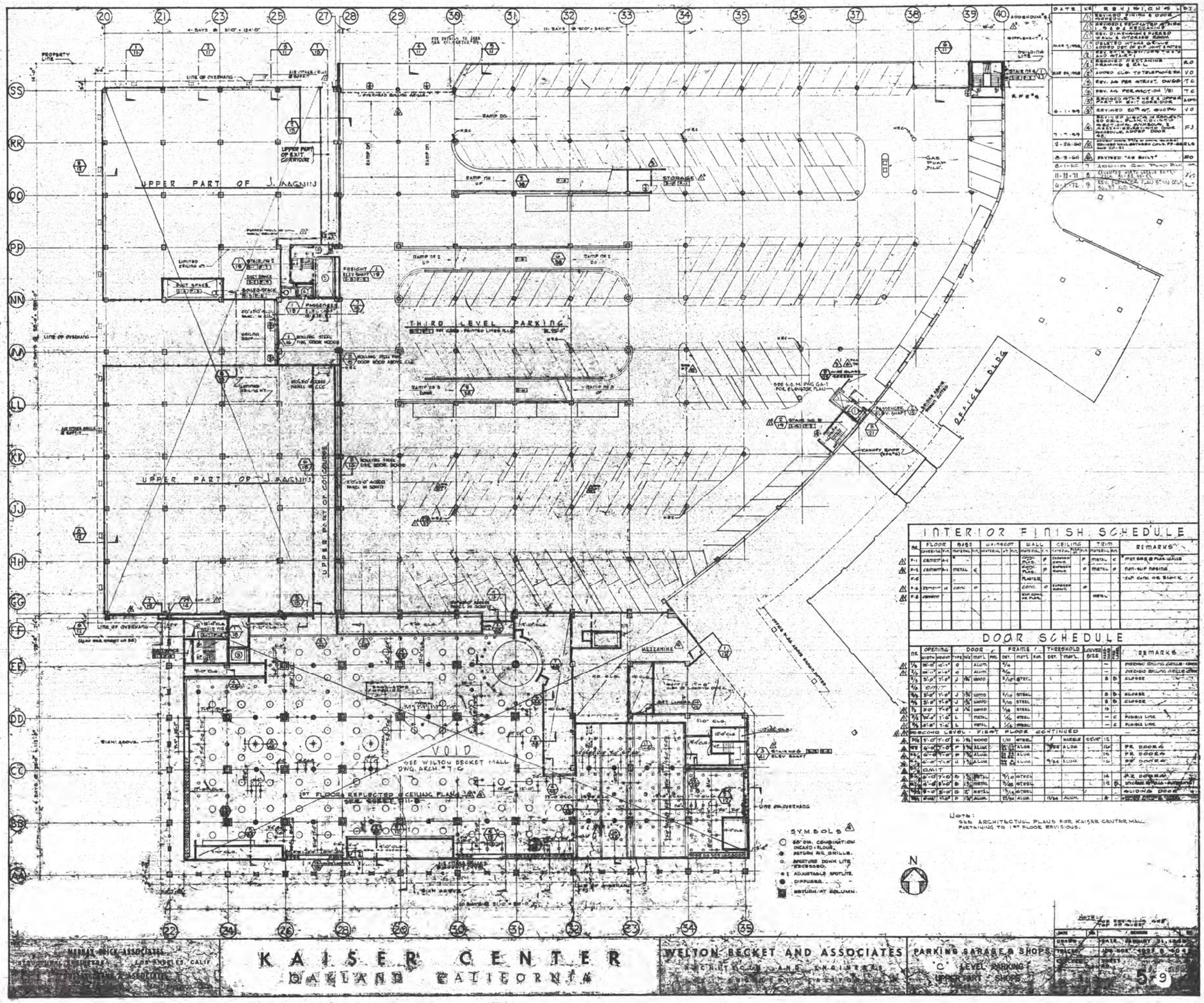
STAIR

TYPICAL TERRACE PATTERN PER DET. 17/61

PEDESTRIAN CROSSOVER #1

PEDESTRIAN CROSSOVER #2

NOTE: FOR ENTRANCE GRILLE LAYOUT SEE SHEET 4-12



DATE	NO	REVISIONS	BY
	1	REVISED PARTITIONS & DOORS THROUGHOUT	
	2	REVISED TOILET ROOMS AT LEVELS 2 & 3 REMODELING	
MAR 7, 1968	3	REV. DIMENSIONS AT HEAD WALL & MOTORIZED DOOR	
	4	DELETED UPPER GRILLE ADDED DET. OF EXP. JOINT & NOTES	
	5	REV. AS PER ADDENDUM #2 AND ATTACHED SKETCHES	
MAR 26, 1968	6	REVISED PARTITIONS PLANNING & DETAIL	R.D
	7	ADDED CLG. TO TELEPHONE RM	V.O
	8	REV. AS PER ARCHITECT. DWGS	T.C
	9	REV. AS PER ARCHITECTS LTR.	T.C
	10	REVISED WITH NEW & UPDATED PART OF EXIT CORRIDOR	A.D.M
6-1-69	11	REVISED 60TH ST. ENTRY	V.O
7-7-69	12	REVISED DRAWING IN ACCORDANCE WITH ARCHITECTS LETTER DATED JUNE 5, 1969 REVISING DOOR SCHEDULE, ADDED DOOR	F.J
12-26-69	13	ADDED DOOR "P" IN WALL BETWEEN COLS. P7-P8 & L6 AND L7-L8	R.D.L.G
8-3-70	14	REVISED "AS BUILT"	R.D
8-1-72	7	ADDED GAS PUMP ISLAND	
11-13-73	8	ADDED DOOR	
9-1-76	9	REVISED	

INTERIOR FINISH SCHEDULE

NO.	FLOOR COVERING	FLOOR FIN.	BASE MATERIAL	BASE FIN.	WAINSCOT MATERIAL	WAINSCOT FIN.	WALL MATERIAL	WALL FIN.	CEILING MATERIAL	CEILING FIN.	TRIM MATERIAL	TRIM FIN.	REMARKS
F-1	CERAMIC	A-1	-				CONC. PLAS.	P	EXPOSED CONC.	P	METAL	C	FIRST BASE @ PLAS WALLS
F-2	CERAMIC	A-1	METAL	C			CONC. PLAS.	P	EXPOSED CONC.	P	METAL	C	NON-SLIP NOSING
F-5							PLASTER						EXP. CONC. OR BLOCK
F-6	ZONOLITE	H	CONC.	C			CONC.	C	EXPOSED CONC.	P			
F-8	ABRASITE						CONC. PLAS.				METAL		

DOOR SCHEDULE

NO.	OPENING WIDTH	OPENING HEIGHT	DOOR TYPE	DOOR NO.	DOOR MATL.	DOOR FIN.	FRAME DET.	FRAME MATL.	FRAME FIN.	THRESHOLD DET.	THRESHOLD MATL.	LOUVER SIZE	LOUVER FIN.	REMARKS
1/8	3'-0"	6'-8"	G		ALUM.		3/4							PEDEST. SLIDING DOOR
2/8	3'-0"	6'-8"	G		ALUM.		3/4							OVERHEAD SLIDING DOOR
3/8	3'-0"	7'-0"	J	1¾	WOOD		3/10	STEEL				8	D	CLOSER
4/8	OMIT													
5/8	3'-0"	7'-0"	J	1¾	WOOD		3/10	STEEL				8	D	CLOSER
6/8	3'-0"	7'-0"	J	1¾	WOOD		3/10	STEEL				8	D	CLOSER
7/8	3'-0"	7'-0"	J	1¾	WOOD		1/10	STEEL				15		
8/8	3'-0"	7'-0"	L		METAL		1/6	STEEL				-	C	FUSIBLE LINK
9/8	3'-0"	7'-0"	L		METAL		1/6	STEEL				-	C	FUSIBLE LINK
	SECOND LEVEL - FIRST FLOOR CONTINUED													
P16	3'-0"	7'-0"	H	1¾	WOOD		1/10	STEEL		MARBLE	6"x½"	15		
P17	3'-0"	7'-0"	P	1¾	ALUM.		11/20	ALUM.		3/64 ALUM.	-	15		PR. DOORS
P18	6'-0"	7'-0"	P	1¾	ALUM.		11/20	ALUM.		-	-	15		PR. DOORS
P19	3'-0"	7'-0"	H	1¾	ALUM.		11/20	ALUM.		9/64 ALUM.		15		DR. DOORS
P20	OMIT													
P21	3'-0"	7'-0"	B	1¾	METAL		1/10	STEEL				14		P.E. DOORS
P22	3'-0"	6'-8"	B	1¾	METAL		1/20	STEEL				12	G	WICKET DOOR - AUTOMATIC
P23	3'-0"	6'-8"	G	1¾	METAL		1/20	STEEL				-		SLIDING DOOR
P24	3'-0"	7'-0"	G	1¾	ALUM.		11/20	ALUM.		11/64	ALUM.	15		

NOTE:
SEE ARCHITECTURAL PLANS FOR KAISER CENTER MALL PERTAINING TO 1ST FLOOR REVISIONS.

NOTE: FOR REVISIONS SEE SHEET NO. 1

KAISER CENTER
OAKLAND CALIFORNIA

WELTON BECKET AND ASSOCIATES
ARCHITECTURE AND ENGINEERING

PARKING GARAGE & SHOPS
"C" LEVEL PARKING
UPPER PART SHOPS

DRAWN: [illegible] DATE: JANUARY 31, 1968
TRACED: [illegible] JOB NO. 1007 & 1013
CHECKED: [illegible] SHEET NO.

5.9

DATE	NO.	REVISION	BY
MAR 7,1958	1	WINDOWS ADD NO 2&3 FLR TYPE CONTROL DELETE PRIOR TYP.	EL
	2	REVISED ELEVATIONS AS NOTED	
	3	REVISED DIMENSION LINES & FLR. INS. DETAIL CHTD.	
MAR 24 1958	1	REV MOTOR & BLVR LOADS	R.O
	2	REV FRAME IN DOOR 10 OPENING	V.O.
6-1-58	3	REV DOOR & DELETED WALL	K.L.
	4	REV AS PER ARCHT. DWGS.	T.C.
	5	ADDED CURB ON SHAFT & REVISED FRAME & DOOR OPENING	T.C.
	6	REVISED 4TH FLR.	V.O.
10-10-58	1	REVISED SIZE OF SHOPS & DOOR OPENINGS	EL
10-15-58	2	GENERAL REVISIONS - 2ND FLOOR	GH
8-13-60	3	REVISED "AS BUILT"	RO

INTERIOR FINISH SCHEDULE

NO.	FLOOR	BASE	WAINSCOT	WALL	CEILING	TRIM	REMARKS
	CONDITION / MATERIAL / FIN.	MATERIAL / FIN.	MATERIAL / HT. / FIN.	MATERIAL / FIN.	MATERIAL / FIN.	MATERIAL / FIN.	
F-1	CEMENT A			CONC. P	EXPOSED CONC. F	METAL F	
F-2	CEMENT A-1 METAL C			PLASTER O	PLASTER O	METAL F	
F-3	CER. TILE 1 CER. TILE			CER. TILE	PLASTER O	METAL C	
F-4	CEMENT A-1 METAL C			CONC. P PLASTER	PLASTER O	METAL C	CER. TILE @ WAINSCOT
F-5				PLASTER			
F-6	CEMENT H CONC. D			CONC. Q	CONC. D		
F-7	TERRAZZO ALUM.			ALUM. & GLASS	P.C. PLASTER	ALUM.	
F-8	CEMENT			CONCRETE		METAL	
F-9	VINYL RUBBER			PLASTER O	PLASTER O	METAL C	
F-10	VINYL ALUM.			ALUM. & GLASS	P.C. PLASTER	ALUM.	
F-11	VINYL RUBBER			PLASTER A	PLASTER A	METAL E	LUMINOUS ELEC. SELV.
F-12	CER. TILE CER. TILE	CER. TILE 6"		P.C. PLAS. B	P.C. PLAS. B	METAL E	
F-13	CEMENT A-1 METAL			P.C. PLAS.	PLASTER O	METAL B	PLASTER ON S/A FURRED @ CONC. WALLS

DOOR SCHEDULE

NO.	OPENING WIDTH	OPENING HEIGHT	DOOR TYP.	DOOR THK.	DOOR MATL.	DOOR FIN.	FRAME DET.	FRAME MATL.	FRAME FIN.	THRESHOLD DET.	THRESHOLD MATL.	LOUVER SIZE	HDW. SET	REMARKS
1	3'-0"	7'-0"	J	1¾	WOOD		3/10	STEEL					A	CLOSER
2	6'-0"	7'-0"	H	1¾	WOOD		4/10	STEEL		19/10	ALUM.		17	CLOSER, PROVIDE ASTRAGAL
3	2'-8"	7'-0"	J	1¾	WOOD		1/10	STEEL					A	CLOSER
4	OMIT													
5	OMIT													
6	OMIT													
7	OMIT													
8	OMIT													
9	OMIT													
10	OMIT													
11	OMIT													
12	3'-0"	7'-0"	J	1¾	WOOD		3/10	STEEL				22"x12"		
13	2'-8"	7'-0"	J	1¾	WOOD		4/10	STEEL					A	CLOSER
14	OMIT													
15	OMIT													
16			N		WOOD		1/10	STEEL		19/10	MARBLE	22"x18"	4	
17	2'-8"	7'-0"	K	1¾	WOOD		1/10	STEEL				22"x12"	22	
18	3'-6"	7'-0"	O	1¾	ALUM.		9/10	STEEL					19	
19	3'-0"	7'-0"	J	1¾	WOOD		3/10	STEEL					A	CLOSER
20	10'-0"	7'-0"	L		METAL		1/10	STEEL					C	FUSIBLE LINK
21	10'-0"	7'-0"	L		METAL		1/10	STEEL					C	FUSIBLE LINK
22	10'-0"	7'-0"	L		METAL		1/10	STEEL					C	FUSIBLE LINK
23	10'-0"	7'-0"	L		METAL		1/10	STEEL					C	FUSIBLE LINK
24	3'-0"	7'-0"	J	1¾	WOOD		3/10	STEEL					A	CLOSER
25	6'-0"	7'-0"	H	1¾	WOOD		3/10	STEEL		19/10	ALUM.		17	PVT. DR. PROVIDE ASTRAGAL
26	2'-8"	7'-0"	H	1¾	WOOD		3/10	STEEL					17	SIMILAR PROVIDE ASTRAGAL
27	3'-0"	7'-0"	J	1¾	WOOD		3/10	STEEL					A	SIMILAR TO DR. NO. 1
28	2'-8"	7'-0"	K	1¾	WOOD		3/10	STEEL				22"x8"	15	
29	3'-0"	4'-0"	B	1¾	METAL		3/46	STEEL				22"x12"	15	
30	OMIT												B	UNDERCUT HDW TO DOOR-KICK PLATE FROM PULL-CLOSER
31	OMIT												K	
32	3'-0"	7'-0"	J	1¾	WOOD		3/10	STEEL					CC	13/P2
33	2'-8"	7'-0"	J	1¾	WOOD		3/10	STEEL					CC	15/P2
34	3'-0"	7'-0"	J	1¾	WOOD		3/10	STEEL				22"x15"	13	14/P2
35	OMIT													

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OAKLAND, CALIFORNIA

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ARCHITECTS AND ENGINEERS
LOS ANGELES, CALIFORNIA

PARKING GARAGE & SHOPS
4TH. LEVEL PARKING
2ND. FL. - 20TH. ST. OFFICES
SCALE 1/16" = 1'-0"

DRAWN
TRACED
CHECKED

DATE JANUARY 3, 1958
JOB NOS. 4037 & 4069
SHEET NO. 6-6

FIFTH LEVEL PARKING

SEE SHT. NO. 51

SEE FOR FLOOR REDUCTED CLG. PLAN

OFFICE BLDG.

BRIDGE TO OFFICE BLDG.

BUILDING LINE

PROPERTY LINE

BRACING WALLS

RAMP NO. 1 DOWN

RAMP NO. 2

OPEN

STAIR NO. 6

ELEV. SHAFT

DUCT SPACE

4 BAYS @ 31'-0" = 124'-0"

11 BAYS @ 31'-0" = 341'-0"

10 BAYS @ 31'-0" = 310'-0"

10 BAYS @ 31'-0" = 310'-0"

INTERIOR FINISH SCHEDULE

No.	FLOOR	BASE	WAINSCOT	WALL	CEILING	TRIM	REMARKS
	MATERIAL / FIN.	MATERIAL / FIN.	MATERIAL / HT. / FIN.	MATERIAL / FIN.	MATERIAL / FIN.	MATERIAL / FIN.	
F-1	CEMENT A-1	METAL 6		CONC. O	SUSPENDED CONC. P	METAL P	NON-SLIP TOPPING
P-1	"	"		PLASTER		METAL	EXPOSED CONCRETE BLOCK
P-2	CEMENT			SAT GYPC. WALL BOARD		METAL	
F-1	CEMENT A-1	M.		CONC. P	SUSPENDED CONC. P	METAL 6	TEST BASE IN PLAS. WALLS
P-2	CEMENT H.	CONC. P		CONC. P	CONC. P	P	

DOOR SCHEDULE

No.	OPENING WIDTH	OPENING HEIGHT	DOOR TYPE	DOOR THK.	DOOR MAT'L	DOOR FIN.	FRAME DET.	FRAME MAT'L	FRAME FIN.	THRESHOLD DET.	THRESHOLD MAT'L	LOUVER SIZE	LOUVER MAT'L	REMARKS
1/3	0'-0"	7'-0"	J	1¾"	WOOD		3/16	STEEL					B	B	CLOSER
1/3	0'-0"	7'-0"	J	1¾"	WOOD		3/16	STEEL					B	B	CLOSER
2/3	0'-0"	7'-0"	J	1¾"	WOOD		3/16	STEEL				T	B	B	CLOSER
2/3	0'-0"	7'-0"	J	1¾"	WOOD		3/16	STEEL					D	D	CLOSER
3/3	0'-0"	7'-0"	H	1¾"	WOOD		3/16	STEEL		3/8	ALUM.		17	B	DEPT'D. LOCK

NOTE:
SEE KCI DWG'S 118, 119, 161, 122 FOR 2ND FLOOR OFFICE LAYOUT REVISIONS

SYMBOLS

- APERTURE DOWN LIGHTS (RECESSED)
- RECESSED ADJUSTABLE SPOT LIGHTS
- DIFFUSER
- AIR RETURN GRILLE @ COL.

N

9-25-74		REVISED TO SHOW LOU BLOATER, STAIRS & DROOM TO OFFICE BLDG.
8-3-60		
6-1-73		REVISED AS PER REVISED SHEETS
MARCH 14, 1956		REVISED AS PER REVISED SHEETS
MAY 1, 1956		

BASES
SUPERSEDES
SUPPLEMENT

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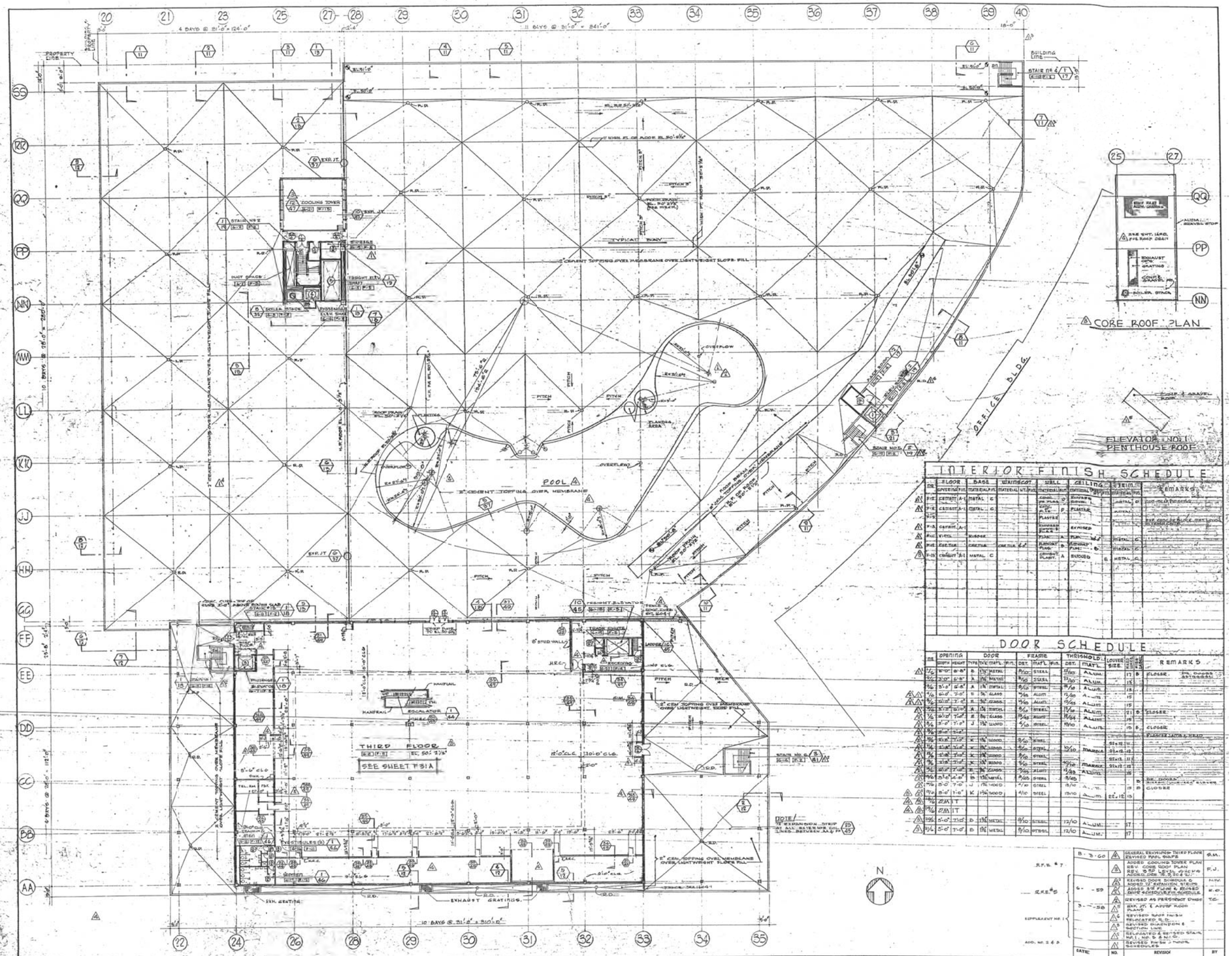
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LOS ANGELES CALIFORNIA

PARKING GARAGE & SHOPS
E - LEVEL PARKING
UPPER PART - BOTH ST. OFFICES

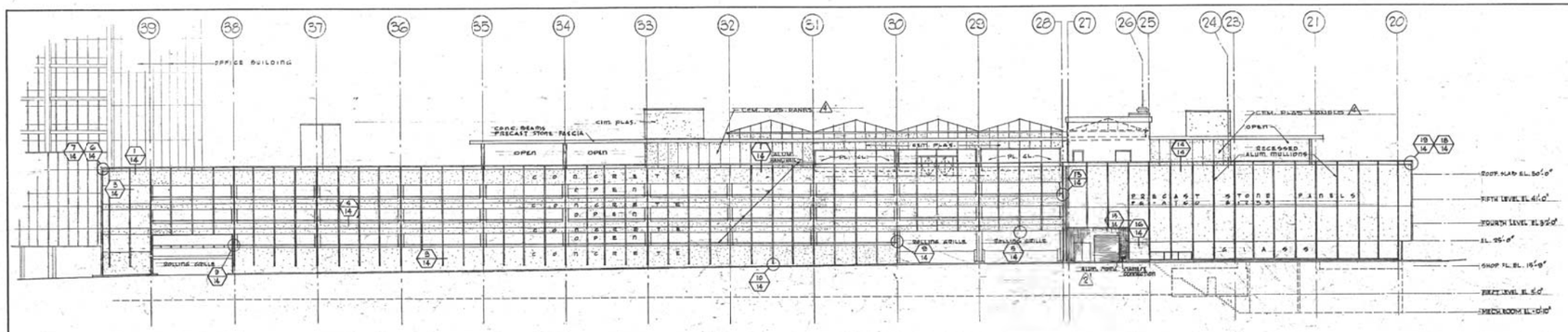
DRAWN — DATE — SCALE — SHEET
TRACED — JOB NO. — DATE
CHECKED — SHEET

7-5

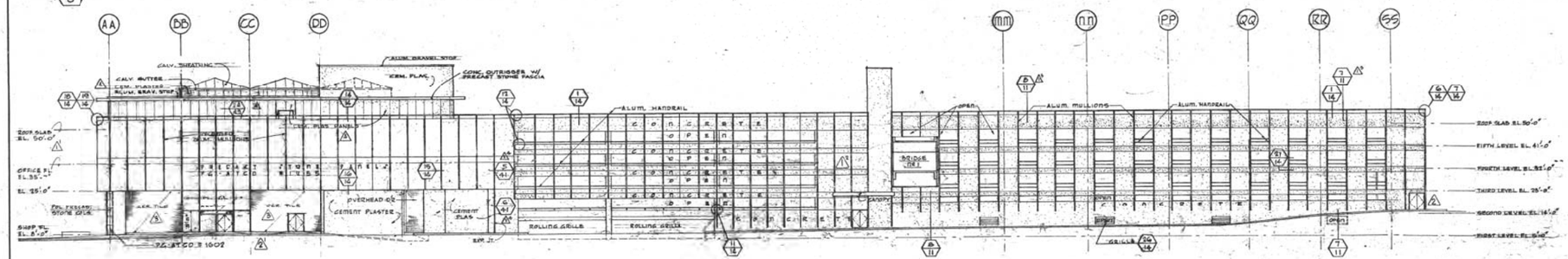


INTERIOR FINISH SCHEDULE

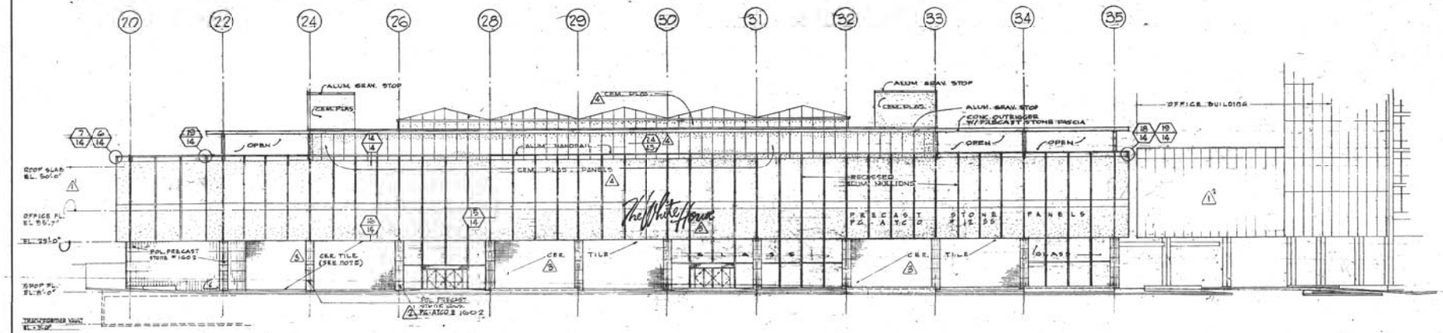
NO.	FLOOR	BASE	WAINSCOT	WALL	CEILING	TRIM	REMARKS



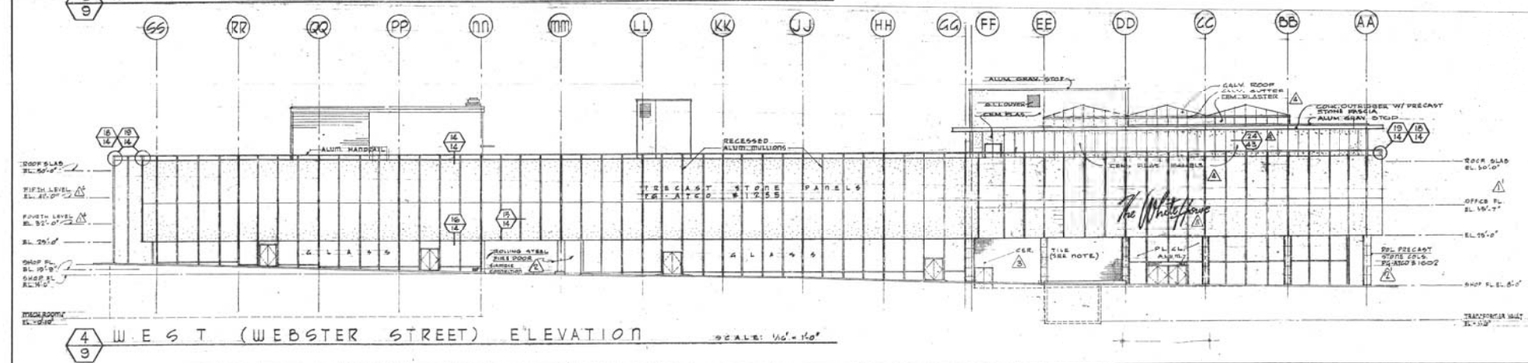
1/9 NORTH (21ST STREET) ELEVATION SCALE: 1/16" = 1'-0"



2/9 EAST - DEVELOPED ELEVATION SCALE: 1/16" = 1'-0"



3/9 SOUTH (20TH STREET) ELEVATION SCALE: 1/16" = 1'-0"



4/9 WEST (WEBSTER STREET) ELEVATION SCALE: 1/16" = 1'-0"

FOR SIGN REFERENCE ONLY

DATE	NO.	REVISION	BY
1-6-60	12	REVISE MAIN HIGH TIDE WATER HOUSE TO BLEV. AS NOTED	KM
11-10-59	11	ADD MISC. SLOPE PAVEMENT AT CONSTRUCTION JOINTS AT CONC. BEAMS	KEAST
9/1/59	6	ADDED 3RD FLOOR, KEY, 20TH. ST. SHOPS FRONT.	KRM.
9/28/59	10	REVISED SHOP FL. ELEV. AT GRID LINE 'RR' & 'SS' & REVISED FIRST FLOOR ELEV.	ADJ.
	9	CORRECTIONS AS PER ARCH. & STRUCTURAL DRAWINGS	TO.
3/17/59	8	ADDED DETAIL NUMBERS	
	7	DETAIL NUMBERS REVISED	
	5	REVISE NOTE ADDED AT ELEV. 2 & 3 & REVISED TO 2 DIFFERENT ELEV. ADDED ELEV. CHANGED AT NEW LOCATION OF FINES BA	
	4	REV. FL. & ROOF EL. OF ELEV. 2 & 4	KB

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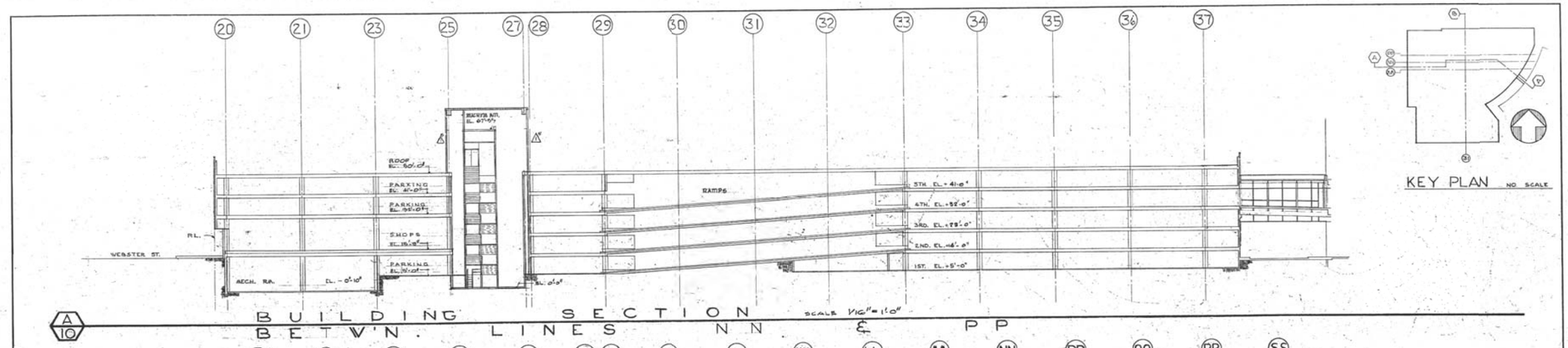
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PARKING GARAGE & SHOPS
EXTERIOR ELEVATIONS
SCALE: 1/16" = 1'-0"

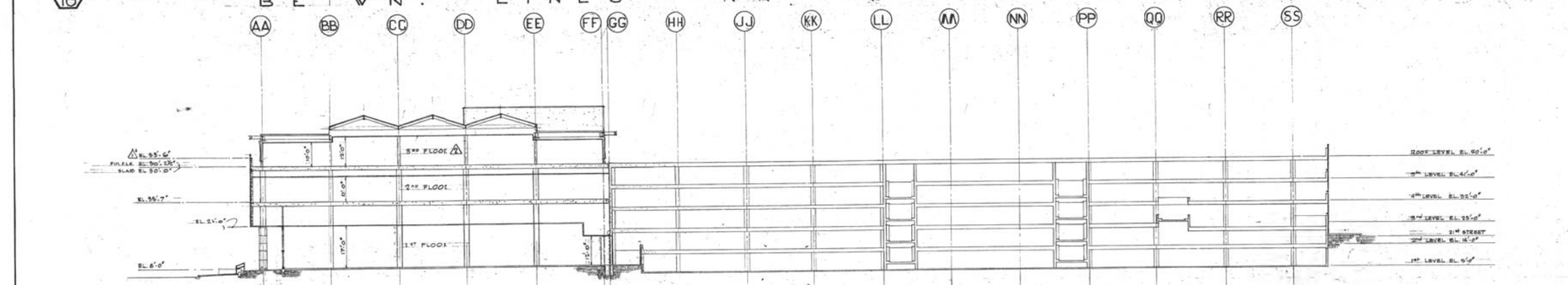
DRAWN
TRACED
CHECKED

DATE JANUARY 31, 1958
JOB NOS. 4037 & 4049
SHEET NO. 9-5



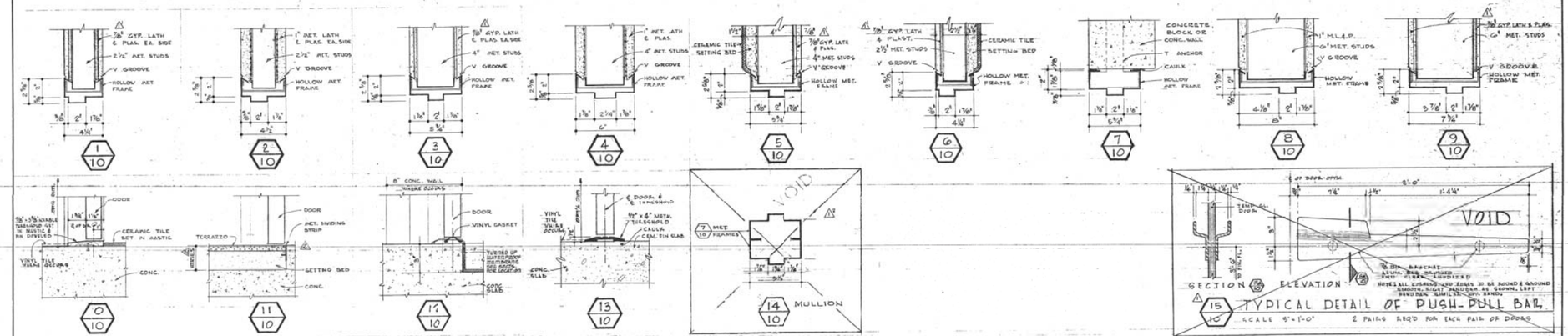
A/10 BUILDING SECTION BETW'N. LINES NN & PP

SCALE 1/16" = 1'-0"



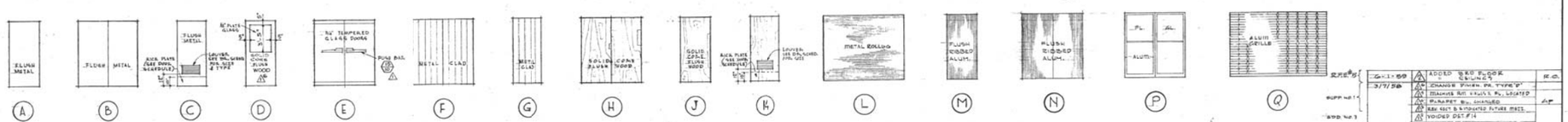
B/10 BUILDING SECTION ON LINE 31

SCALE 1/16" = 1'-0"



DOOR DETAILS

SCALE: 3" = 1'-0"



DOOR TYPES

SCALE 1/2" = 1'-0"

NOTE: SEE DOOR SCHEDULE FOR LOCATION OF DOORS WITH GRILLES OR LOUVERS AND/OR KICKPLATES, ALSO FOR SIZES OF SAME.

NO.	REVISION	BY
1	ADDED REQ'D DOOR CLOSER	R.O.
2	CHANGE DWGS. FR. TYPE 'P'	
3	MACHINE BOLT HOLES PL. LOCATED	
4	PLUMPET WD. CHANGED	A.P.
5	REV. HDT & ATTACHED FLOOR PROTS.	
6	VOIDED DET. #14	
7	DOOR LOUVER TYPES FOR WET LOCATIONS CHANGED	P.D.
8	LABELED PUSH-PULL BAR DET.	

DATE 3/7/58

DRAWN
TRACED
CHECKED

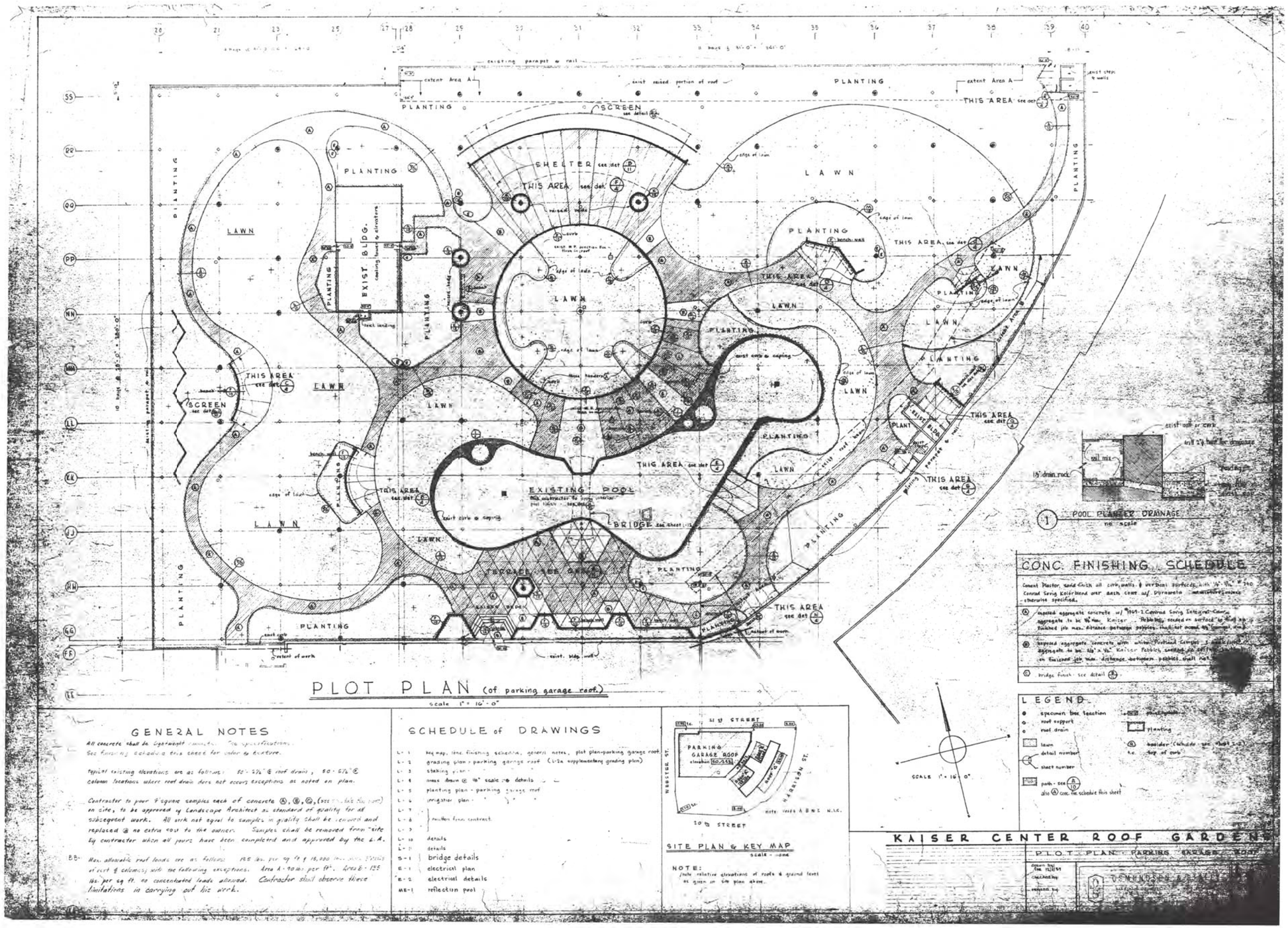
DATE JANUARY 31, 1958
JOB NO. 4037 & 4049
SHEET NO. 10-2

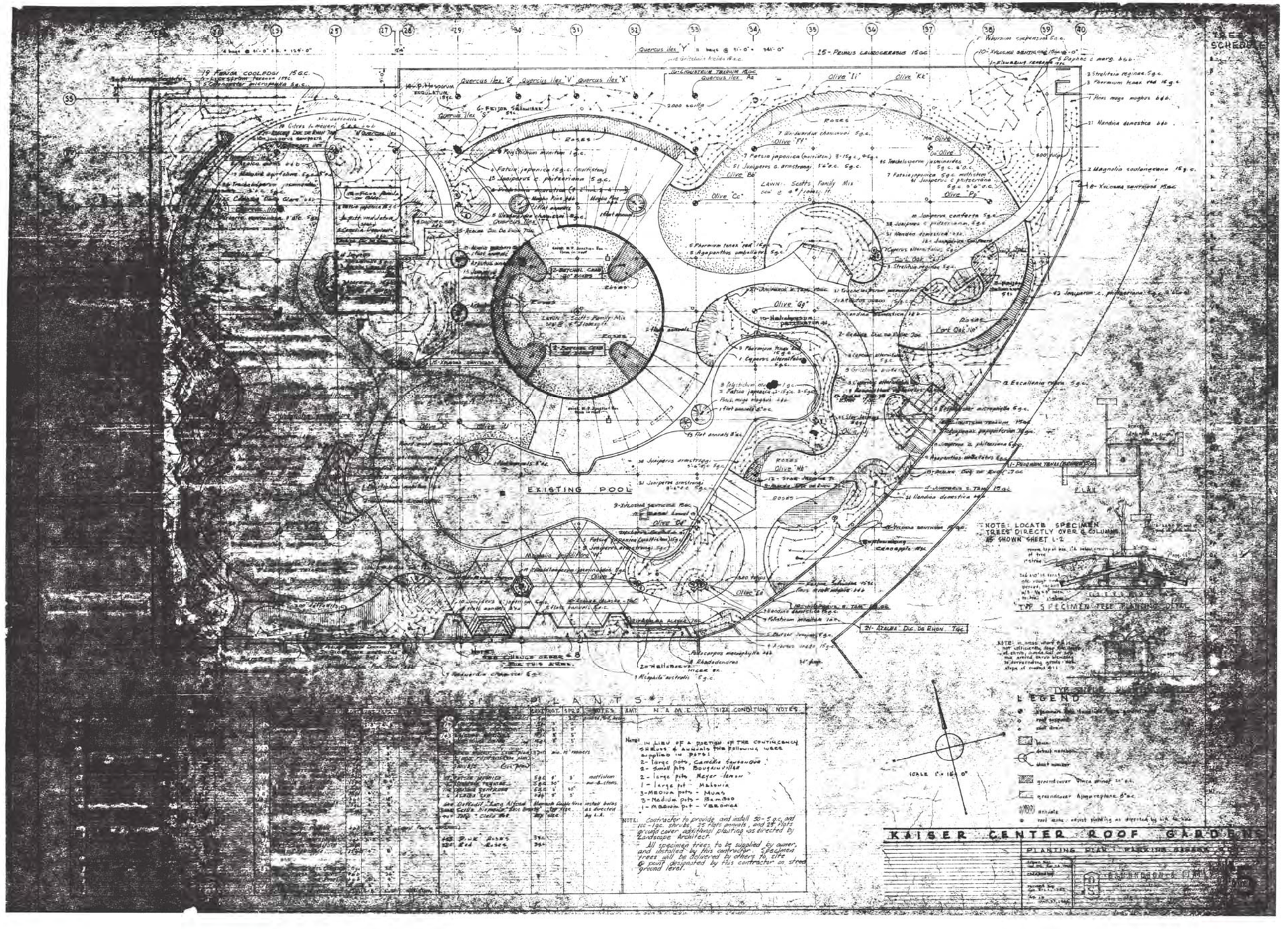
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PARKING GARAGE & SHOPS
BUILDING SECTIONS
DOOR TYPES & SCHEDULE
SCALE 1/16" = 1'-0"


existing parapet or wall
extent Area A
PLANTING
SCREEN
see detail
SHELTER see det
THIS AREA see det
LAWN
EXIST BLDG.
cooling towers & structures
PLANTING
edge of lawn
curb
EXISTING POOL
BRIDGE see sheet
TERRACE see detail
PLANTING
THIS AREA see det
PLANTING bench wall
LAWN
PLANTING
EXIST BLDG.
PLANTING
THIS AREA see det
PLANTING
PLANTING
THIS AREA see det
PLANTING
THIS AREA see det
PLANTING
THIS AREA see det
PLANTING
THIS AREA see det
PLANTING
PLANTING
PLANTING


EXISTING POOL
PLANTS
LEGEND
KAISER CENTER ROOF GARDENS
PLANTING PLAN - PLUMBING SCHEMATIC
SCALE 1"= 16'-0"
NOTE: LOCATE SPECIMEN TREES DIRECTLY OVER E COLUMNS AS SHOWN SHEET L-2
TYP SPECIMEN TREE PLANTING DETAIL
Quercus ilex 'Y'
Quercus ilex 'Q'
Quercus ilex 'V'
Quercus ilex 'X'
Olive 'Ii'
Olive 'Kk'
Olive 'Ff'
Olive 'Bb'
Olive 'Cc'
Olive 'Gg'
Olive 'Hh'
Olive 'Dd'
Olive 'Ee'
Olive 'Pp'
Roses
Cork Oak
Lawn: Scotts Family Mix
CANOPY
PLAN

APPENDIX F

Proposed Project Drawings



KAISER CENTER

DEVELOPMENT REVIEW
MARCH 14 2008

KAISER CENTER

INDEX

ASK 046	PROJECT AREA CONTEXT
ASK 047	PROJECT AND LOT INFORMATION
ASK 048	EAST/WEST BUILDING SECTION
ASK 049	NORTH/SOUTH BUILDING SECTION
ASK 050	SITE PLAN
ASK 051	BASEMENT LEVEL PLAN
ASK 052	FIRST LEVEL PLAN
ASK 053	SECOND LEVEL PLAN
ASK 054	THIRD LEVEL PLAN
ASK 055	FOURTH LEVEL PLAN
ASK 056	FIFTH LEVEL PLAN
ASK 057	SIXTH LEVEL PLAN
ASK 058	SITE CONTEXT PHOTOS
ASK 059	PARKING AND AREA SUMMARIES
ASK 060	EXISTING TREE DESCRIPTION
ASK 061	RENDERINGS

The following drawings are conceptual and for illustrative purposes only and remain subject to change.



PROJECT CONTEXT



EXISTING KAISER CENTER

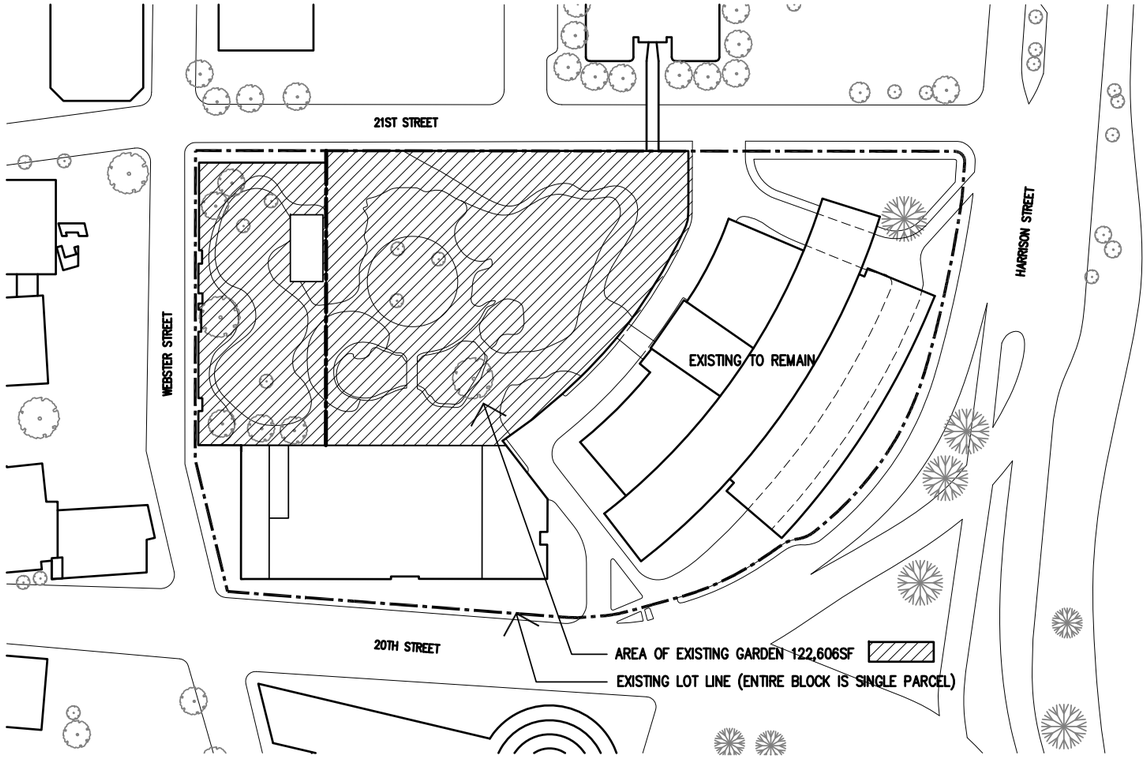
EXISTING & PROPOSED AREA OVERVIEW

	TOTAL EXISTING	- EXISTING TO BE DEMOLISHED	= EXISTING TO REMAIN	+ NEW	= TOTAL	% CHANGE
TOTAL LOT AREA*	311,741GSF	0	311,741GSF	0	311,741GSF	0%
TOTAL BUILDING FOOTPRINT AREA	197,460GSF	74,900GSF	122,560GSF	80,168GSF	202,728GSF	+3%
TOTAL FLOOR AREA	1,690,879GSF	280,002GSF	1,410,877GSF	1,830,984GSF	3,241,861GSF	+92%
BUILDING HEIGHT						
MAXIMUM STORIES	29	N/A	29	42	N/A	N/A
MAXIMUM FEET	386'	N/A	386'	±566.5'	±566.5'	+47%
NUMBER OF PARKING SPACES **	1340	155	1185	852	2037	+52%

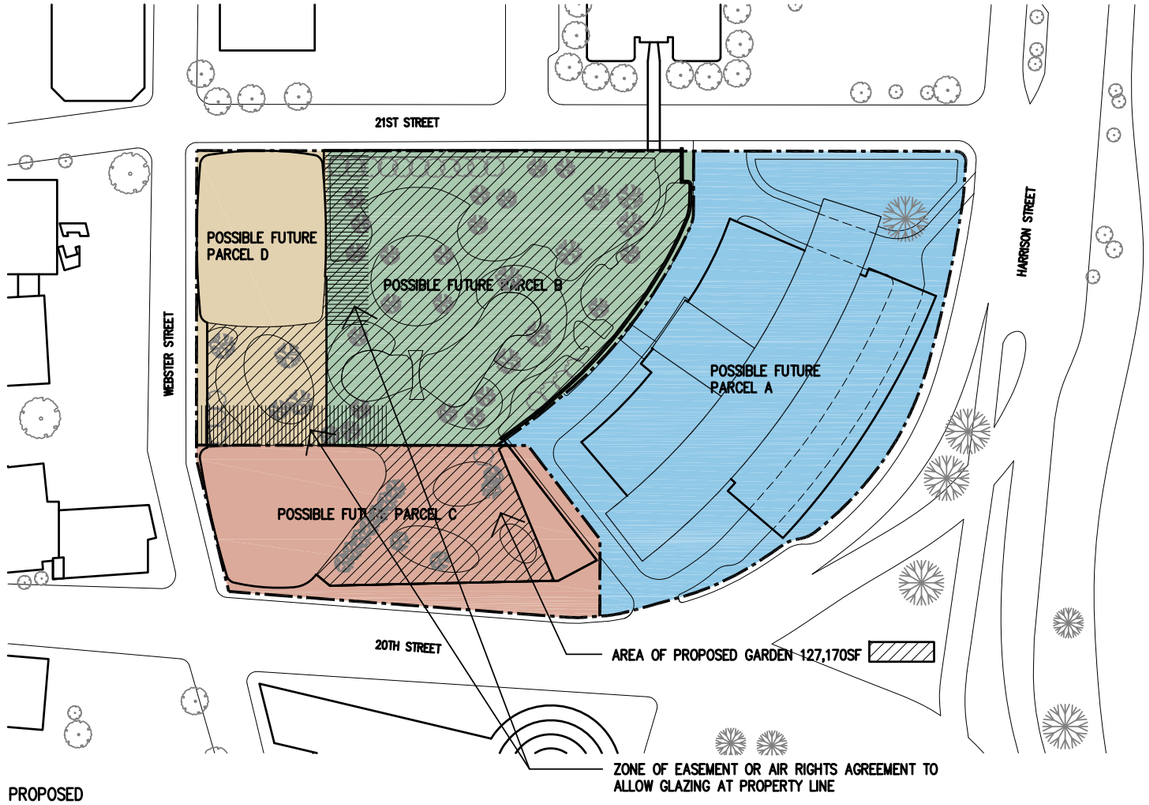
* LOT AREA INCLUDES ALL FOUR POSSIBLE FUTURE PARCELS

** PARKING INCLUDES SPACES RESERVED FOR (E) KAISER CENTER TOWER AND ORDWAY BUILDING. SEE ASK-059

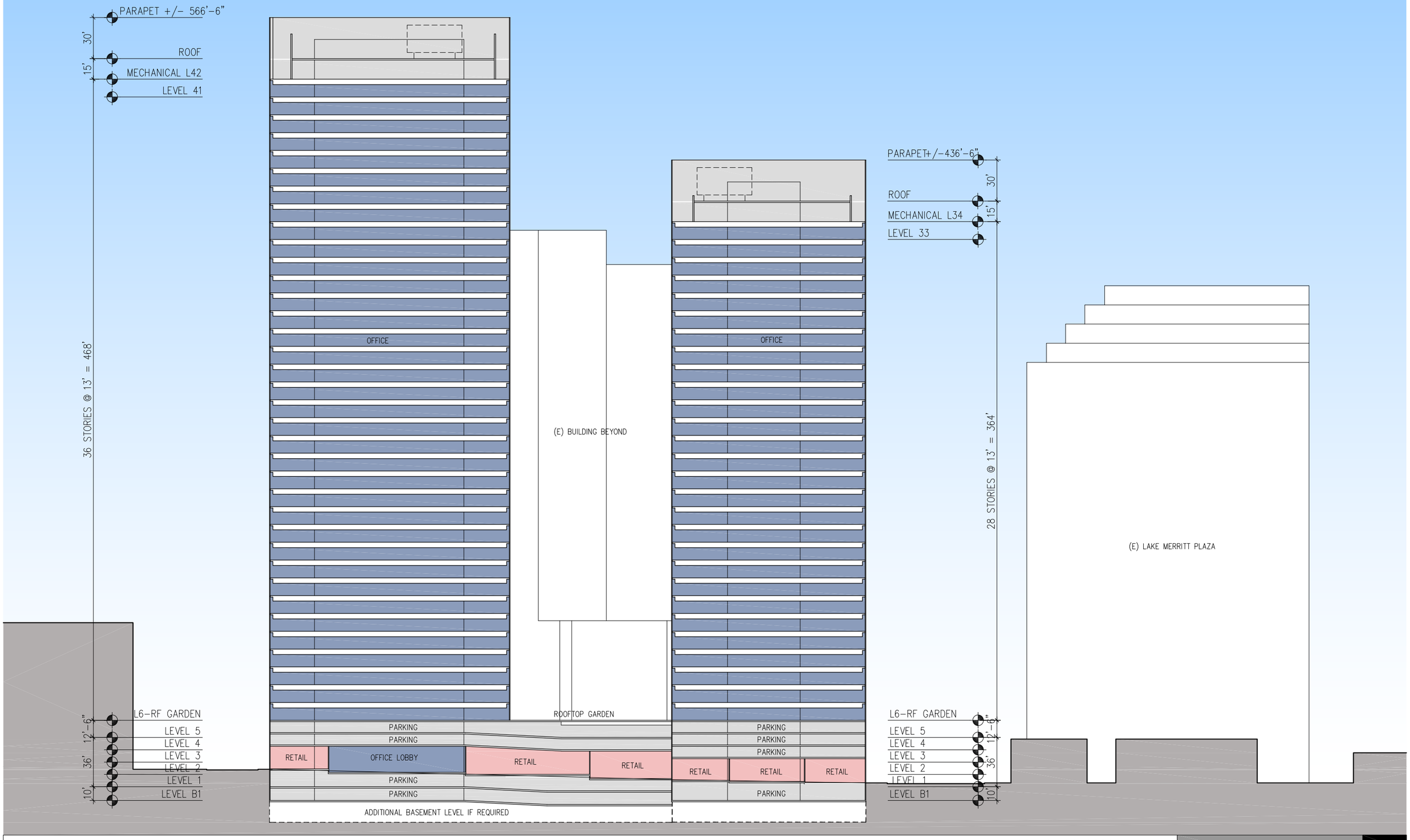
NOTE : POSSIBLE PARCELS SHOWN ON THIS DRAWING ARE FOR REFERENCE ONLY AND ARE INTENDED ONLY TO FACILITATE DESCRIPTION OF THE RELEVANT AREAS AND LOCATION OF THE PROPOSED PROJECT. THIS DRAWING DOES NOT SUGGEST OR PROPOSE A LEGAL SUBDIVISION.



EXISTING



PROPOSED



BUILDING SECTION LOOKING EAST
ASK - 048

0 16' 32' 64'

March 14, 2008
Scale: 1" = 64'-0"

KAISER CENTER
THE SWIG COMPANY
SOM

PARAPET +/–462'–6"

30'

ROOF

15'

MECHANICAL

LEVEL 33

28 STORIES @ 13' = 364'

OFFICE

(E) KAISER CENTER

L6–RF GARDEN

12'–6"

LEVEL 5

LEVEL 4

LEVEL 3

36'

LEVEL 2

LEVEL 1

10'

LEVEL B1

ROOFTOP GARDEN

PARKING

PARKING

PARKING

RETAIL

OFFICE LOBBY

RETAIL

RETAIL

RETAIL

PARKING

ADDITIONAL BASEMENT LEVEL IF REQUIRED

BUILDING SECTION LOOKING NORTH
ASK - 049

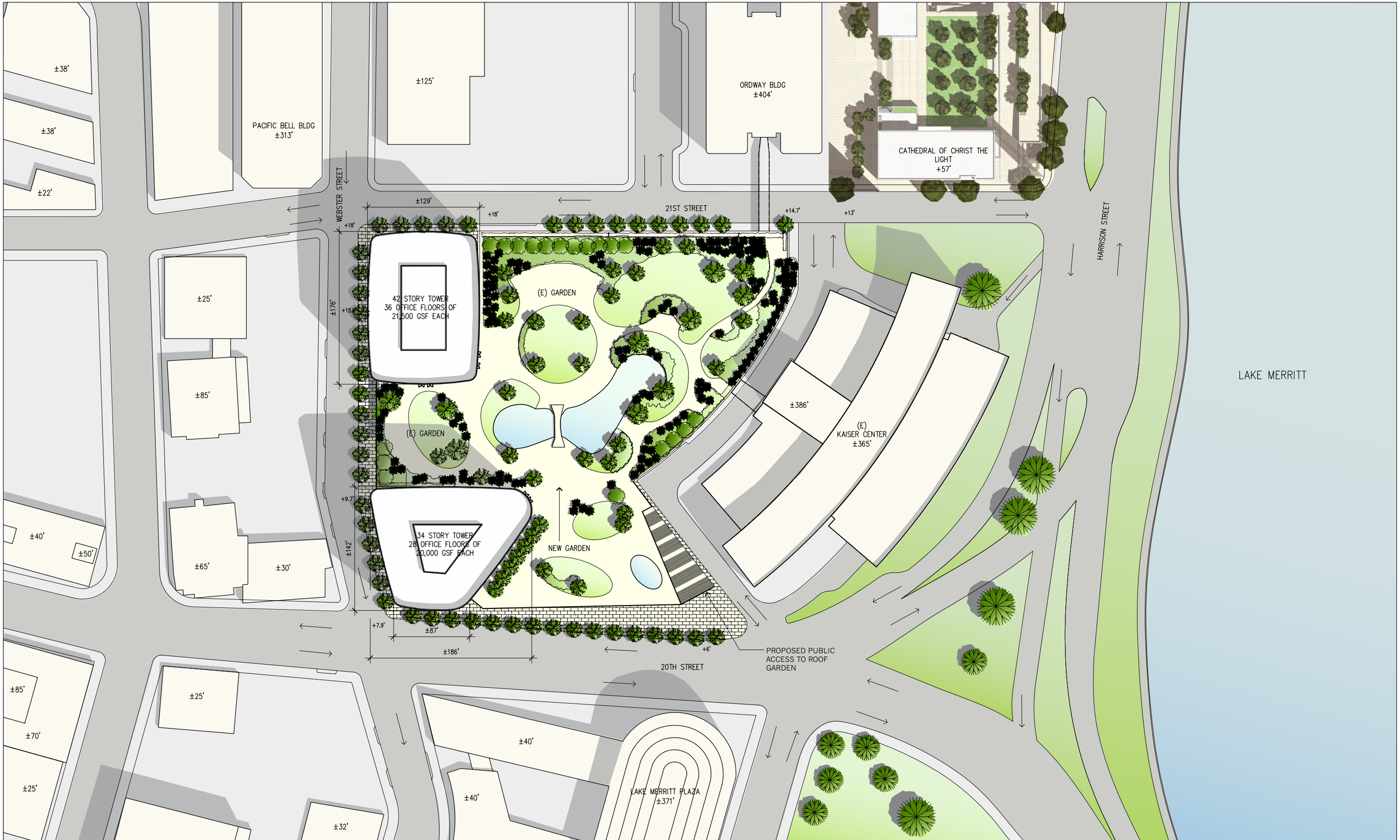
0 16' 32' 64'

March 14, 2008
Scale: 1" = 64'-0"

NORTH

KAISER CENTER
THE SWIG COMPANY

SOM



SITE PLAN
ASK - 050

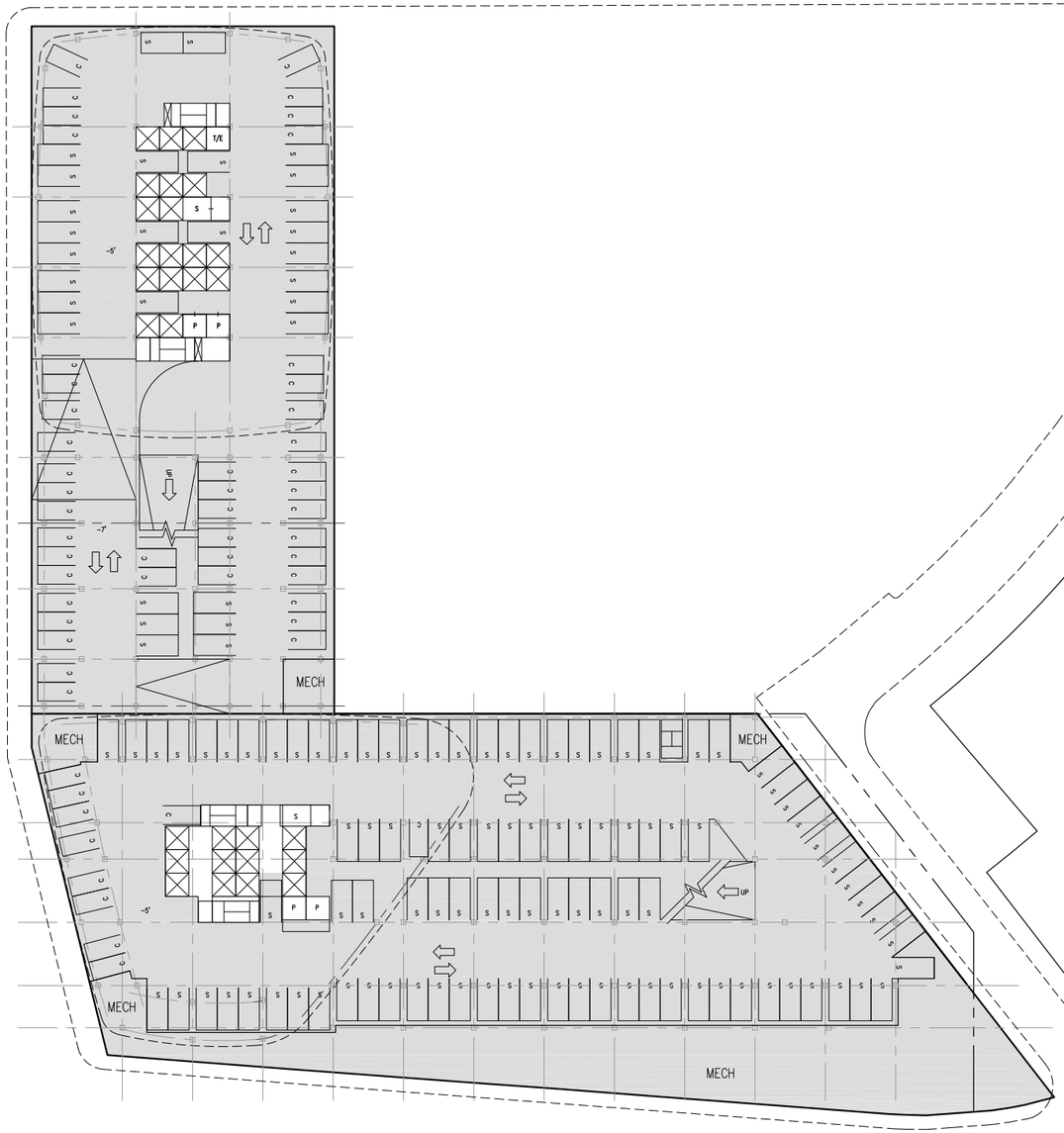
0 20' 50' 100'

March 14, 2008
Scale: 1" = 100'-0"

NORTH

KAISER CENTER
THE SWIG COMPANY

SOM



BASEMENT LEVEL FLOOR PLAN
ASK - 051

0 16' 32' 64'

March 14, 2008
Scale: 1" = 64'-0"

NORTH

KAISER CENTER
THE SWIG COMPANY

SOM

+57'
+14.7'
+13'
(E) GARAGE TO REMAIN
±386'
(E)
KAISER CENTER
±365'
MECH
T/E
S
P
+5'
(E) ENTRY AND EXIT
+9.7'
RETAIL
+9'-8"
MECH
LOADING
DOCK
RETAIL
+8'-1"
OFFICE
LOBBY
+7'-6"
RETAIL
+7'
RETAIL
MECH
ON
PEDESTRIAN
ACCESS TO GARDEN
±30'
±145'
+7.9'
PEDESTRIAN
ENTRY
±402'-0"
+6'

FIRST LEVEL FLOOR PLAN
ASK - 052

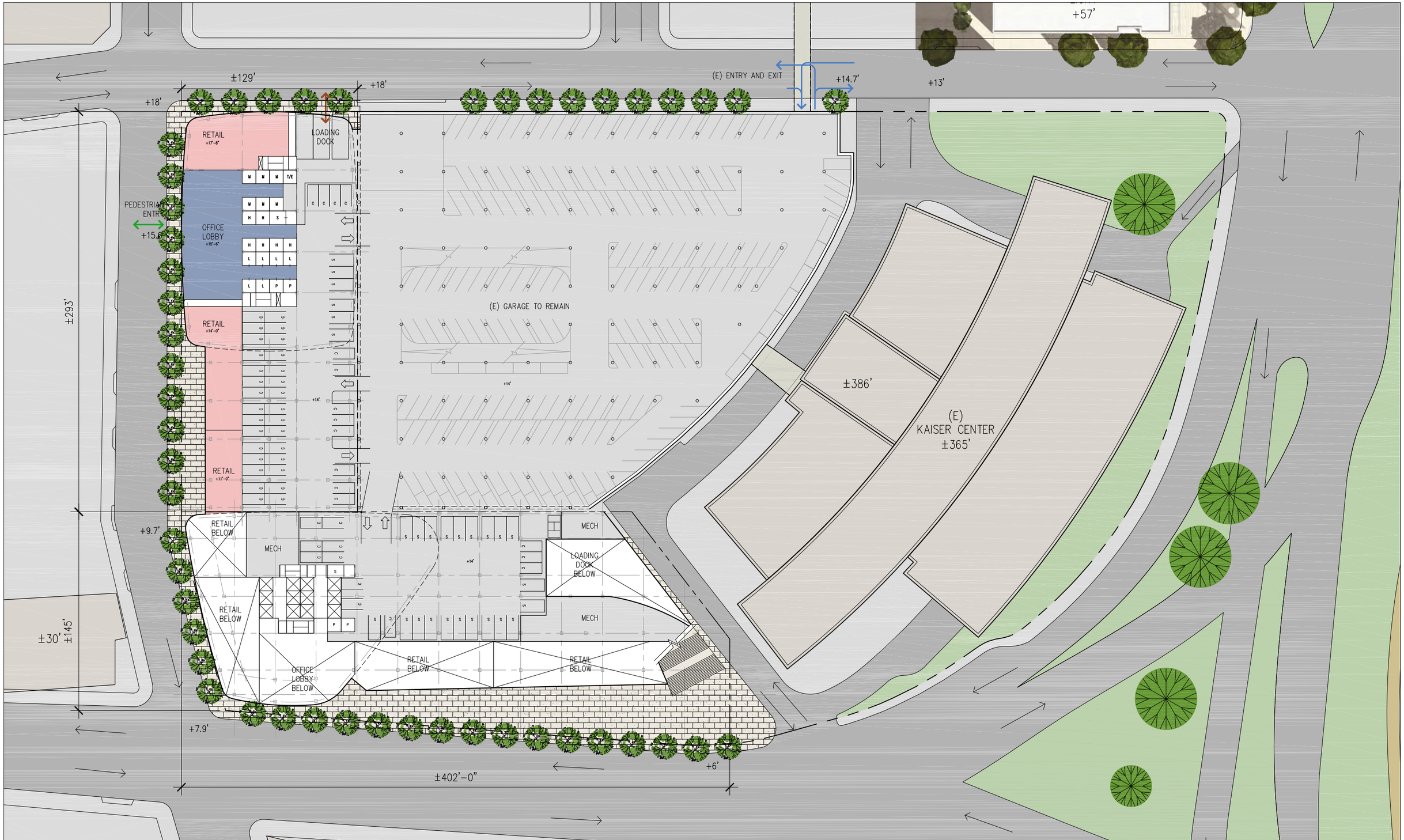
0 16' 32' 64'

March 14, 2008
Scale: 1" = 64'-0"

NORTH

KAISER CENTER
THE SWIG COMPANY

SOM



SECOND LEVEL FLOOR PLAN
ASK - 053

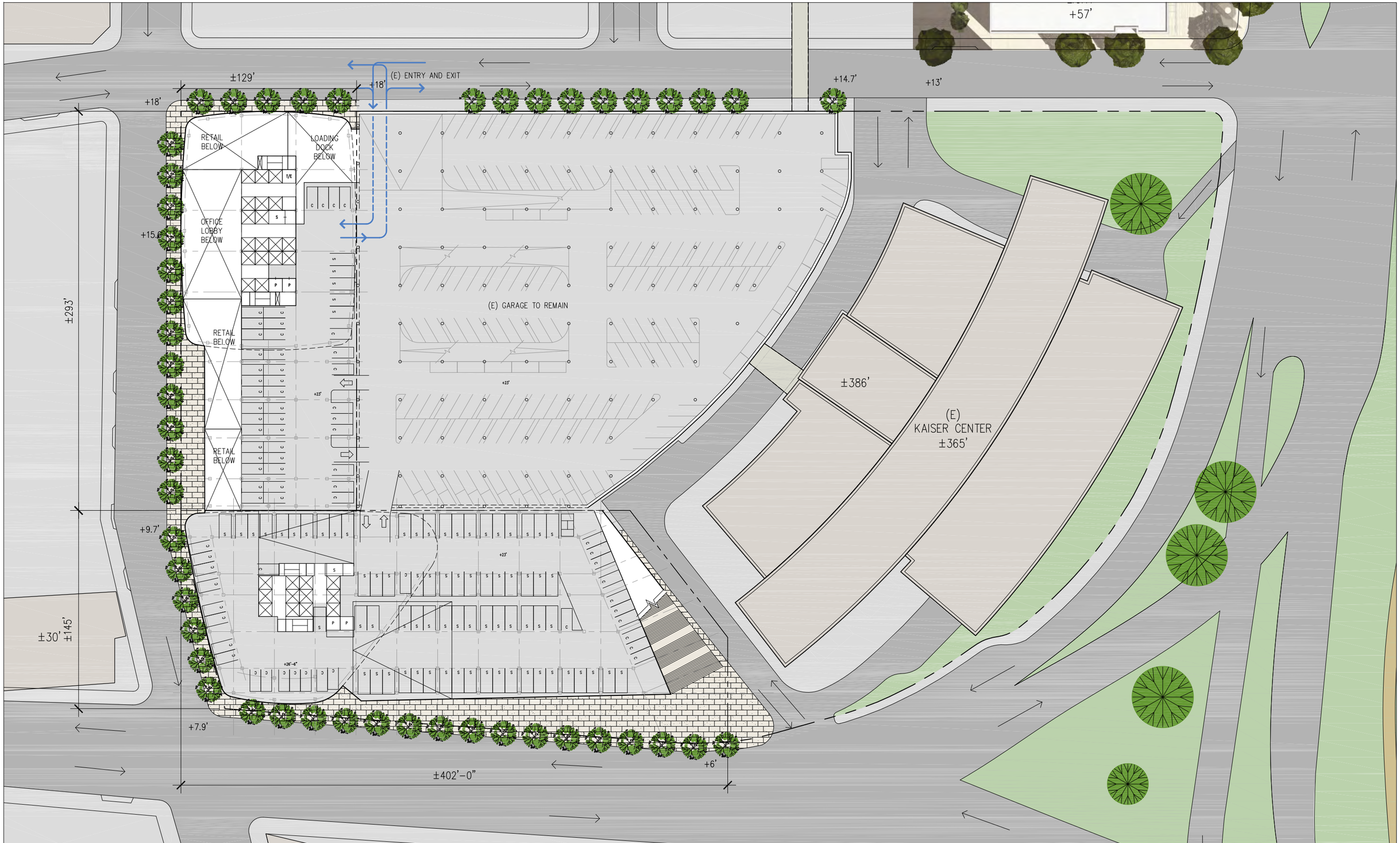
0 16' 32' 64'

March 14, 2008
Scale: 1" = 64'-0"

NORTH

KAISER CENTER
THE SWIG COMPANY

SOM



THIRD LEVEL FLOOR PLAN
ASK - 054

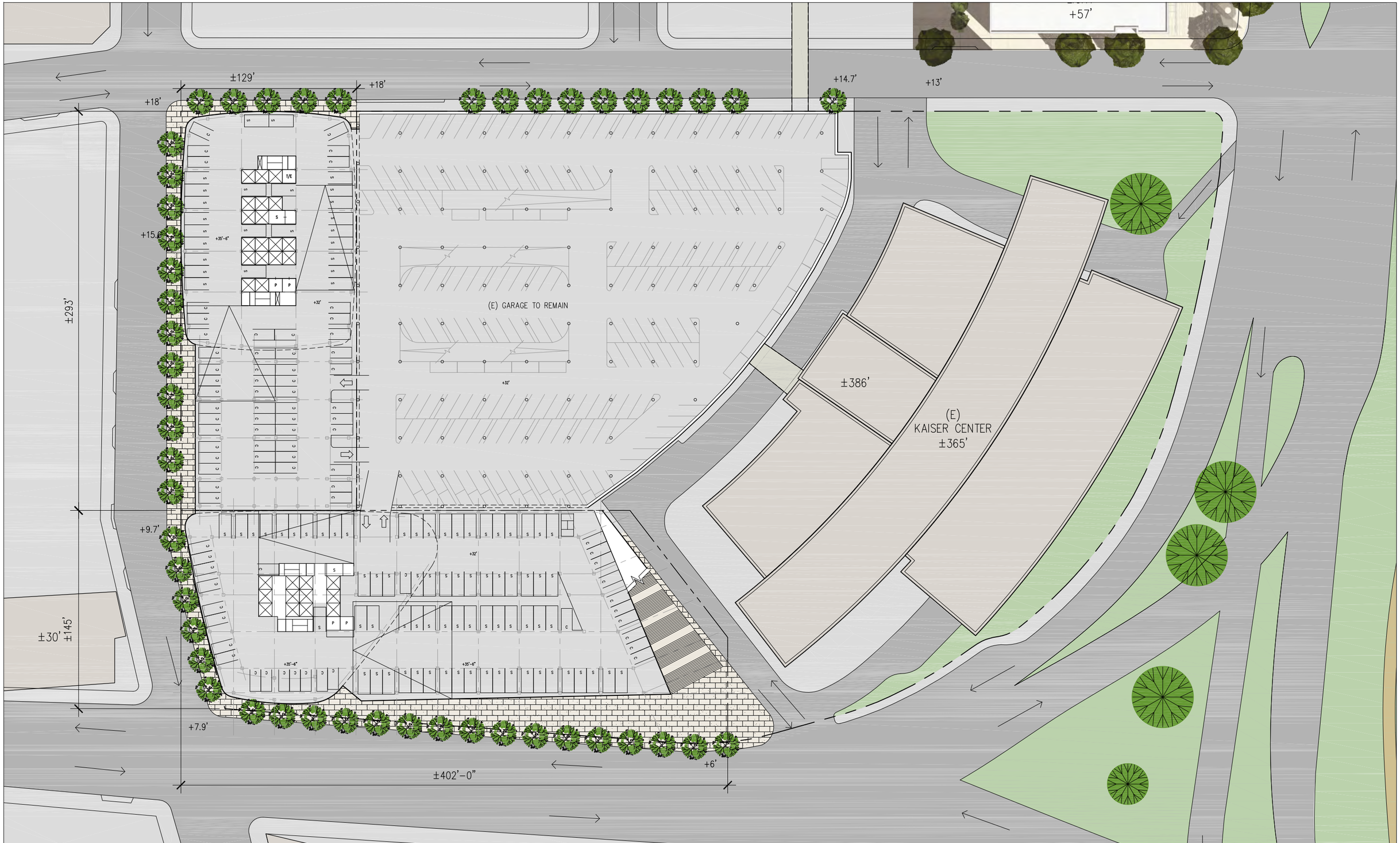
0 16' 32' 64'

March 14, 2008
Scale: 1" = 64'-0"

NORTH

KAISER CENTER
THE SWIG COMPANY

SOM



FOURTH LEVEL FLOOR PLAN
ASK - 055

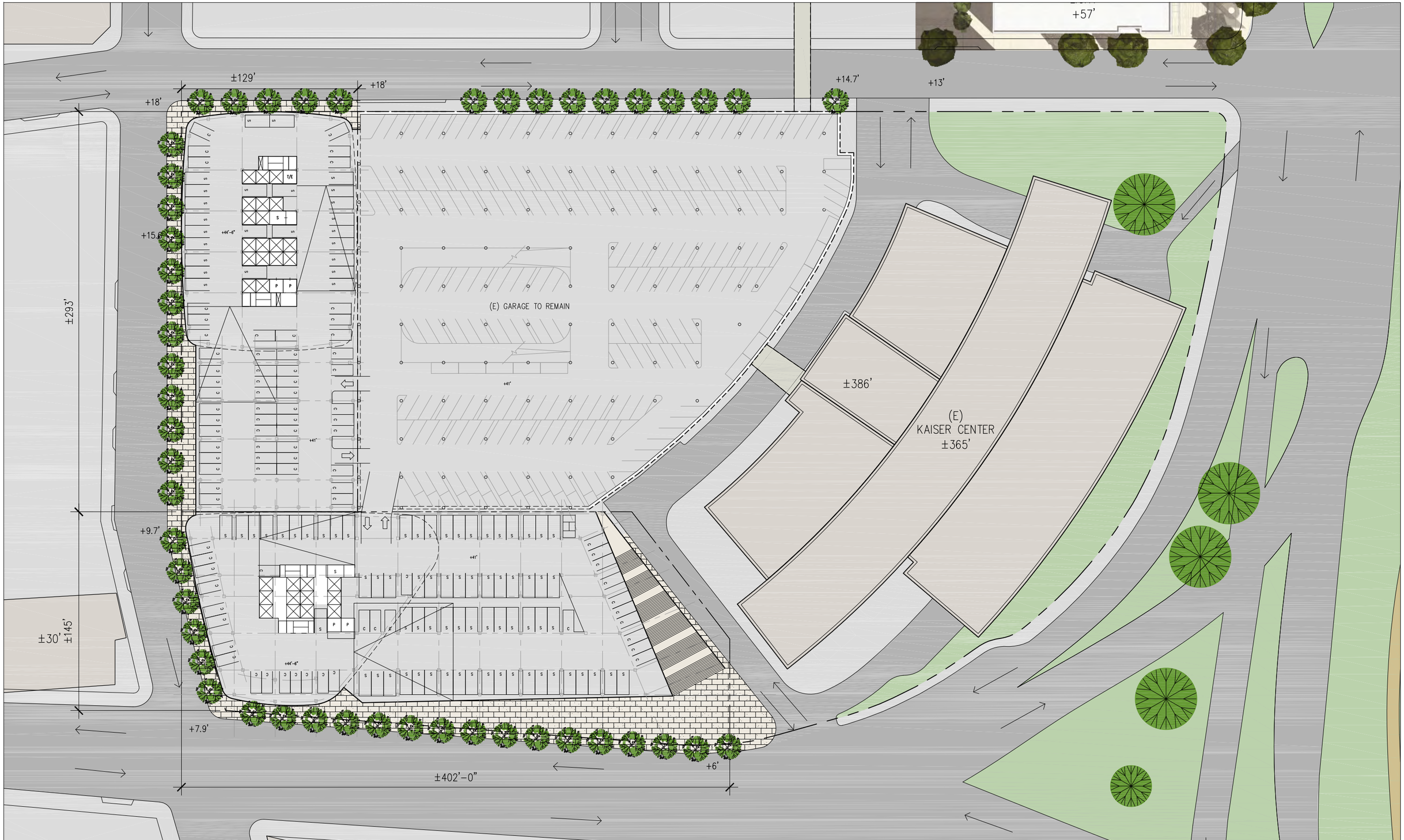
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March 14, 2008
Scale: 1" = 64'-0"

NORTH

KAISER CENTER
THE SWIG COMPANY

SOM



FIFTH LEVEL FLOOR PLAN
ASK - 056

0 16' 32' 64'

March 14, 2008
Scale: 1" = 64'-0"

NORTH

KAISER CENTER
THE SWIG COMPANY
SOM



SIXTH LEVEL FLOOR PLAN
ASK - 057

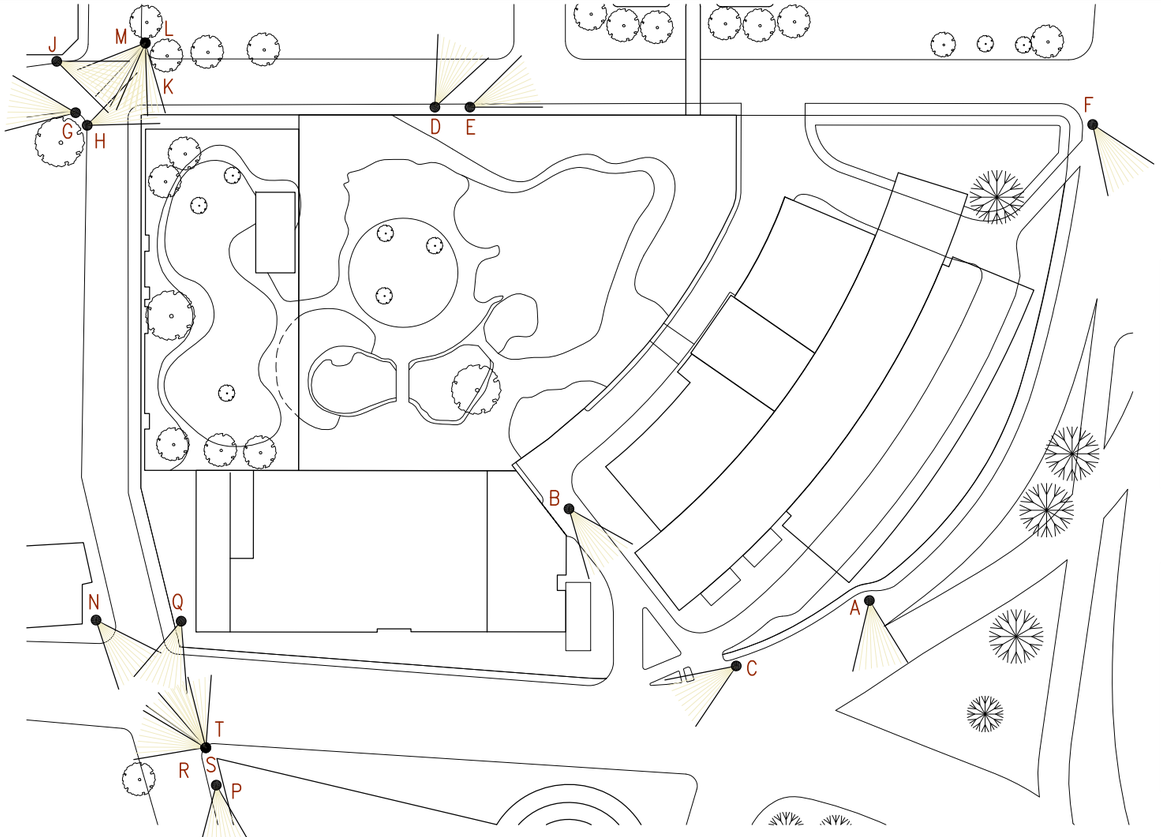
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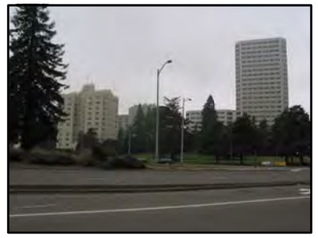
March 14, 2008
Scale: 1" = 64'-0"

NORTH

KAISER CENTER
THE SWIG COMPANY

SOM



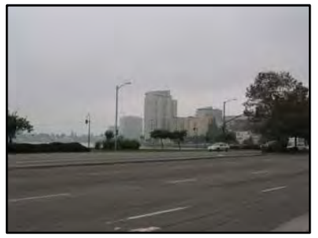

A


B

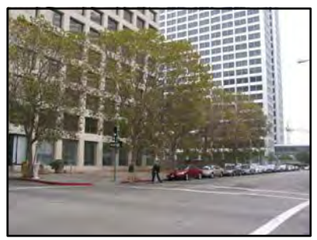

C


D


E

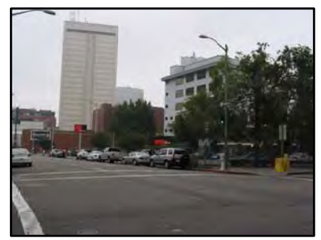

F


G


H


J


K


L


M


N


P


Q



R


S



T

SITE CONTEXT PHOTOS
ASK 058

March 14, 2008
NTS

NORTH

KAISER CENTER
THE SWIG COMPANY

SOM

PARKING SUMMARY

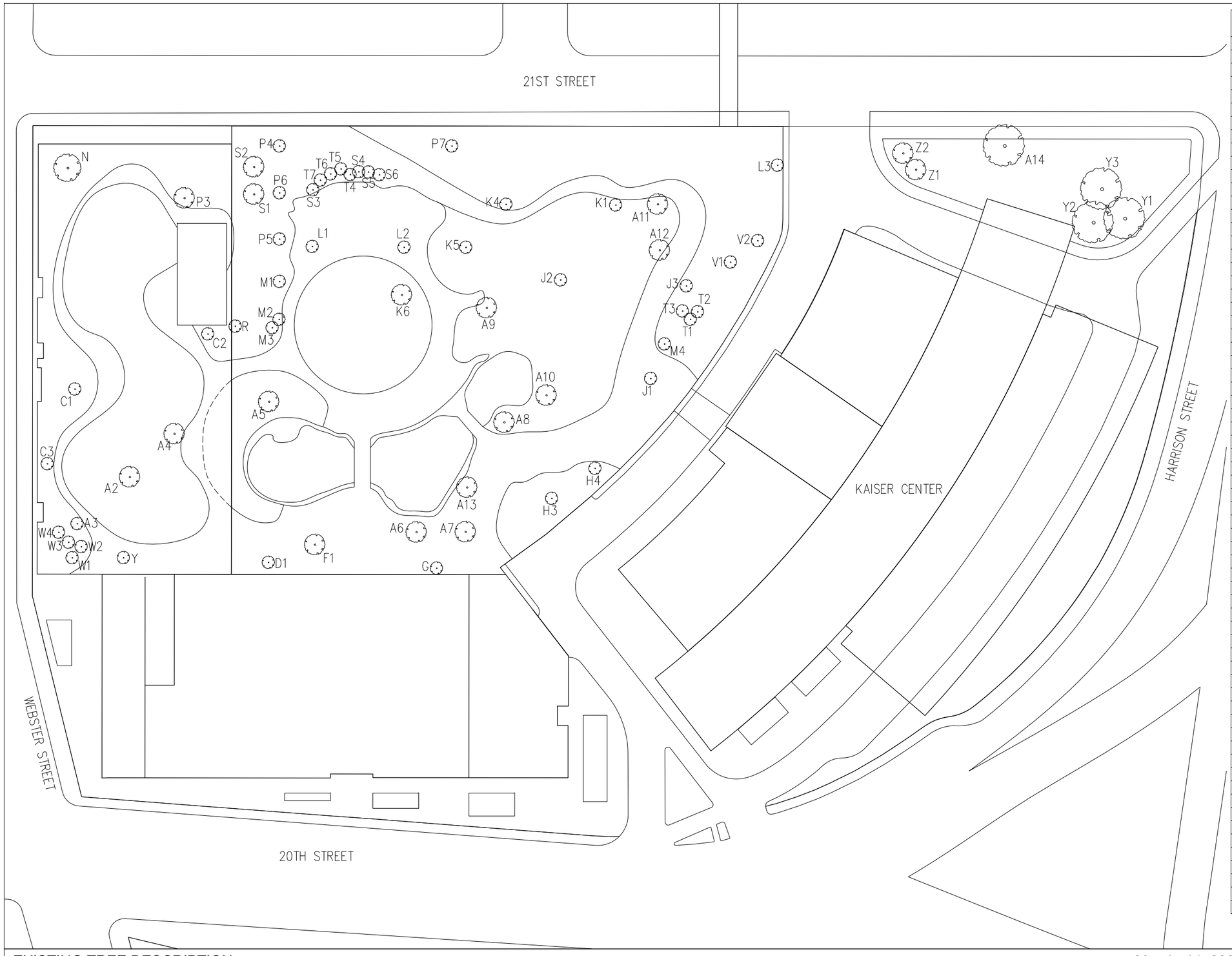
CURRENT CAPACITY	1340
STALLS TO BE DEMOLISHED FOR NEW CONSTRUCTION	−155
NEW STALLS @ 20TH STREET	467
NEW STALLS @ WEBSTER STREET	385
TOTAL PARKING WHEN CONSTRUCTION COMPLETE	2037
STALLS IN USE BY (E) BUILDING	−790
STALLS IN USE BY ORDWAY	−150
TOTAL STALLS AVAILABLE FOR NEW BUILDINGS	1097*
SPACES REQUIRED BY CODE	0
TOTAL OFFICE GSF	1,342,600
PREDICTED USABLE/GROSS	83%
PREDICTED NET SF	1,100,000
PARKING RATIO	.99 PER 1,000 NSF

*PARKING CALCULATIONS BASED ON ONE BASEMENT LEVEL.
ADDITIONAL BASEMENT LEVELS MAY BE ADDED.

AREA SUMMARY

	20th STREET					WEBSTER STREET					
	OFFICE GSF	RETAIL GSF	PARKING GSF	# STALLS	OTHER/MECH GSF	OFFICE GSF	RETAIL GSF	PARKING GSF	# STALLS	OTHER/MECH GSF	
R											+533'
34					20,000						+518'
33	20,000					21,500				21,500	+505'
32	20,000					21,500					+492'
31	20,000					21,500					+479'
30	20,000					21,500					+466'
29	20,000					21,500					+453'
28	20,000					21,500					+440'
27	20,000					21,500					+427'
26	20,000					21,500					+414'
25	20,000					21,500					+401'
24	20,000					21,500					+388'
23	20,000					21,500					+375'
22	20,000					21,500					+362'
21	20,000					21,500					+349'
20	20,000					21,500					+336'
19	20,000					21,500					+323'
18	20,000					21,500					+310'
17	20,000					21,500					+297'
16	20,000					21,500					+284'
15	20,000					21,500					+271'
14	20,000					21,500					+258'
13	20,000					21,500					+245'
12	20,000					21,500					+232'
11	20,000					21,500					+219'
10	20,000					21,500					+206'
9	20,000					21,500					+193'
8	20,000					21,500					+180'
7	20,000					21,500					+167'
6	20,000					21,500					+154'
5			41,028	99	2,680			32,800	79	3,080	+141'
4			41,028	99	2,680			32,800	79	3,080	+128'
3			41,028	99	2,680			16,600	48	3,080	+115'
2			15,234	33	8,410			16,600	48	5,500	+102'
1	4,440	14,900	14,416	29	10,760			28,670	57	6380	+89'
B1			41,488	108	15,422			34,300	74	3,500	+76'
B2			tbd	tbd	tbd			tbd	tbd	tbd	+63'
											+50'
TOTAL	564,440	14,900	194,222	467	62,632	779,500	7,400	161,770	385	46,120	+36'
											+27'
											+18'
											+9'

AREA ATTRIBUTABLE TO FAR*	641,972
*EXCLUDES PARKING	
TOTAL AREA ATTRIBUTABLE TO FAR*	1,474,992



TREE	SPECIES	COMMON NAME	TRUNK DIAMETER
A2	OLEA EUROPEA	EUROPEAN OLIVE	30.1"
A3	OLEA EUROPEA	EUROPEAN OLIVE	11.5"
A4	OLEA EUROPEA	EUROPEAN OLIVE	43.3"
A5	OLEA EUROPEA	EUROPEAN OLIVE	24.4"
A6	OLEA EUROPEA	EUROPEAN OLIVE	34.1"
A7	OLEA EUROPEA	EUROPEAN OLIVE	22.9"
A8	OLEA EUROPEA	EUROPEAN OLIVE	36.0"
A9	OLEA EUROPEA	EUROPEAN OLIVE	45.5"
A10	OLEA EUROPEA	EUROPEAN OLIVE	35.0"
A11	OLEA EUROPEA	EUROPEAN OLIVE	33.9"
A12	OLEA EUROPEA	EUROPEAN OLIVE	32.0"
A13	OLEA EUROPEA	EUROPEAN OLIVE	27.3"
A14	OLEA EUROPEA	EUROPEAN OLIVE	33.6"
C1	PITTOSPORUM UNDULATUM	VICTORIAN BOX	16.2"
C2	PITTOSPORUM UNDULATUM	VICTORIAN BOX	23.3"
C3	PITTOSPORUM UNDULATUM	VICTORIAN BOX	23.9"
D1	ACER PALMATUM	JAPANESE MAPLE	35.1"
F1	MAGNOLIA GRANDIFLORA	SAMUEL SOMMER MAGNOLIA	23.3"
G	PODOCARPUS MACROPHYLIA	JAPANESE YEW PINE	11.3"
H3	MALUS FLORIBUNDA	JAPANESE FLOWERING CRABAPPLE	11.9"
H4	MALUS FLORIBUNDA	JAPANESE FLOWERING CRABAPPLE	9.2"
J1	QUERCUS SUBER	CORK OAK	29.0"
J2	QUERCUS SUBER	CORK OAK	16.0"
J3	QUERCUS SUBER	CORK OAK	31.5"
K1	RHUS LANCEA	AFRICAN SUMAC	14.3"
K4	RHUS LANCEA	AFRICAN SUMAC	21.2"
K5	RHUS LANCEA	AFRICAN SUMAC	18.5"
K6	RHUS LANCEA	AFRICAN SUMAC	14.0"
L1	PINUS MUGO	SWISS MOUNTAIN PINE	19.1"
L2	PINUS MUGO	SWISS MOUNTAIN PINE	21.0"
L3	PINUS MUGO	SWISS MOUNTAIN PINE	19.0"
M1	ARBUTUS UNEDO	STRAWBERRY TREE	32.4"
M2	ARBUTUS UNEDO	STRAWBERRY TREE	29.5"
M3	ARBUTUS UNEDO	STRAWBERRY TREE	21.7"
M4	ARBUTUS UNEDO	STRAWBERRY TREE	30.3"
N	BETULA PENDULA	EUROPEAN WHITE BIRCH	24.0"
P3	QUERCUS ILEX	HOLLY OAK	9.1"
P4	QUERCUS ILEX	HOLLY OAK	17.2"
P5	QUERCUS ILEX	HOLLY OAK	12.7"
P6	QUERCUS ILEX	HOLLY OAK	15.3"
P7	QUERCUS ILEX	HOLLY OAK	18.6"
R	PRUNUS CAROLINIANA	CAROLINA CHERRY LAUREL	19.4"
S1	GRISELINA LITTORALIS	KAPUKA	32.2"
S2	GRISELINA LITTORALIS	KAPUKA	18.5"
S3	GRISELINA LITTORALIS	KAPUKA	16.6"
S4	GRISELINA LITTORALIS	KAPUKA	29.3"
S5	GRISELINA LITTORALIS	KAPUKA	26.1"
S6	GRISELINA LITTORALIS	KAPUKA	26.1"
T1	FEIJOA SELLOWIANA	PINAPPLE GUAVA	25.5"
T2	FEIJOA SELLOWIANA	PINAPPLE GUAVA	29.3"
T3	FEIJOA SELLOWIANA	PINAPPLE GUAVA	8.4"
T4	FEIJOA SELLOWIANA	PINAPPLE GUAVA	21.0"
T5	FEIJOA SELLOWIANA	PINAPPLE GUAVA	24.2"
T6	FEIJOA SELLOWIANA	PINAPPLE GUAVA	19.8"
T7	FEIJOA SELLOWIANA	PINAPPLE GUAVA	16.6"
V1	MAGNOLIA SOULANGIANA	SAUCER MAGNOLIA	26.3"
V2	MAGNOLIA SOULANGIANA	SAUCER MAGNOLIA	22.8"
W1	ILEX ALTACLARENSIS "WILSONII"	WILSON'S HOLLY	13.3"
W2	ILEX ALTACLARENSIS "WILSONII"	WILSON'S HOLLY	16.3"
W3	ILEX ALTACLARENSIS "WILSONII"	WILSON'S HOLLY	12.1"
W4	ILEX ALTACLARENSIS "WILSONII"	WILSON'S HOLLY	14.5"
X1	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	14.3"
X2	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	15.8"
X3	LIQUIDAMBAR STYRACIFLUA	SWEETGUM	15.9"
Y1	MAGNOLIA GRANDIFLORA	SOUTHERN MAGNOLIA	18.5"
Y2	MAGNOLIA GRANDIFLORA	SOUTHERN MAGNOLIA	17.4"

EXISTING TREE DESCRIPTION
ASK - 060

0 16' 32' 64'

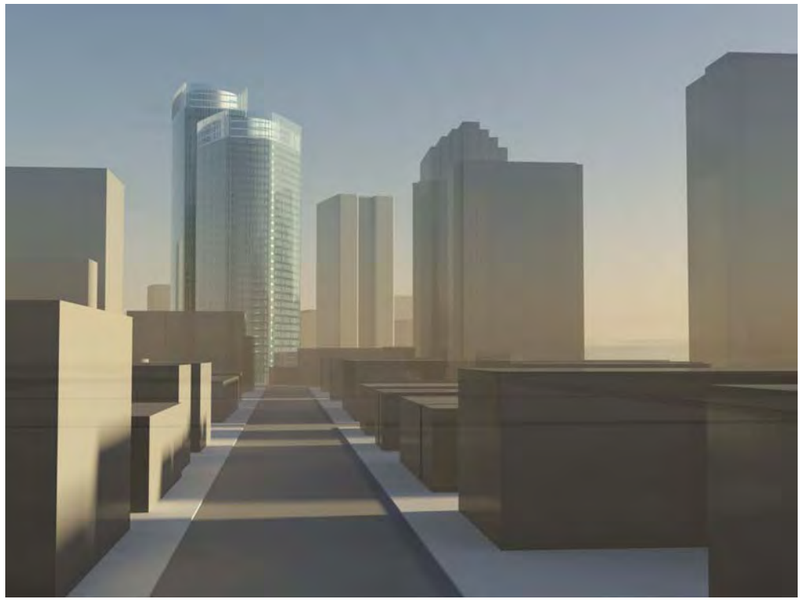
March 14, 2008
Scale: 1" = 64'-0"

NORTH

KAISER CENTER
THE SWIG COMPANY
SOM



VIEW FROM EAST



VIEW FROM SOUTH



VIEW FROM WEST

APPENDIX E.2

Native American Heritage Commission Communications

ESA

1425 N. McDowell Boulevard
Suite 105
Petaluma, CA 94954
707.795.0900 phone
707.795.0902 fax

www.esassoc.com

April 28, 2008

Jakki Kehl
720 North 2nd Street
Patterson, California 95363

Re: Three proposed cultural resource studies in Alameda County
Kaiser Center Oakland Redevelopment Project, Oakland (ESA Project #D206213)
Children's Hospital and Research Center Replacement Project, Oakland (ESA Project # 207558)
Sutter Medical Center, Castro Valley (ESA Project #207766)

Dear Ms. Kehl:

Environmental Science Associates (ESA) is conducting cultural resources study for three projects in Alameda County. The Kaiser Center Oakland Redevelopment Project is located in downtown Oakland and consists of the removal of existing buildings and construction of two 42- and 34-story towers. The Children's Hospital and Research Center Replacement Project in also in Oakland and consists of the construction of a new 12-story hospital tower, a new central utility plant and parking structure. The Sutter Medial Center Project is located further south in Castro Valley and includes the demolition of an existing 8-story hospital and the construction of a new 6-story hospital and medical office (see attached maps).

In an effort to address any potential impact to archaeological or ethnographic resources, we are seeking comments from Native American representatives; your name was supplied to us by the Native American Heritage Commission as a contact for this area. We would appreciate your comments identifying any concerns or issues pertinent to this project.

Thank you for your cooperation on this matter. If you have any questions, please contact me at 707/795-0920.

Sincerely,

Heidi Koenig
Cultural Resources Group

ESA

1425 N. McDowell Boulevard
Suite 105
Petaluma, CA 94954
707.795.0900 phone
707.795.0902 fax

www.esassoc.com

April 28, 2008

Katherine Erolinda Perez
P.O. Box 717
Linden, California 95236

Re: Three proposed cultural resource studies in Alameda County
Kaiser Center Oakland Redevelopment Project, Oakland (ESA Project #D206213)
Children's Hospital and Research Center Replacement Project, Oakland (ESA Project # 207558)
Sutter Medical Center, Castro Valley (ESA Project #207766)

Dear Ms. Perez:

Environmental Science Associates (ESA) is conducting cultural resources study for three projects in Alameda County. The Kaiser Center Oakland Redevelopment Project is located in downtown Oakland and consists of the removal of existing buildings and construction of two 42- and 34-story towers. The Children's Hospital and Research Center Replacement Project in also in Oakland and consists of the construction of a new 12-story hospital tower, a new central utility plant and parking structure. The Sutter Medial Center Project is located further south in Castro Valley and includes the demolition of an existing 8-story hospital and the construction of a new 6-story hospital and medical office (see attached maps).

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Thank you for your cooperation on this matter. If you have any questions, please contact me at 707/795-0920.

Sincerely,

Heidi Koenig
Cultural Resources Group

ESA

1425 N. McDowell Boulevard
Suite 105
Petaluma, CA 94954
707.795.0900 phone
707.795.0902 fax

www.esassoc.com

April 28, 2008

Amah/Mutsun Tribal Band
789 Canada Road
Woodside, California 94062
Attn: Irene Zwierlein, Chairperson

Re: Three proposed cultural resource studies in Alameda County
Kaiser Center Oakland Redevelopment Project, Oakland (ESA Project #D206213)
Children's Hospital and Research Center Replacement Project, Oakland (ESA Project # 207558)
Sutter Medical Center, Castro Valley (ESA Project #207766)

Dear Ms. Zwierlein:

Environmental Science Associates (ESA) is conducting cultural resources study for three projects in Alameda County. The Kaiser Center Oakland Redevelopment Project is located in downtown Oakland and consists of the removal of existing buildings and construction of two 42- and 34-story towers. The Children's Hospital and Research Center Replacement Project in also in Oakland and consists of the construction of a new 12-story hospital tower, a new central utility plant and parking structure. The Sutter Medial Center Project is located further south in Castro Valley and includes the demolition of an existing 8-story hospital and the construction of a new 6-story hospital and medical office (see attached maps).

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Thank you for your cooperation on this matter. If you have any questions, please contact me at 707/795-0920.

Sincerely,

Heidi Koenig
Cultural Resources Group

ESA

1425 N. McDowell Boulevard
Suite 105
Petaluma, CA 94954
707.795.0900 phone
707.795.0902 fax

www.esassoc.com

April 28, 2008

Indian Canyon Mutsun Band of Costanoan
P.O. Box 28
Hollister, California 95024
Attn: Ann Marie Sayers, Chairperson

Re: Three proposed cultural resource studies in Alameda County
Kaiser Center Oakland Redevelopment Project, Oakland (ESA Project #D206213)
Children's Hospital and Research Center Replacement Project, Oakland (ESA Project # 207558)
Sutter Medical Center, Castro Valley (ESA Project #207766)

Dear Ms. Sayers:

Environmental Science Associates (ESA) is conducting cultural resources study for three projects in Alameda County. The Kaiser Center Oakland Redevelopment Project is located in downtown Oakland and consists of the removal of existing buildings and construction of two 42- and 34-story towers. The Children's Hospital and Research Center Replacement Project in also in Oakland and consists of the construction of a new 12-story hospital tower, a new central utility plant and parking structure. The Sutter Medial Center Project is located further south in Castro Valley and includes the demolition of an existing 8-story hospital and the construction of a new 6-story hospital and medical office (see attached maps).

In an effort to address any potential impact to archaeological or ethnographic resources, we are seeking comments from Native American representatives; your name was supplied to us by the Native American Heritage Commission as a contact for this area. We would appreciate your comments identifying any concerns or issues pertinent to this project.

Thank you for your cooperation on this matter. If you have any questions, please contact me at 707/795-0920.

Sincerely,

Heidi Koenig

Heidi Koenig
Cultural Resources Group

ESA

1425 N. McDowell Boulevard
Suite 105
Petaluma, CA 94954
707.795.0900 phone
707.795.0902 fax

www.esassoc.com

April 28, 2008

The Ohlone Indian Tribe
P.O. Box 3152
Mission San Jose, California 94539
Attn: Andrew Galvan

Re: Three proposed cultural resource studies in Alameda County
Kaiser Center Oakland Redevelopment Project, Oakland (ESA Project #D206213)
Children's Hospital and Research Center Replacement Project, Oakland (ESA Project # 207558)
Sutter Medical Center, Castro Valley (ESA Project #207766)

Dear Mr. Galvan:

Environmental Science Associates (ESA) is conducting cultural resources study for three projects in Alameda County. The Kaiser Center Oakland Redevelopment Project is located in downtown Oakland and consists of the removal of existing buildings and construction of two 42- and 34-story towers. The Children's Hospital and Research Center Replacement Project in also in Oakland and consists of the construction of a new 12-story hospital tower, a new central utility plant and parking structure. The Sutter Medial Center Project is located further south in Castro Valley and includes the demolition of an existing 8-story hospital and the construction of a new 6-story hospital and medical office (see attached maps).

In an effort to address any potential impact to archaeological or ethnographic resources, we are seeking comments from Native American representatives; your name was supplied to us by the Native American Heritage Commission as a contact for this area. We would appreciate your comments identifying any concerns or issues pertinent to this project.

Thank you for your cooperation on this matter. If you have any questions, please contact me at 707/795-0920.

Sincerely,

Heidi Koenig
Cultural Resources Group

ESA

1425 N. McDowell Boulevard
Suite 105
Petaluma, CA 94954
707.795.0900 phone
707.795.0902 fax

www.esassoc.com

April 28, 2008

Trina Marine Ruano Family
16010 Halmar Lane
Lathrop, California 95330
Attn: Ramona Garibay

Re: Three proposed cultural resource studies in Alameda County
Kaiser Center Oakland Redevelopment Project, Oakland (ESA Project #D206213)
Children's Hospital and Research Center Replacement Project, Oakland (ESA Project # 207558)
Sutter Medical Center, Castro Valley (ESA Project #207766)

Dear Ms. Garibay:

Environmental Science Associates (ESA) is conducting cultural resources study for three projects in Alameda County. The Kaiser Center Oakland Redevelopment Project is located in downtown Oakland and consists of the removal of existing buildings and construction of two 42- and 34-story towers. The Children's Hospital and Research Center Replacement Project in also in Oakland and consists of the construction of a new 12-story hospital tower, a new central utility plant and parking structure. The Sutter Medial Center Project is located further south in Castro Valley and includes the demolition of an existing 8-story hospital and the construction of a new 6-story hospital and medical office (see attached maps).

In an effort to address any potential impact to archaeological or ethnographic resources, we are seeking comments from Native American representatives; your name was supplied to us by the Native American Heritage Commission as a contact for this area. We would appreciate your comments identifying any concerns or issues pertinent to this project.

Thank you for your cooperation on this matter. If you have any questions, please contact me at 707/795-0920.

Sincerely,

Heidi Koenig
Cultural Resources Group

ESA

1425 N. McDowell Boulevard
Suite 105
Petaluma, CA 94954
707.795.0900 phone
707.795.0902 fax

www.esassoc.com

April 28, 2008

Muwekma Ohlone Indian Tribe of the San Francisco Bay Area
P.O. Box 360791
Milpitas, California 95036
Attn: Rosemary Cambra, Chairperson

Re: Three proposed cultural resource studies in Alameda County
Kaiser Center Oakland Redevelopment Project, Oakland (ESA Project #D206213)
Children's Hospital and Research Center Replacement Project, Oakland (ESA Project # 207558)
Sutter Medical Center, Castro Valley (ESA Project #207766)

Dear Ms. Cambra:

Environmental Science Associates (ESA) is conducting cultural resources study for three projects in Alameda County. The Kaiser Center Oakland Redevelopment Project is located in downtown Oakland and consists of the removal of existing buildings and construction of two 42- and 34-story towers. The Children's Hospital and Research Center Replacement Project in also in Oakland and consists of the construction of a new 12-story hospital tower, a new central utility plant and parking structure. The Sutter Medial Center Project is located further south in Castro Valley and includes the demolition of an existing 8-story hospital and the construction of a new 6-story hospital and medical office (see attached maps).

In an effort to address any potential impact to archaeological or ethnographic resources, we are seeking comments from Native American representatives; your name was supplied to us by the Native American Heritage Commission as a contact for this area. We would appreciate your comments identifying any concerns or issues pertinent to this project.

Thank you for your cooperation on this matter. If you have any questions, please contact me at 707/795-0920.

Sincerely,

Heidi Koenig
Cultural Resources Group

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
Fax (916) 657-5390
Web Site www.nahc.ca.gov

April 25, 2008

Heidi Koenig
Cultural Resources Group
ESA
1425 N. McDowell Blvd., Suite 105
Petaluma, A 94954

Sent by Fax: 707-795-0902
Number of Pages: 4

Re: Proposed: Kaiser Center Oakland Redevelopment project. Childrens Hospital and Research Center Replacement project. Sutter Medical Center, Castro Valley. All projects in Alameda County.

Dear Ms. Koenig:

A record search of the sacred land file has failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the sacred lands file does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Enclosed is a list of Native Americans individuals/organizations who may have knowledge of cultural resources in the project area. The Commission makes no recommendation or preference of a single individual, or group over another. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated, if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe or group. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from any of these individuals or groups, please notify me. With your assistance we are able to assure that our lists contain current information. If you have any questions or need additional information, please contact me at (916) 653-4038.

Sincerely,

for
Debbie Pilas-Treadway
Environmental Specialist III

Native American Contacts
Alameda County
April 25, 2008

Jakki Kehl
720 North 2nd Street
Patterson , CA 95363
jakki@bigvalley.net
(209) 892-2436
(209) 892-2435 - Fax

Ohlone/Costanoan

Muwekma Ohlone Indian Tribe of the SF Bay Area
Rosemary Cambra, Chairperson
PO Box 360791
Milpitas , CA 95036
muwekma@muwekma.org
408-434-1668
408-434-1673

Ohlone / Costanoan

Katherine Erolinda Perez
PO Box 717
Linden , CA 95236
(209) 887-3415

Ohlone/Costanoan
Northern Valley Yokuts
Bay Miwok

The Ohlone Indian Tribe
Andrew Galvan
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Ohlone/Costanoan

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Ohlone/Costanoan
Bay Miwok
Plains Miwok
Patwin

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
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831-637-4238

Ohlone/Costanoan

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Kaiser Center Oakland Redevelopment project, Alameda County.

APPENDIX E.3
Exterior Façade Feasibility Analysis

Turner Construction Company
1625 Clay Street
Oakland, California 94612
phone: (510) 267-8100
fax: (510) 267-8118

November 20, 2008

Tomas Schoenberg
The Swig Company, LLC
220 Montgomery Street
San Francisco, CA 94104

Re: Kaiser Center- Mall Buildings Exterior Façade (Dolomite Panels) Feasibility Analysis

Dear Tomas,

Thank you for requesting Turner Construction Company to provide an analysis of the exterior façade of the two existing Mall Buildings at the Kaiser Center complex. Per your request, we have evaluated the feasibility of the intact salvaging (removal) of the Dolomite Precast Panels from the structure of the Mall Buildings, and then the potential preservation and reinstallation of these panels on a new structure at that location.

Scope
The scope of the study included a detailed review of the original 1958 Architectural and Structural Drawings and Specifications for both the Kaiser Center office tower and Mall Buildings prepared by Welton Becket & Associates, as well as a visual inspection of these buildings. Both the tower and Mall Buildings were reviewed due to the variation in panel thickness and attachment details given their different structural frames.

Findings
A review of the original construction documents for the Mall Buildings yielded two Architectural details and one Structural detail as the primary elements influencing our findings (please reference Architectural Detail “A” and Detail “B”, and Structural Detail “C” attached to this document). The key element is the 1 inch thick grout layer shown between the 3 inch thick precast panels and the buildings’ concrete frame, as referenced on the attached Details “A” and “B”. The grout bonds the panel to the concrete as if the panel were cast in place, thus effectively creating a unified section. While the Structural details do not show how the panels are to be attached, Detail “C” does show the same unified section for the panel and grout of 4 inches thick. From our visual inspection we did not see anything to suggest that the panels were installed other than the manner is shown in the drawings. It should be noted that none of these details reference any mechanical attachment for the precast panels that is common in current construction methods (the fastener shown in Detail “A” is for a vertical aluminum mullion interfacing between the panels and is not for the panels’ attachment to the building); please reference attached Details SK1A and SK1B as examples of typical precast attachment details.

It is important to note that in our experience renovating another high-rise building in Oakland of similar vintage with a similar precast system, the precast panels were actually used as the form surface for the shearwall concrete, thus casting the panels into the unified concrete frame. Separating the panels from the building’s concrete frame required extensive hand demolition of the panels utilizing chipping guns. It is possible that this method of attachment may have been used in certain areas of the Mall Building as well, and thus removal would have the same result as the grouted bonding of the panels stipulated in the original design.

Conclusion
Based upon our review of the design documents and our visual inspection, the attachment of these precast Dolomite panels to the Mall Buildings' concrete frame precludes their mechanical removal other than by destructive methods. Further, even attempting to remove the panels by careful hand demolition would most likely cause them to disintegrate due to the nature of their material composition and age. Therefore, it is our opinion that, irrespective of cost, it would be infeasible for the Dolomite precast exterior façade at the Mall Buildings to be salvaged in a manner that would allow their reuse on any new structure. In addition, while it may be possible to salvage some limited amounts of the Dolomite material from the panels, a reasonable approach to demolition of the structure would not yield any "clean" or consistent material for incorporation into the proposed new building façade.

We also consulted two other construction firms that specialize in precast panel manufacturing and installation, Walters & Wolf and Clark Pacific, who reviewed and commented on the pertinent design documents with respect to the Dolomite panels and their opinions and conclusions align with ours.

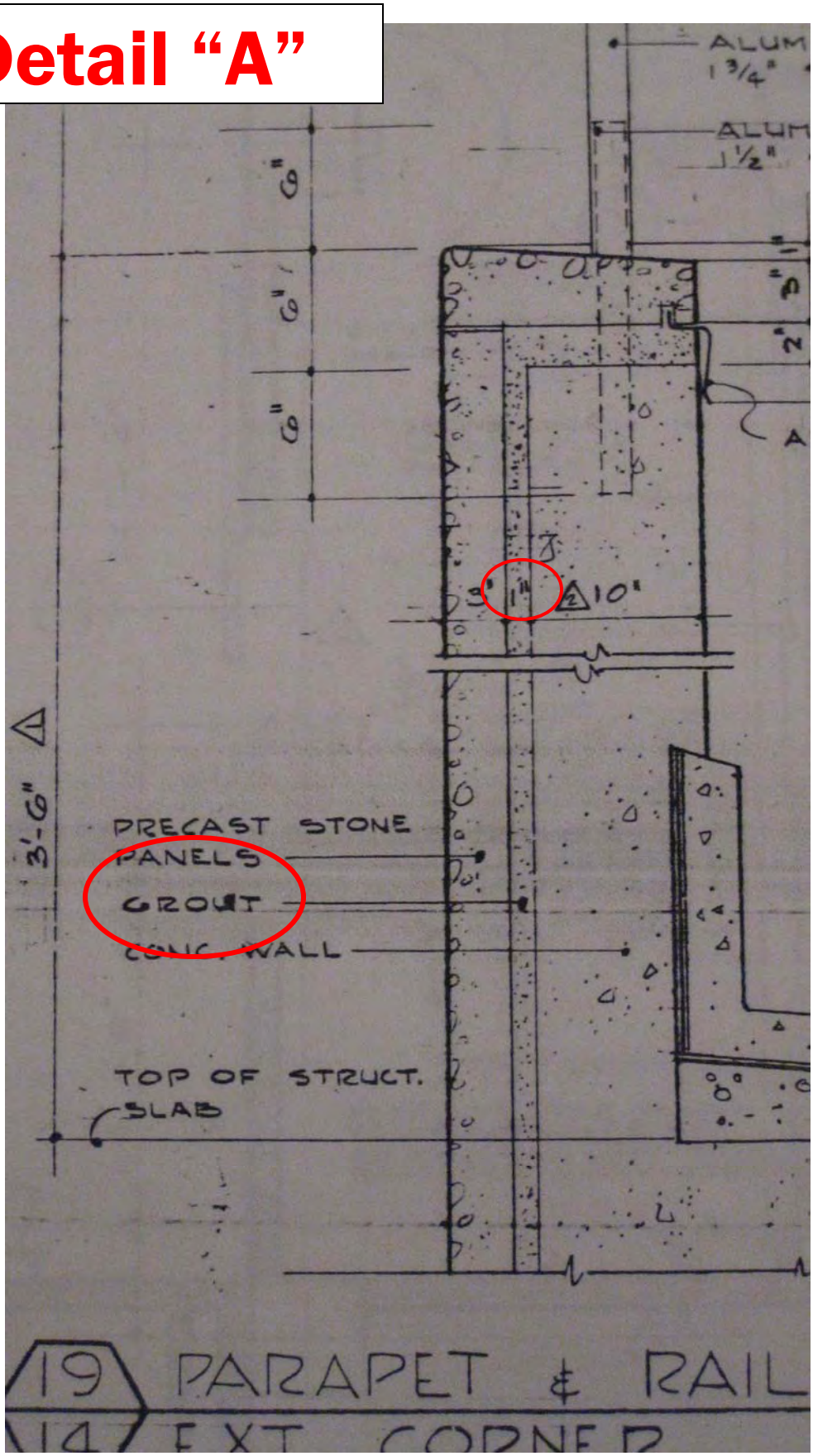
We welcome the opportunity to discuss this analysis with you or whomever else you feel is appropriate, and would be glad to answer any further questions you may have.

Sincerely,

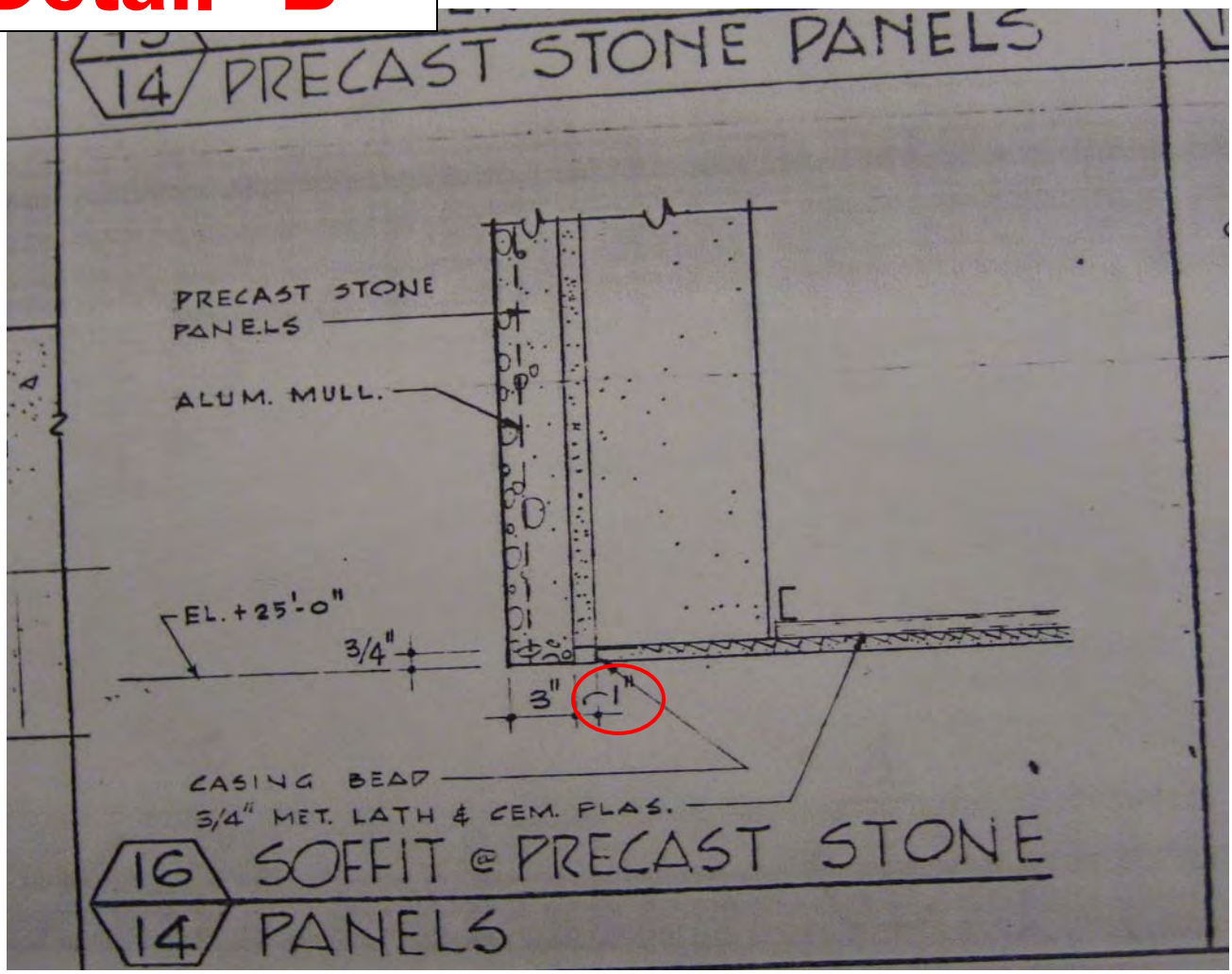
Willy Mautner, AIA
Chief Estimator

Cc: Deborah Boyer, The Swig Company, LLC
Scott Eastman, Turner Construction Company

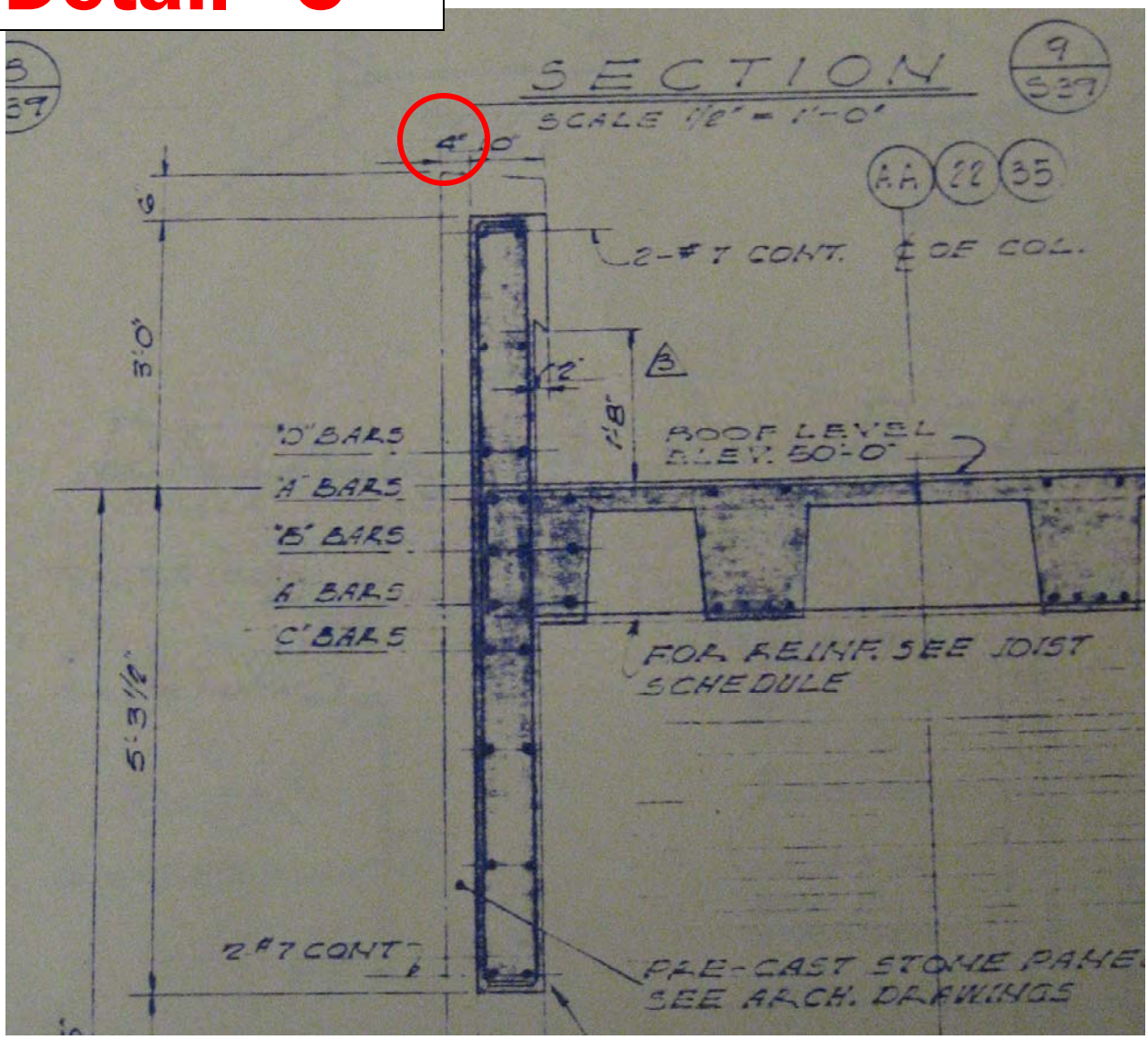
Detail “A”


ALUM
1 3/4"
ALUM
1 1/2"
A
10"
3'-6"
PRECAST STONE
PANELS
GROUT
TOP OF STRUCT.
SLAB
19
PARAPET & RAIL

Detail “B”


14 PRECAST STONE PANELS
PRECAST STONE PANELS
ALUM. MULL.
EL. +25'-0"
3/4"
3"
1"
CASING BEAD
3/4" MET. LATH & CEM. PLAS.
16 SOFFIT @ PRECAST STONE
14 PANELS

Detail “C”

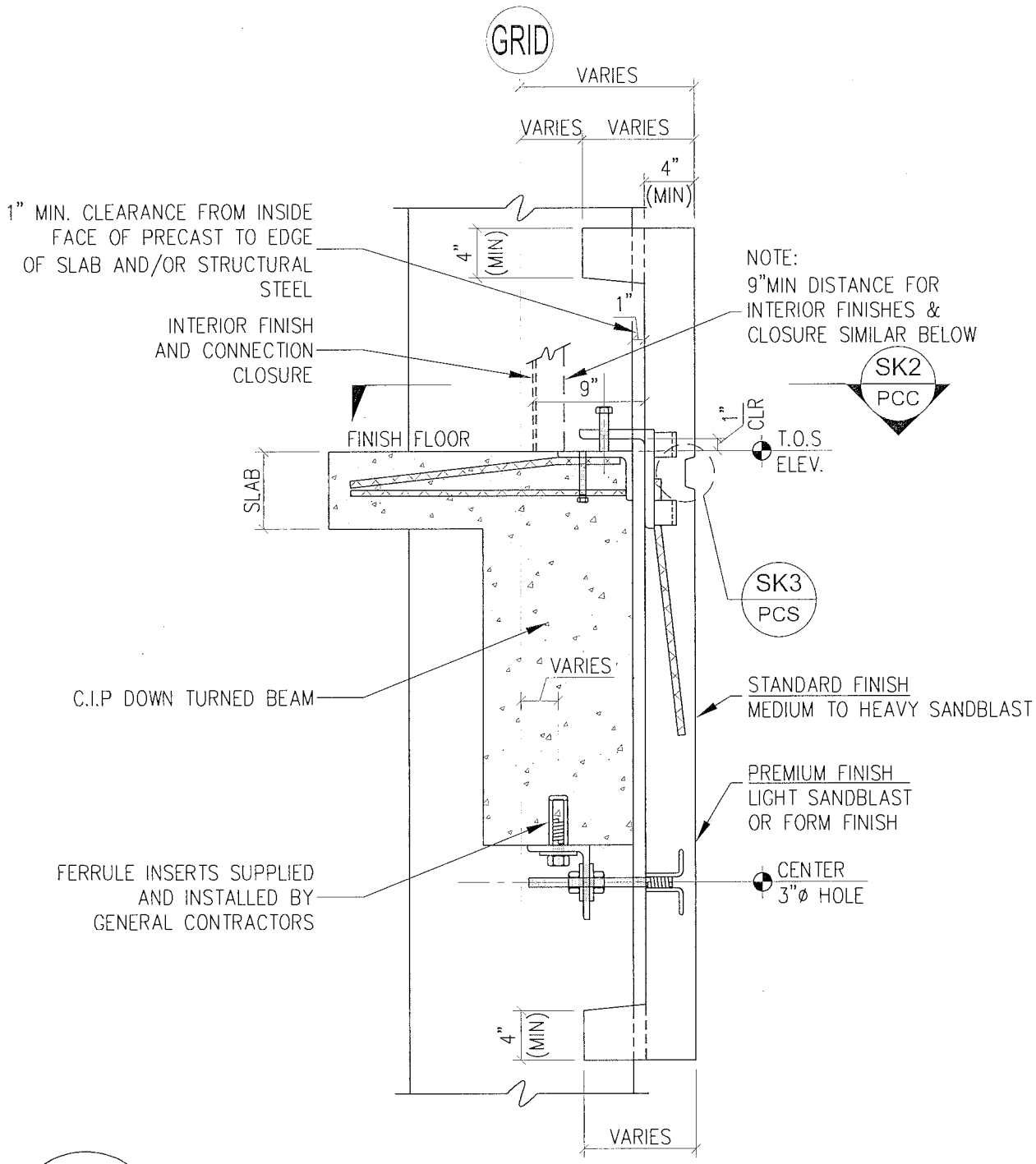

SECTION
SCALE 1/2" = 1'-0"
9
S39
AA
22
35
4"
2-#7 CONT.
℄ OF COL.
5'-0"
12"
B
1'-8"
"D" BARS
"A" BARS
"B" BARS
"A" BARS
"C" BARS
ROOF LEVEL
ELEV. 50'-0"
FOR REINF. SEE JOIST SCHEDULE
5'-3 1/2"
2-#7 CONT.
PRE-CAST STONE PANEL
SEE ARCH. DRAWINGS

CLARK PACIFIC

1980 SOUTH RIVER ROAD
W SACRAMENTO, CA 95691
TEL: (916) 371-0305
FAX: (916) 372-0323

13592 SLOVER AVENUE
FONTANA, CA 92337
TEL: (909) 823-1433
FAX: (909) 823-1361

PROJECT	JOB
CONTRACTOR	SHEET PCC-SK1
TYPICAL PRE-CAST SECTION AT C.I.P STRUCTURE	DATE 3/15/07
	BY TA CHECK DW



SK1 TYPICAL PRECAST PANEL CONNECTIONS

SCALE: 1" = 1'-0"

(FLOOR SECTION-C.I.P STRUCTURE)

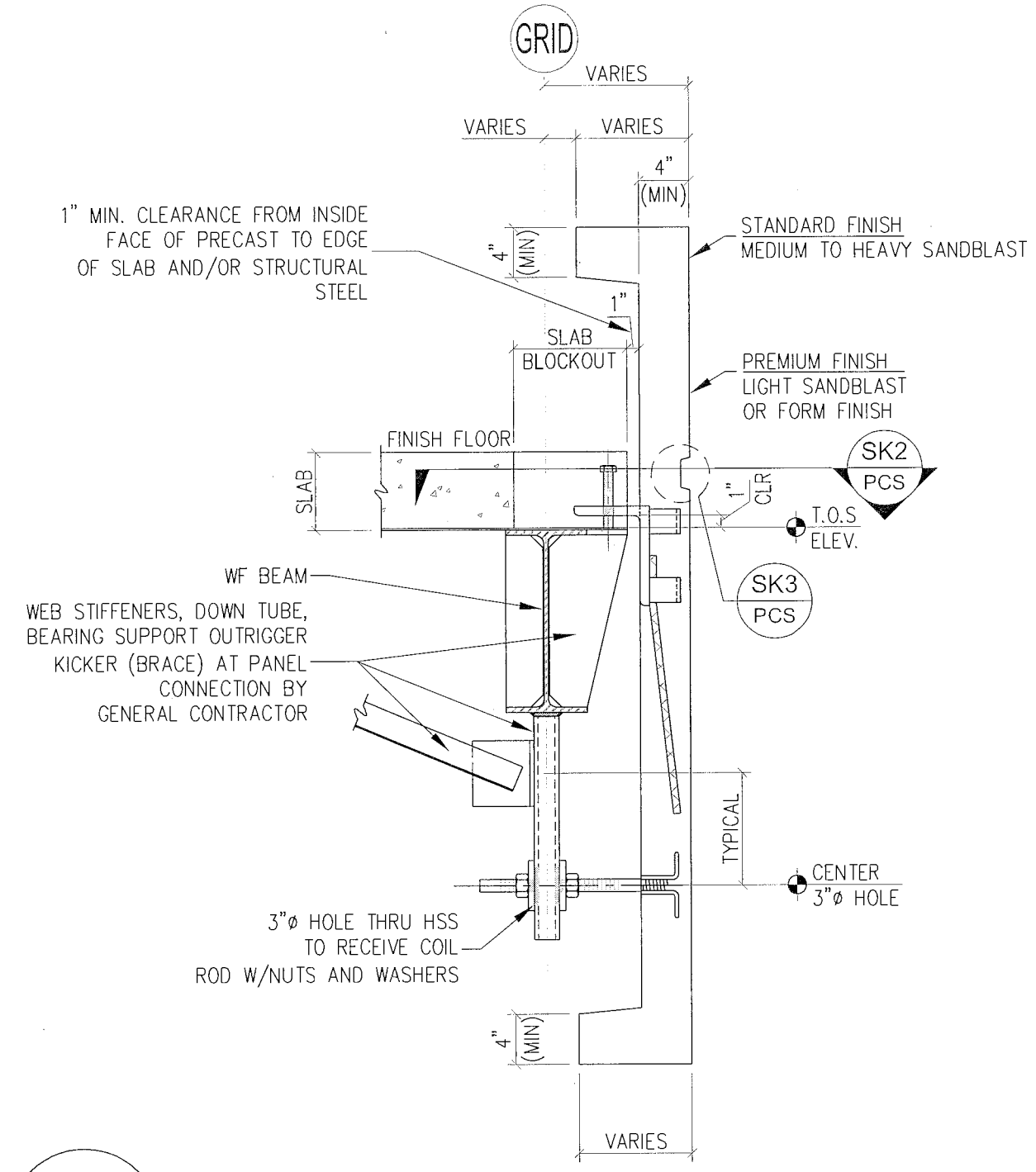
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CLARK PACIFIC

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FAX: (909) 823-1361

PROJECT	JOB
CONTRACTOR	SHEET PCS-SK1
TYPICAL PRE-CAST SECTION AT STEEL STRUCTURE	DATE 3/15/07
	BY TA CHECK DW



SK1

TYPICAL PRECAST PANEL CONNECTIONS

SCALE: 1" = 1'-0"

(FLOOR SECTION)

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APPENDIX F
Noise Data

Noise Appendix
Table NA-2

Traffic Noise Level Estimates Model Version 12/28/2006

% 15m= 49 FEET 7.7688005

ROAD SEGMENT #1: Harrison Street north of Grand Avenue	TOTAL # VEHICLES	VEHICLE TYPE % Auto %	Medium Truck %	MT	Heavy Truck %	HT	VEHICLE SPEED Auto k/h	MT k/h	HT k/h	calveno factors Auto	MT	HT	Calculated dBA (15 meters from roadway center)	Receptor Distance from Roadway Center (m.)	Adjusted Level (dBA) 3 dBA Atten	Adjusted Level (dBA) 4.5 dBA Atten
Existing AM	1,471	97.0	1,427	2.0	29	1.0	15	25 40	25 40	25 40	61.6	56.4	61.1	65.0	20	63.8	63.2
Existing+Project	1,769	97.0	1,716	2.0	35	1.0	18	25 40	25 40	25 40	62.4	57.2	61.9	65.8	20	64.6	64.0
Near Term AM	1,771	97.0	1,718	2.0	35	1.0	18	25 40	25 40	25 40	62.5	57.2	61.9	65.8	20	64.6	64.0
Near Term+Project	2,069	97.0	2,007	2.0	41	1.0	21	25 40	25 40	25 40	63.1	57.9	62.6	66.5	20	65.3	64.6
Future	2,801	97.0	2,717	2.0	56	1.0	28	25 40	25 40	25 40	64.4	59.2	63.9	67.8	20	66.6	65.9
Future+Project	3,099	97.0	3,006	2.0	62	1.0	31	25 40	25 40	25 40	64.9	59.7	64.3	68.3	20	67.0	66.4

ROAD SEGMENT #2: Harrison Street south of Grand Avenue	TOTAL # VEHICLES	VEHICLE TYPE % Auto %	Medium Truck %	MT	Heavy Truck %	HT	VEHICLE SPEED Auto k/h	MT k/h	HT k/h	calveno factors Auto	MT	HT	Calculated dBA (15 meters from roadway center)	Receptor Distance from Roadway Center (m.)	Adjusted Level (dBA) 3 dBA Atten	Adjusted Level (dBA) 4.5 dBA Atten
Existing AM	2,016	97.0	1,956	2.0	40	1.0	20	25 40	25 40	25 40	63.0	57.8	62.4	66.4	20	65.1	64.5
Existing+Project	2,314	97.0	2,245	2.0	46	1.0	23	25 40	25 40	25 40	63.6	58.4	63.0	67.0	20	65.7	65.1
Near Term AM	2,411	97.0	2,339	2.0	48	1.0	24	25 40	25 40	25 40	63.8	58.6	63.2	67.2	20	65.9	65.3
Near Term+Project	2,709	97.0	2,628	2.0	54	1.0	27	25 40	25 40	25 40	64.3	59.1	63.7	67.7	20	66.4	65.8
Future	3,581	97.0	3,474	2.0	72	1.0	36	25 40	25 40	25 40	65.5	60.3	64.9	68.9	20	67.6	67.0
Future+Project	3,879	97.0	3,763	2.0	78	1.0	39	25 40	25 40	25 40	65.9	60.7	65.3	69.2	20	68.0	67.4

ROAD SEGMENT #3: Grand Avenue east of Harrison Street	TOTAL # VEHICLES	VEHICLE TYPE % Auto %	Medium Truck %	MT	Heavy Truck %	HT	VEHICLE SPEED Auto k/h	MT k/h	HT k/h	calveno factors Auto	MT	HT	(15 meters from roadway center)	Roadway Center (m.)	Level (dBA) 3 dBA Atten	Level (dBA) 4.5 dBA Atten
Existing AM	1,355	97.0	1,314	2.0	27	1.0	14	25 40	25 40	25 40	61.3	56.1	60.7	64.7	20	63.4	62.8
Existing+Project	1,355	97.0	1,314	2.0	27	1.0	14	25 40	25 40	25 40	61.3	56.1	60.7	64.7	20	63.4	62.8
Near Term AM	1,647	97.0	1,598	2.0	33	1.0	16	25 40	25 40	25 40	62.1	56.9	61.6	65.5	20	64.3	63.6
Near Term+Project	1,647	97.0	1,598	2.0	33	1.0	16	25 40	25 40	25 40	62.1	56.9	61.6	65.5	20	64.3	63.6
Future	2,286	97.0	2,217	2.0	46	1.0	23	25 40	25 40	25 40	63.6	58.4	63.0	66.9	20	65.7	65.1
Future+Project	2,286	97.0	2,217	2.0	46	1.0	23	25 40	25 40	25 40	63.6	58.4	63.0	66.9	20	65.7	65.1

ROAD SEGMENT #4: Grand Avenue west of Harrison Street	TOTAL # VEHICLES	VEHICLE TYPE % Auto %	Medium Truck %	MT	Heavy Truck %	HT	VEHICLE SPEED Auto k/h	MT k/h	HT k/h	calveno factors Auto	MT	HT	Calculated dBA (15 meters from roadway center)	Receptor Distance from Roadway Center (m.)	Adjusted Level (dBA) 3 dBA Atten	Adjusted Level (dBA) 4.5 dBA Atten
Existing AM	888	97.0	861	2.0	18	1.0	9	25 40	25 40	25 40	59.5	54.2	58.9	62.8	20	61.6	61.0
Existing+Project	888	97.0	861	2.0	18	1.0	9	25 40	25 40	25 40	59.5	54.2	58.9	62.8	20	61.6	61.0
Near Term AM	1,143	97.0	1,109	2.0	23	1.0	11	25 40	25 40	25 40	60.5	55.3	60.0	63.9	20	62.7	62.1
Near Term+Project	1,143	97.0	1,109	2.0	23	1.0	11	25 40	25 40	25 40	60.5	55.3	60.0	63.9	20	62.7	62.1
Future	1,866	97.0	1,810	2.0	37	1.0	19	25 40	25 40	25 40	62.7	57.5	62.1	66.1	20	64.8	64.2
Future+Project	1,866	97.0	1,810	2.0	37	1.0	19	25 40	25 40	25 40	62.7	57.5	62.1	66.1	20	64.8	64.2

ROAD SEGMENT #5: Harrison Street north of 21st Street	TOTAL # VEHICLES	VEHICLE TYPE % Auto %	Medium Truck %	MT	Heavy Truck %	HT	VEHICLE SPEED Auto k/h	MT k/h	HT k/h	calveno factors Auto	MT	HT	Calculated dBA (15 meters from roadway center)	Distance from Roadway Center (m.)	Adjusted Level (dBA) 3 dBA Atten	Adjusted Level (dBA) 4.5 dBA Atten
Existing AM	2,046	97.0	1,985	2.0	41	1.0	20	25 40	25 40	25 40	63.1	57.9	62.5	66.5	20	65.2	64.6
Existing+Project	2,344	97.0	2,274	2.0	47	1.0	23	25 40	25 40	25 40	63.7	58.5	63.1	67.1	20	65.8	65.2
Near Term AM	2,407	97.0	2,335	2.0	48	1.0	24	25 40	25 40	25 40	63.8	58.6	63.2	67.2	20	65.9	65.3
Near Term+Project	2,705	97.0	2,624	2.0	54	1.0	27	25 40	25 40	25 40	64.3	59.1	63.7	67.7	20	66.4	65.8
Future	2,769	97.0	2,686	2.0	55	1.0	28	25 40	25 40	25 40	64.4	59.2	63.8	67.8	20	66.5	65.9
Future+Project	3,067	97.0	2,975	2.0	61	1.0	31	25 40	25 40	25 40	64.8	59.6	64.3	68.2	20	67.0	66.3

ROAD SEGMENT #6: Harrison Street south of 21st Street	TOTAL # VEHICLES	VEHICLE TYPE % Auto %	Medium Truck %	MT	Heavy Truck %	HT	VEHICLE SPEED Auto k/h	MT k/h	HT k/h	calveno factors Auto	MT	HT	Calculated dBA (15 meters from roadway center)	Receptor Distance from Roadway Center (m.)	Adjusted Level (dBA) 3 dBA Atten	Adjusted Level (dBA) 4.5 dBA Atten
Existing AM	1,846	97.0	1,791	2.0	37	1.0	18	25 40	25 40	25 40	62.6	57.4	62.1	66.0	20	64.8	64.1
Existing+Project	2,027	97.0	1,966	2.0	41	1.0	20	25 40	25 40	25 40	63.0	57.8	62.5	66.4	20	65.2	64.5
Near Term AM	2,172	97.0	2,107	2.0	43	1.0	22	25 40	25 40	25 40	63.3	58.1	62.8	66.7	20	65.5	64.8
Near Term+Project	2,353	97.0	2,282	2.0	47	1.0	24	25 40	25 40	25 40	63.7	58.5	63.1	67.1	20	65.8	65.2

Noise Appendix
Table NA-2

Future		2,498	97.0	2,423	2.0	50	1.0	25	25	40	25	40	25	40	63.9	58.7	63.4	67.3	20	66.1	65.5
Future+Project		2,679	97.0	2,599	2.0	54	1.0	27	25	40	25	40	25	40	64.2	59.0	63.7	67.6	20	66.4	65.8
		TOTAL	VEHICLE TYPE %						VEHICLE SPEED						calveno factors			(15 meters from	Roadway	Level	Level
ROAD SEGMENT #7: 21st Street	east of Harrison Street	# VEHICLES	Auto		Medium Truck		Heavy Truck		Auto k/h		MT k/h		HT k/h		Auto	MT	HT	roadway center)	Center (m.)	(dBA)	(dBA)
			%	Auto	%	MT	%	HT												3 dBA Atten	4.5 dBA Atten
Existing AM		0	97.0	0	2.0	0	1.0	0	25	40	25	40	25	40	#NUM!	#NUM!	#NUM!	#NUM!	20	#NUM!	#NUM!
Existing+Project		0	97.0	0	2.0	0	1.0	0	25	40	25	40	25	40	#NUM!	#NUM!	#NUM!	#NUM!	20	#NUM!	#NUM!
Near Term AM		0	97.0	0	2.0	0	1.0	0	25	40	25	40	25	40	#NUM!	#NUM!	#NUM!	#NUM!	20	#NUM!	#NUM!
Near Term+Project		0	97.0	0	2.0	0	1.0	0	25	40	25	40	25	40	#NUM!	#NUM!	#NUM!	#NUM!	20	#NUM!	#NUM!
Future		0	97.0	0	2.0	0	1.0	0	25	40	25	40	25	40	#NUM!	#NUM!	#NUM!	#NUM!	20	#NUM!	#NUM!
Future+Project		0	97.0	0	2.0	0	1.0	0	25	40	25	40	25	40	#NUM!	#NUM!	#NUM!	#NUM!	20	#NUM!	#NUM!
																			Receptor		
																		Calculated dBA	Distance from	Adjusted	Adjusted
		TOTAL	VEHICLE TYPE %						VEHICLE SPEED						calveno factors			(15 meters from	Roadway	Level	Level
ROAD SEGMENT #8: 21st Street	west of Harrison Street	# VEHICLES	Auto		Medium Truck		Heavy Truck		Auto k/h		MT k/h		HT k/h		Auto	MT	HT	roadway center)	Center (m.)	(dBA)	(dBA)
			%	Auto	%	MT	%	HT												3 dBA Atten	4.5 dBA Atten
Existing AM		432	97.0	419	2.0	9	1.0	4	25	40	25	40	25	40	56.3	51.1	55.8	59.7	20	58.5	57.8
Existing+Project		911	97.0	884	2.0	18	1.0	9	25	40	25	40	25	40	59.6	54.4	59.0	62.9	20	61.7	61.1
Near Term AM		509	97.0	494	2.0	10	1.0	5	25	40	25	40	25	40	57.0	51.8	56.5	60.4	20	59.2	58.5
Near Term+Project		988	97.0	958	2.0	20	1.0	10	25	40	25	40	25	40	59.9	54.7	59.3	63.3	20	62.0	61.4
Future		585	97.0	567	2.0	12	1.0	6	25	40	25	40	25	40	57.6	52.4	57.1	61.0	20	59.8	59.1
Future+Project		1,064	97.0	1,032	2.0	21	1.0	11	25	40	25	40	25	40	60.2	55.0	59.7	63.6	20	62.4	61.7
																		Calculated dBA	Distance from	Adjusted	Adjusted
		TOTAL	VEHICLE TYPE %						VEHICLE SPEED						calveno factors			(15 meters from	Roadway	Level	Level
ROAD SEGMENT #9: Webster Street	north of 21st Street	# VEHICLES	Auto		Medium Truck		Heavy Truck		Auto k/h		MT k/h		HT k/h		Auto	MT	HT	roadway center)	Center (m.)	(dBA)	(dBA)
			%	Auto	%	MT	%	HT												3 dBA Atten	4.5 dBA Atten
Existing AM		470	97.0	456	2.0	9	1.0	5	25	40	25	40	25	40	56.7	51.5	56.1	60.1	20	58.8	58.2
Existing+Project		609	97.0	591	2.0	12	1.0	6	25	40	25	40	25	40	57.8	52.6	57.2	61.2	20	59.9	59.3
Near Term AM		584	97.0	566	2.0	12	1.0	6	25	40	25	40	25	40	57.6	52.4	57.1	61.0	20	59.8	59.1
Near Term+Project		723	97.0	701	2.0	14	1.0	7	25	40	25	40	25	40	58.6	53.4	58.0	61.9	20	60.7	60.1
Future		697	97.0	676	2.0	14	1.0	7	25	40	25	40	25	40	58.4	53.2	57.8	61.8	20	60.5	59.9
Future+Project		836	97.0	811	2.0	17	1.0	8	25	40	25	40	25	40	59.2	54.0	58.6	62.6	20	61.3	60.7
																			Receptor		
																		Calculated dBA	Distance from	Adjusted	Adjusted
		TOTAL	VEHICLE TYPE %						VEHICLE SPEED						calveno factors			(15 meters from	Roadway	Level	Level
ROAD SEGMENT #10: Webster Street	south of 21st Street	# VEHICLES	Auto		Medium Truck		Heavy Truck		Auto k/h		MT k/h		HT k/h		Auto	MT	HT	roadway center)	Center (m.)	(dBA)	(dBA)
			%	Auto	%	MT	%	HT												3 dBA Atten	4.5 dBA Atten
Existing AM		407	97.0	395	2.0	8	1.0	4	25	40	25	40	25	40	56.1	50.9	55.5	59.4	20	58.2	57.6
Existing+Project		418	97.0	405	2.0	8	1.0	4	25	40	25	40	25	40	56.2	51.0	55.6	59.6	20	58.3	57.7
Near Term AM		506	97.0	491	2.0	10	1.0	5	25	40	25	40	25	40	57.0	51.8	56.4	60.4	20	59.1	58.5
Near Term+Project		517	97.0	501	2.0	10	1.0	5	25	40	25	40	25	40	57.1	51.9	56.5	60.5	20	59.2	58.6
Future		603	97.0	585	2.0	12	1.0	6	25	40	25	40	25	40	57.8	52.6	57.2	61.2	20	59.9	59.3
Future+Project		614	97.0	596	2.0	12	1.0	6	25	40	25	40	25	40	57.8	52.6	57.3	61.2	20	60.0	59.4
		TOTAL	VEHICLE TYPE %						VEHICLE SPEED						calveno factors			(15 meters from	Roadway	Level	Level
ROAD SEGMENT #11: 21st Street	east of Webster Street	# VEHICLES	Auto		Medium Truck		Heavy Truck		Auto k/h		MT k/h		HT k/h		Auto	MT	HT	roadway center)	Center (m.)	(dBA)	(dBA)
			%	Auto	%	MT	%	HT												3 dBA Atten	4.5 dBA Atten
Existing AM		358	97.0	347	2.0	7	1.0	4	25	40	25	40	25	40	55.5	50.3	54.9	58.9	20	57.6	57.0
Existing+Project		1,023	97.0	992	2.0	20	1.0	10	25	40	25	40	25	40	60.1	54.9	59.5	63.4	20	62.2	61.6
Near Term AM		445	97.0	432	2.0	9	1.0	4	25	40	25	40	25	40	56.5	51.2	55.9	59.8	20	58.6	58.0
Near Term+Project		1,110	97.0	1,077	2.0	22	1.0	11	25	40	25	40	25	40	60.4	55.2	59.9	63.8	20	62.6	61.9
Future		531	97.0	515	2.0	11	1.0	5	25	40	25	40	25	40	57.2	52.0	56.7	60.6	20	59.4	58.7
Future+Project		1,196	97.0	1,160	2.0	24	1.0	12	25	40	25	40	25	40	60.7	55.5	60.2	64.1	20	62.9	62.3
																			Receptor		
																		Calculated dBA	Distance from	Adjusted	Adjusted
		TOTAL	VEHICLE TYPE %						VEHICLE SPEED						calveno factors			(15 meters from	Roadway	Level	Level
ROAD SEGMENT #12: 21st Street	west of Webster Street	# VEHICLES	Auto		Medium Truck		Heavy Truck		Auto k/h		MT k/h		HT k/h		Auto	MT	HT	roadway center)	Center (m.)	(dBA)	(dBA)
			%	Auto	%	MT	%	HT												3 dBA Atten	4.5 dBA Atten
Existing AM		263	97.0	255	2.0	5	1.0	3	25	40	25	40	25	40	54.2	49.0	53.6	57.6	20	56.3	55.7
Existing+Project		778	97.0	755	2.0	16	1.0	8	25	40	25	40	25	40	58.9	53.7	58.3	62.3	20	61.0	60.4
Near Term AM		327	97.0	317	2.0	7	1.0	3	25	40	25	40	25	40	55.1	49.9	54.5	58.5	20	57.2	56.6
Near Term+Project		842	97.0	817	2.0	17	1.0	8	25	40	25	40	25	40	59.2	54.0	58.7	62.6	20	61.4	60.7
Future		391	97.0	379	2.0	8	1.0	4	25	40	25	40	25	40	55.9	50.7	55.3	59.3	20	58.0	57.4
Future+Project		906	97.0	879	2.0	18	1.0	9	25	40	25	40	25	40	59.5	54.3	59.0	62.9	20	61.7	61.0

Noise Appendix
Table NA-2

ROAD SEGMENT #13: Franklin Street north of 20th Street	TOTAL # VEHICLES	VEHICLE TYPE % Auto %	Auto	Medium Truck %	MT	Heavy Truck %	HT	VEHICLE SPEED Auto k/h		MT k/h		HT k/h		calveno factors Auto	MT	HT	Calculated dBA (15 meters from roadway center)	Distance from Roadway Center (m.)	Adjusted Level (dBA) 3 dBA Atten	Adjusted Level (dBA) 4.5 dBA Atten
Existing AM	245	97.0	238	2.0	5	1.0	2	25	40	25	40	25	40	53.9	48.7	53.3	57.2	20	56.0	55.4
Existing+Project	477	97.0	463	2.0	10	1.0	5	25	40	25	40	25	40	56.8	51.5	56.2	60.1	20	58.9	58.3
Near Term AM	305	97.0	296	2.0	6	1.0	3	25	40	25	40	25	40	54.8	49.6	54.2	58.2	20	56.9	56.3
Near Term+Project	537	97.0	521	2.0	11	1.0	5	25	40	25	40	25	40	57.3	52.1	56.7	60.7	20	59.4	58.8
Future	363	97.0	352	2.0	7	1.0	4	25	40	25	40	25	40	55.6	50.4	55.0	58.9	20	57.7	57.1
Future+Project	595	97.0	577	2.0	12	1.0	6	25	40	25	40	25	40	57.7	52.5	57.1	61.1	20	59.8	59.2

ROAD SEGMENT #14: Franklin Street south of 20th Street	TOTAL # VEHICLES	VEHICLE TYPE % Auto %	Auto	Medium Truck %	MT	Heavy Truck %	HT	VEHICLE SPEED Auto k/h		MT k/h		HT k/h		calveno factors Auto	MT	HT	Calculated dBA (15 meters from roadway center)	Receptor Distance from Roadway Center (m.)	Adjusted Level (dBA) 3 dBA Atten	Adjusted Level (dBA) 4.5 dBA Atten
Existing AM	255	97.0	247	2.0	5	1.0	3	25	40	25	40	25	40	54.0	48.8	53.5	57.4	20	56.2	55.5
Existing+Project	463	97.0	449	2.0	9	1.0	5	25	40	25	40	25	40	56.6	51.4	56.1	60.0	20	58.8	58.1
Near Term AM	316	97.0	307	2.0	6	1.0	3	25	40	25	40	25	40	55.0	49.8	54.4	58.3	20	57.1	56.5
Near Term+Project	524	97.0	508	2.0	10	1.0	5	25	40	25	40	25	40	57.2	52.0	56.6	60.5	20	59.3	58.7
Future	379	97.0	368	2.0	8	1.0	4	25	40	25	40	25	40	55.8	50.5	55.2	59.1	20	57.9	57.3
Future+Project	587	97.0	569	2.0	12	1.0	6	25	40	25	40	25	40	57.7	52.4	57.1	61.0	20	59.8	59.2

ROAD SEGMENT #15: 20th Street east of Franklin Street	TOTAL # VEHICLES	VEHICLE TYPE % Auto %	Auto	Medium Truck %	MT	Heavy Truck %	HT	VEHICLE SPEED Auto k/h		MT k/h		HT k/h		calveno factors Auto	MT	HT	(15 meters from roadway center)	Roadway Center (m.)	Level (dBA) 3 dBA Atten	Level (dBA) 4.5 dBA Atten
Existing AM	571	97.0	554	2.0	11	1.0	6	25	40	25	40	25	40	57.5	52.3	57.0	60.9	20	59.7	59.0
Existing+Project	623	97.0	604	2.0	12	1.0	6	25	40	25	40	25	40	57.9	52.7	57.3	61.3	20	60.0	59.4
Near Term AM	709	97.0	688	2.0	14	1.0	7	25	40	25	40	25	40	58.5	53.3	57.9	61.9	20	60.6	60.0
Near Term+Project	761	97.0	738	2.0	15	1.0	8	25	40	25	40	25	40	58.8	53.6	58.2	62.2	20	60.9	60.3
Future	846	97.0	821	2.0	17	1.0	8	25	40	25	40	25	40	59.2	54.0	58.7	62.6	20	61.4	60.8
Future+Project	898	97.0	871	2.0	18	1.0	9	25	40	25	40	25	40	59.5	54.3	58.9	62.9	20	61.6	61.0

ROAD SEGMENT #16: 20th Street west of Franklin Street	TOTAL # VEHICLES	VEHICLE TYPE % Auto %	Auto	Medium Truck %	MT	Heavy Truck %	HT	VEHICLE SPEED Auto k/h		MT k/h		HT k/h		calveno factors Auto	MT	HT	Calculated dBA (15 meters from roadway center)	Receptor Distance from Roadway Center (m.)	Adjusted Level (dBA) 3 dBA Atten	Adjusted Level (dBA) 4.5 dBA Atten
Existing AM	475	97.0	461	2.0	10	1.0	5	25	40	25	40	25	40	56.7	51.5	56.2	60.1	20	58.9	58.2
Existing+Project	551	97.0	534	2.0	11	1.0	6	25	40	25	40	25	40	57.4	52.2	56.8	60.8	20	59.5	58.9
Near Term AM	590	97.0	572	2.0	12	1.0	6	25	40	25	40	25	40	57.7	52.5	57.1	61.1	20	59.8	59.2
Near Term+Project	666	97.0	646	2.0	13	1.0	7	25	40	25	40	25	40	58.2	53.0	57.6	61.6	20	60.3	59.7
Future	704	97.0	683	2.0	14	1.0	7	25	40	25	40	25	40	58.4	53.2	57.9	61.8	20	60.6	60.0
Future+Project	780	97.0	757	2.0	16	1.0	8	25	40	25	40	25	40	58.9	53.7	58.3	62.3	20	61.0	60.4

APPENDIX G
Traffic Data

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APPENDIX G.1
Intersection Turning Movement Counts

All Traffic Data

(916) 771-8700
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OAKLAND

File Name : 08-7458-001 HARRISON-STANLEY-F
Site Code : 00000000
Start Date : 08/07/2008
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Groups Printed- Unshifted

	HARRISON ST. Southbound						Westbound						HARRISON ST. Northbound						STANLEY PL. Eastbound						I-580 OFF RAMP Southeastbound								
Start Time	Left	Thru	Right	Hard Right	Peds	App. Total	Left	Thru	Bear Right	Right	Peds	App. Total	Left	Bear Left	Thru	Right	Peds	App. Total	Hard Left	Left	Thru	Right	Peds	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	0	124	0	0	0	124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	1	7	0	0	43	0	0	43	1	174	175
07:15	0	144	0	0	0	144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	67	0	0	67	0	212	212
07:30	0	164	0	0	0	164	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	64	0	0	64	1	229	230
07:45	0	208	0	0	0	208	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	2	6	0	0	92	0	0	92	2	306	308
Total	0	640	0	0	0	640	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	4	15	0	0	266	0	0	266	4	921	925
08:00	0	206	0	0	0	206	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	96	0	0	96	0	305	305
08:15	0	239	0	0	0	239	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1	6	0	0	99	0	0	99	1	344	345
08:30	0	219	0	0	0	219	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	91	0	0	91	1	311	312
08:45	0	203	0	0	0	203	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3	1	0	0	105	0	0	105	3	309	312
Total	0	867	0	0	0	867	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	5	11	0	0	391	0	0	391	5	1269	1274
*** BREAK ***																																	
16:00	0	158	0	0	0	158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	3	5	0	0	63	0	0	63	3	226	229
16:15	0	139	0	0	0	139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	5	0	0	52	0	0	52	5	196	201
16:30	0	127	0	0	0	127	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	0	0	61	0	0	61	2	189	191
16:45	0	136	0	0	0	136	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	4	0	0	60	0	0	60	1	200	201
Total	0	560	0	0	0	560	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	11	15	0	0	236	0	0	236	11	811	822
17:00	0	158	0	0	0	158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	6	3	0	0	58	0	0	58	6	219	225
17:15	0	147	0	0	0	147	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	3	0	0	54	0	0	54	2	204	206
17:30	0	135	0	0	0	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	1	0	0	56	0	0	56	4	192	196
17:45	0	134	0	0	0	134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	77	0	0	77	3	211	214
Total	0	574	0	0	0	574	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	15	7	0	0	245	0	0	245	15	826	841
Grand Total	0	2641	0	0	0	2641	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	35	48	0	0	1138	0	0	1138	35	3827	3862
Apprch %	0	100	0	0			0	0	0	0			0	0	0	0			0	0	0	100			0	0	100	0					
Total %	0	69	0	0		69	0	0	0	0		0	0	0	0	0		0	0	0	0	1.3		1.3	0	0	29.7	0		29.7	0.9	99.1	

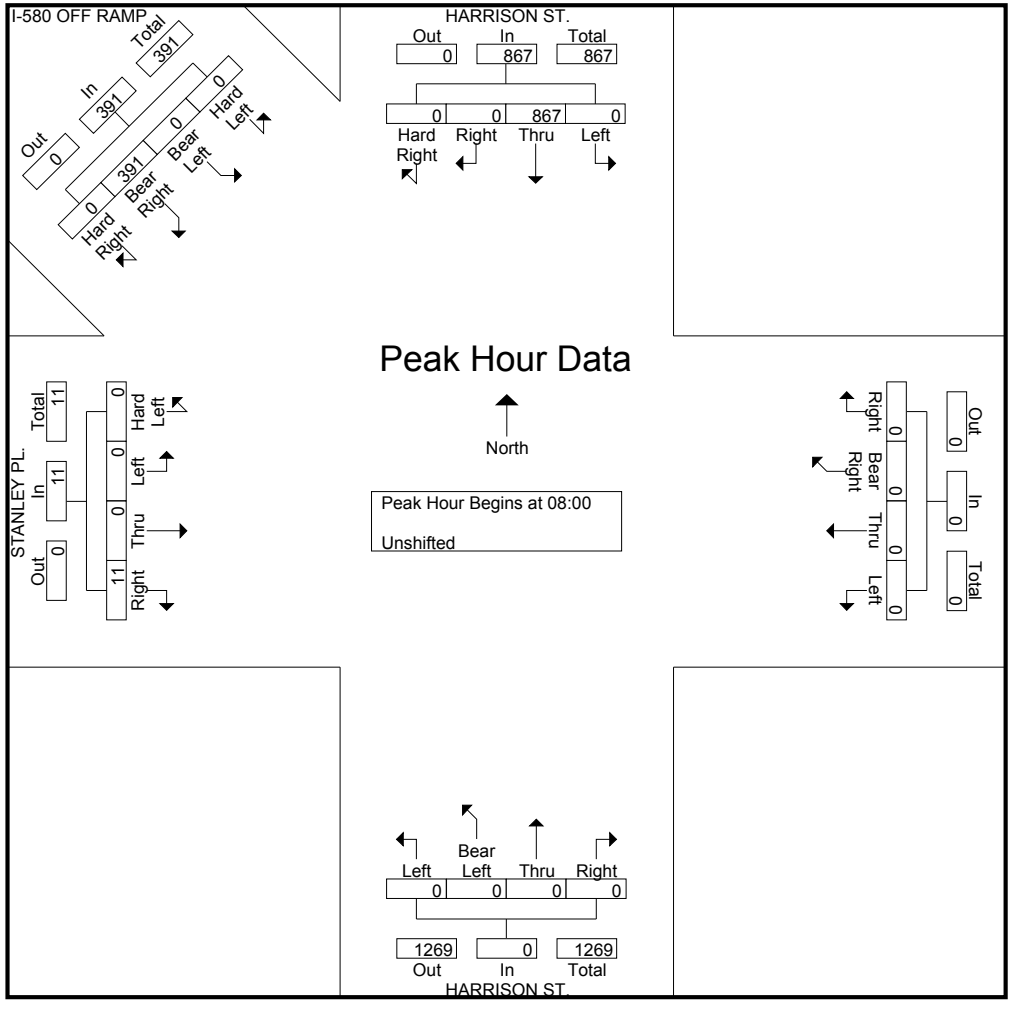
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Start Time	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 08:00																										
08:00	0	206	0	0	206	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	96	0	96	305
08:15	0	**239**	0	0	**239**	0	0	0	0	0	0	0	0	0	0	0	0	0	**6**	**6**	0	0	99	0	99	**344**
08:30	0	219	0	0	219	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	91	0	91	311
08:45	0	203	0	0	203	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	**105**	0	**105**	309
Total Volume	0	867	0	0	867	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11	0	0	391	0	391	1269
% App. Total	0	100	0	0		0	0	0	0		0	0	0	0		0	0	0	100		0	0	100	0		
PHF	.000	.907	.000	.000	.907	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.458	.458	.000	.000	.931	.000	.931	.922

All Traffic Data

(916) 771-8700
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OAKLAND

File Name : 08-7458-001 HARRISON-STANLEY-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 2



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

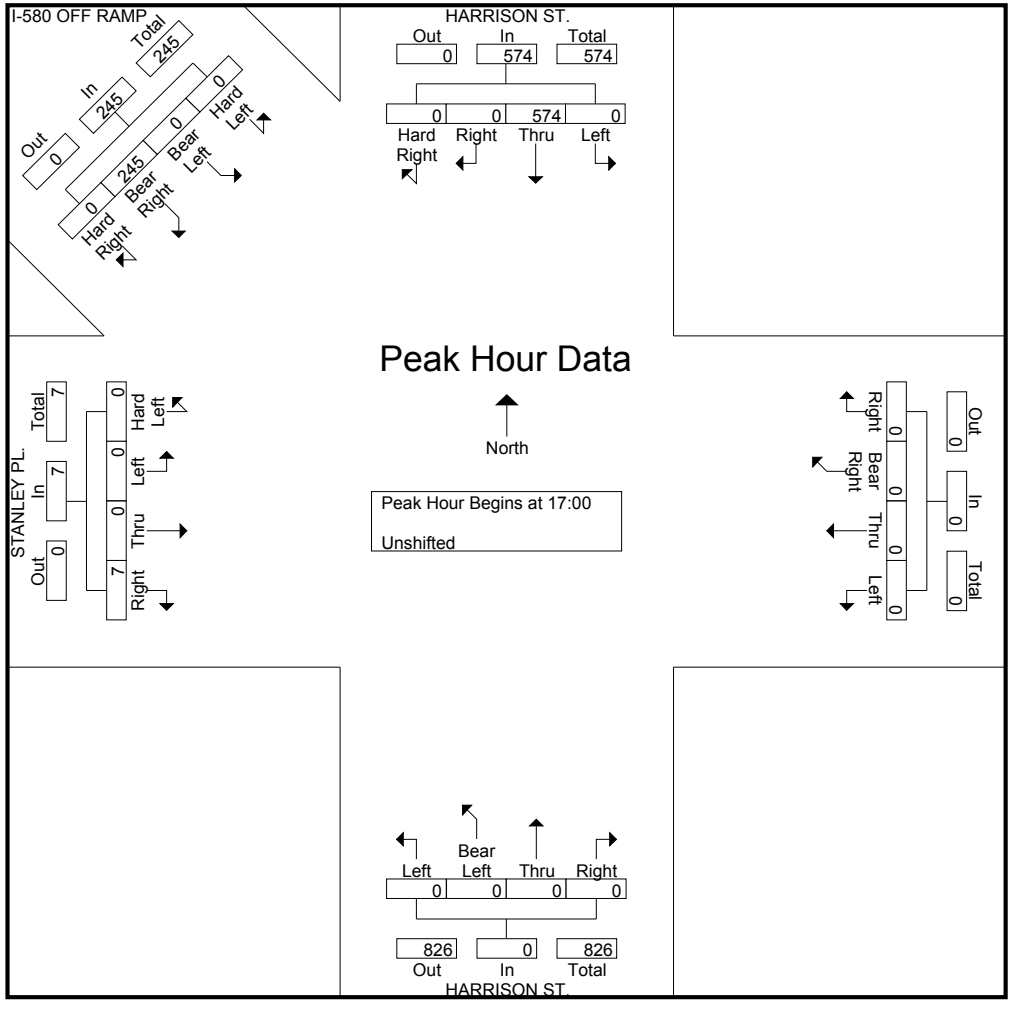
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17:15	0	147	0	0	147	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	54	0	54	204
17:30	0	135	0	0	135	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	56	0	56	192
17:45	0	134	0	0	134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**77**	0	**77**	211
Total Volume	0	574	0	0	574	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7	0	0	245	0	245	826
% App. Total	0	100	0	0		0	0	0	0		0	0	0	0		0	0	0	100		0	0	100	0		
PHF	.000	.908	.000	.000	.908	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.583	.583	.000	.000	.795	.000	.795	.943

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-001 HARRISON-STANLEY-F
Site Code : 00000000
Start Date : 08/07/2008
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File Name: P:\Projects\08-7694\PPD\5-OAKLAND-PERRY-F.ppd
Start Date: 11/19/2008
Start Time: 7:15:00 AM
Site Code: 00000000
Comment 1: OAKLAND
Comment 2:
Comment 3:
Comment 4:

	OAKLAND AVE. Southbound					EB 580 ON RAMP Southwestbound					PERRY PL. Westbound					OAKLAND AVE. Northbound					EB 580 OFF RAMP Eastbound				
Start Time	Hard Left	Left	Thru	Right	Peds	Hard Left	Bear Left	Bear Right	Hard Right	Peds	Left	Thru	Right	Hard Right	Peds	Left	Thru	Bear Right	Right	Peds	Left	Bear Left	Thru	Right	Peds
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	126	57	5	1	60	0	14	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	167	73	4	1	102	1	19	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	188	75	4	2	95	1	19	0	0
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08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	179	62	9	4	85	1	38	0	0
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	171	61	7	2	82	0	35	0	0
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	173	140	16	2	112	2	49	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	201	139	13	0	111	2	48	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	205	132	14	1	107	1	61	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	221	150	19	2	125	1	56	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	257	149	14	2	154	0	60	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	214	134	24	2	127	1	62	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	223	116	15	2	137	1	76	0	0
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	178	119	17	0	139	4	68	0	0

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-003 HARRISON-27TH-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 1

Groups Printed- Unshifted

	HARRISON ST. Southbound						BAY PL. Westbound						HARRISON ST. Northbound						24TH ST. Northeastbound						27TH ST. Eastbound								
Start Time	Left	Thru	Bear Right	Right	Peds	App. Total	Left	Bear Left	Thru	Right	Peds	App. Total	Hard Left	Left	Thru	Right	Peds	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	Peds	App. Total	Left	Thru	Right	Hard Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	13	95	24	17	6	149	2	1	14	18	5	35	1	16	38	2	2	57	0	0	0	0	3	0	7	12	5	2	5	26	21	267	288
07:15	22	118	22	14	10	176	7	2	16	25	4	50	0	26	24	5	6	55	0	0	0	0	6	0	6	5	8	4	7	23	33	304	337
07:30	8	132	19	17	7	176	3	0	25	15	7	43	2	38	42	2	9	84	0	0	0	0	3	0	6	17	16	1	5	40	31	343	374
07:45	15	177	25	15	11	232	15	1	26	21	4	63	3	43	48	5	4	99	0	0	0	0	10	0	8	12	9	2	19	31	48	425	473
Total	58	522	90	63	34	733	27	4	81	79	20	191	6	123	152	14	21	295	0	0	0	0	22	0	27	46	38	9	36	120	133	1339	1472
08:00	15	182	22	21	8	240	9	3	25	27	15	64	5	40	55	7	7	107	0	0	0	0	4	0	8	18	12	3	11	41	45	452	497
08:15	14	222	24	15	8	275	6	5	25	27	14	63	4	49	48	6	7	107	0	0	0	0	12	0	12	21	18	2	19	53	60	498	558
08:30	27	224	14	17	10	282	6	4	46	30	9	86	2	62	87	4	1	155	0	0	0	0	5	0	5	19	15	4	5	43	30	566	596
08:45	26	170	21	27	10	244	17	1	32	30	16	80	1	49	71	5	2	126	0	0	0	0	4	0	7	36	18	8	7	69	39	519	558
Total	82	798	81	80	36	1041	38	13	128	114	54	293	12	200	261	22	17	495	0	0	0	0	25	0	32	94	63	17	42	206	174	2035	2209
*** BREAK ***																																	
16:00	31	75	4	19	9	129	11	2	37	28	8	78	2	55	159	11	11	227	0	0	0	0	3	0	34	43	19	1	4	97	35	531	566
16:15	33	70	6	11	17	120	7	4	35	21	19	67	3	60	142	16	12	221	0	0	0	0	6	0	26	56	21	1	8	104	62	512	574
16:30	27	80	10	11	8	128	8	3	29	34	15	74	0	60	171	15	10	246	0	0	0	0	6	0	32	66	21	2	11	121	50	569	619
16:45	28	80	2	7	4	117	9	2	29	41	19	81	2	63	204	20	9	289	0	0	0	0	8	0	28	64	17	2	6	111	46	598	644
Total	119	305	22	48	38	494	35	11	130	124	61	300	7	238	676	62	42	983	0	0	0	0	23	0	120	229	78	6	29	433	193	2210	2403
17:00	37	105	4	18	6	164	7	2	27	40	18	76	1	70	216	19	7	306	0	0	0	0	10	0	32	53	24	4	15	113	56	659	715
17:15	28	92	5	15	22	140	16	5	35	32	27	88	0	68	210	31	10	309	0	0	0	0	8	0	38	76	23	3	13	140	80	677	757
17:30	51	96	1	17	12	165	13	1	56	38	24	108	2	75	218	20	14	315	0	0	0	0	12	0	33	52	15	1	16	101	78	689	767
17:45	42	101	7	11	12	161	12	0	37	45	23	94	0	57	207	15	9	279	0	0	0	0	6	0	19	69	11	0	7	99	57	633	690
Total	158	394	17	61	52	630	48	8	155	155	92	366	3	270	851	85	40	1209	0	0	0	0	36	0	122	250	73	8	51	453	271	2658	2929
Grand Total	417	2019	210	252	160	2898	148	36	494	472	227	1150	28	831	1940	183	120	2982	0	0	0	0	106	0	301	619	252	40	158	1212	771	8242	9013
Apprch %	14.4	69.7	7.2	8.7			12.9	3.1	43	41			0.9	27.9	65.1	6.1			0	0	0	0			24.8	51.1	20.8	3.3					
Total %	5.1	24.5	2.5	3.1		35.2	1.8	0.4	6	5.7		14	0.3	10.1	23.5	2.2		36.2	0	0	0	0		0	3.7	7.5	3.1	0.5		14.7	8.6	91.4	

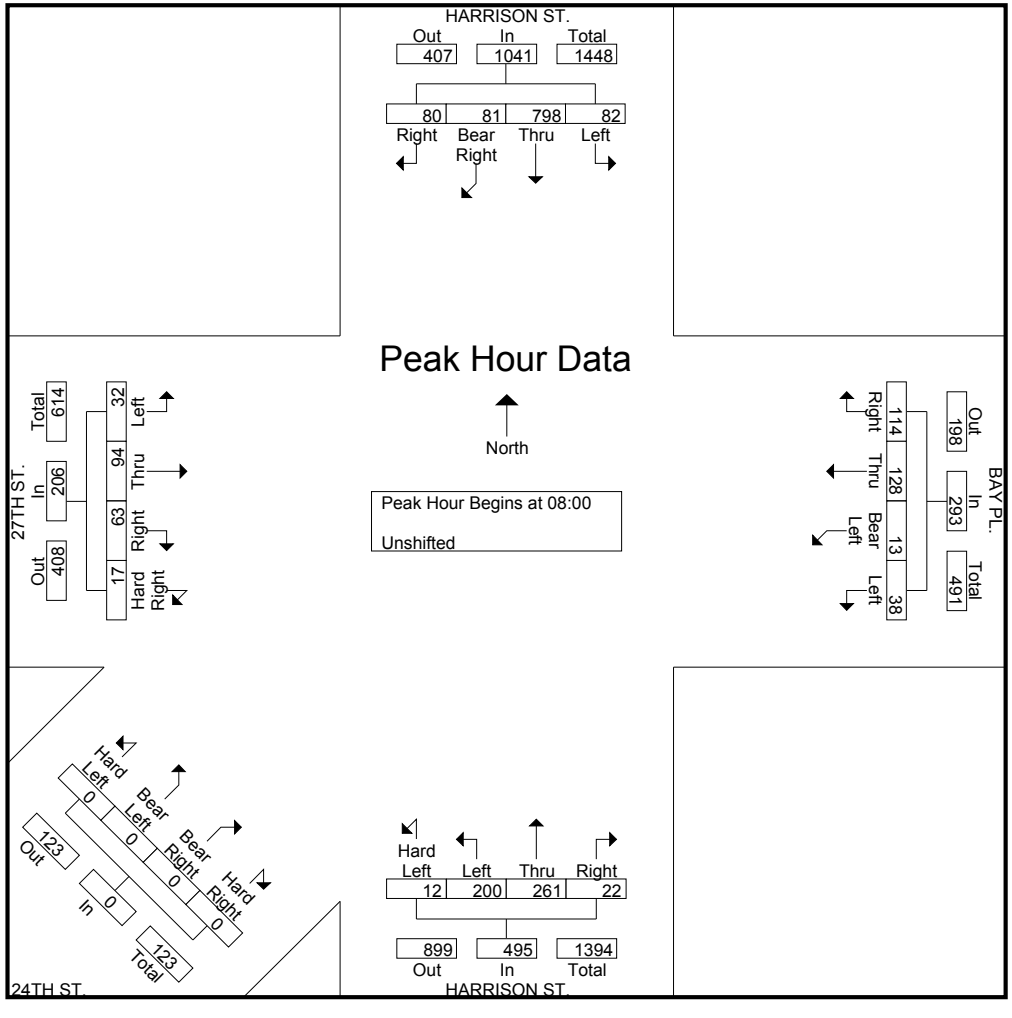
	HARRISON ST. Southbound					BAY PL. Westbound					HARRISON ST. Northbound					24TH ST. Northeastbound					27TH ST. Eastbound					
Start Time	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 08:00																										
08:00	15	182	22	21	240	9	3	25	27	64	**5**	40	55	**7**	107	0	0	0	0	0	8	18	12	3	41	452
08:15	14	222	**24**	15	275	6	**5**	25	27	63	4	49	48	6	107	0	0	0	0	0	**12**	21	**18**	2	53	498
08:30	**27**	**224**	14	17	**282**	6	4	**46**	**30**	**86**	2	**62**	**87**	4	**155**	0	0	0	0	0	5	19	15	4	43	**566**
08:45	26	170	21	**27**	244	**17**	1	32	30	80	1	49	71	5	126	0	0	0	0	0	7	**36**	18	**8**	**69**	519
Total Volume	82	798	81	80	1041	38	13	128	114	293	12	200	261	22	495	0	0	0	0	0	32	94	63	17	206	2035
% App. Total	7.9	76.7	7.8	7.7		13	4.4	43.7	38.9		2.4	40.4	52.7	4.4		0	0	0	0		15.5	45.6	30.6	8.3		
PHF	.759	.891	.844	.741	.923	.559	.650	.696	.950	.852	.600	.806	.750	.786	.798	.000	.000	.000	.000	.000	.667	.653	.875	.531	.746	.899

All Traffic Data

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File Name : 08-7458-003 HARRISON-27TH-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 2



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

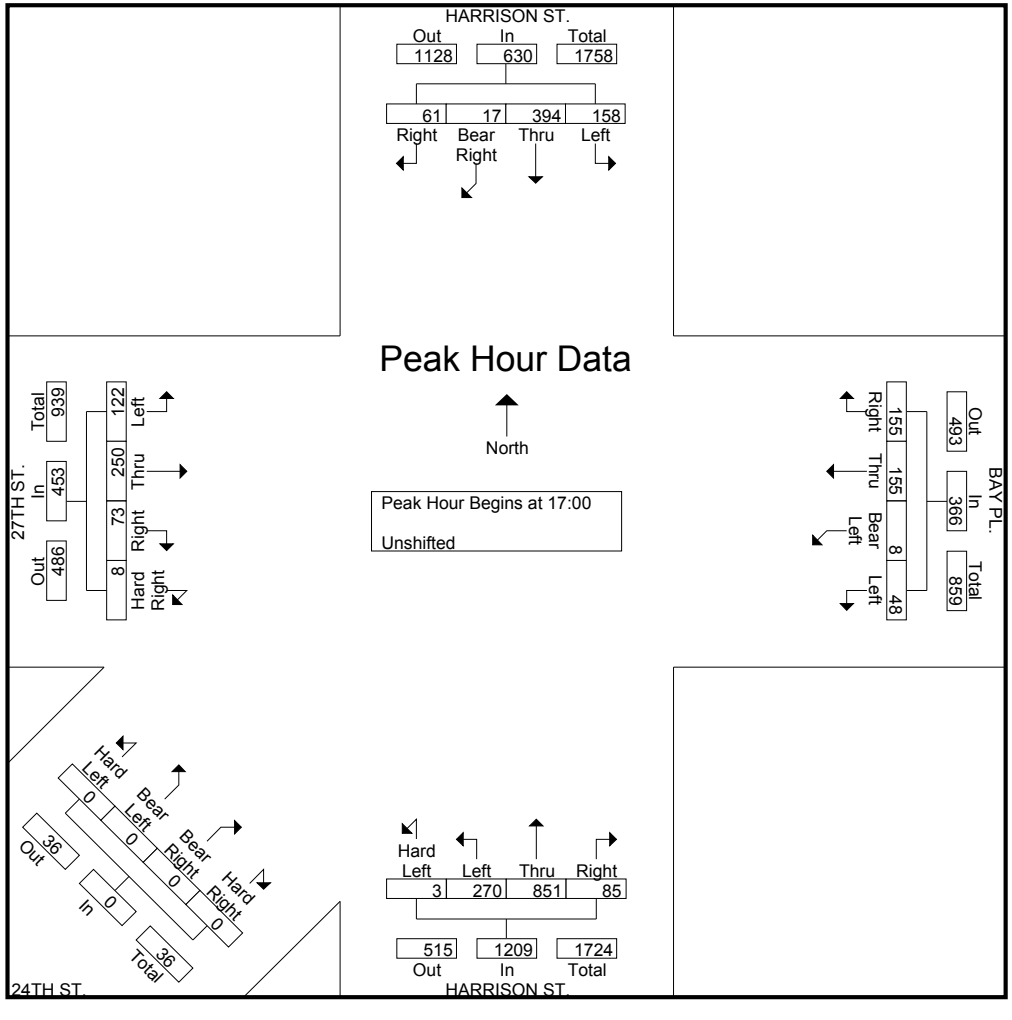
17:00	37	**105**	4	**18**	164	7	2	27	40	76	1	70	216	19	306	0	0	0	0	0	32	53	**24**	**4**	113	659
17:15	28	92	5	15	140	**16**	**5**	35	32	88	0	68	210	**31**	309	0	0	0	0	0	**38**	**76**	23	3	**140**	677
17:30	**51**	96	1	17	**165**	13	1	**56**	38	**108**	**2**	**75**	**218**	20	**315**	0	0	0	0	0	33	52	15	1	101	**689**
17:45	42	101	**7**	11	161	12	0	37	**45**	94	0	57	207	15	279	0	0	0	0	0	19	69	11	0	99	633
Total Volume	158	394	17	61	630	48	8	155	155	366	3	270	851	85	1209	0	0	0	0	0	122	250	73	8	453	2658
% App. Total	25.1	62.5	2.7	9.7		13.1	2.2	42.3	42.3		0.2	22.3	70.4	7		0	0	0	0		26.9	55.2	16.1	1.8		
PHF	.775	.938	.607	.847	.955	.750	.400	.692	.861	.847	.375	.900	.976	.685	.960	.000	.000	.000	.000	.000	.803	.822	.760	.500	.809	.964

All Traffic Data

(916) 771-8700
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OAKLAND

File Name : 08-7458-003 HARRISON-27TH-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 3



COMPARISON OF COUNTS USED FOR HARRISON-27TH PM ANALYSIS (gl, 5/18/09)

		27th Street onto...				Bay Place onto....				Harrison onto...				Harrison onto...				
		Harrison	Bay	Harrison	24th	Harrison	24th	27th	Harrison	24th	27th		Bay	Bay		24th	27th	
Count Date	Results	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBL	SBT	SBR	SBR2	Totals
2008/11/20	LOS E	182	365	85	17	45	14	155	177	8	286	942	86	185	397	39	65	3048
PHF		0.94	0.94	0.94	0.94	0.85	0.85	0.85	0.85	0.92	0.92	0.92	0.92	0.93	0.93	0.93	0.93	
2008/08/07	LOS C	122	250	73	8	48	8	155	155	3	270	851	85	158	394	17	61	2658

Overall, the 11/20/08 count is 15% higher than the 8/7/08 count, when school was not in session and gas was more expensive.

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

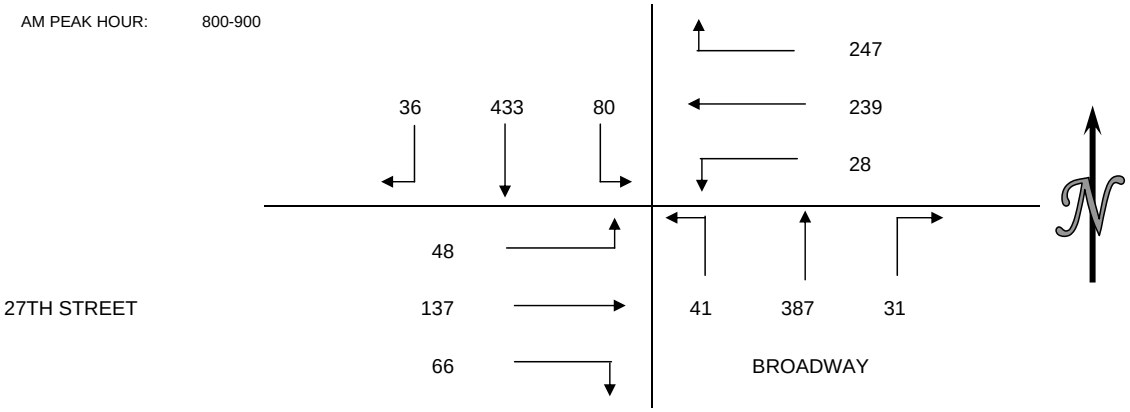
INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT:		DOWLING ASSOCIATES
PROJECT:		1938 BROADWAY TRAFFIC COUNTS
DATE:		TUESDAY OCTOBER 21, 2008
PERIOD"		7:00 AM TO 9:00 AM
INTERSECTION:	N/S	BROADWAY
	E/W	27TH STREET
CITY:		OAKLAND

VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
700-715	6	68	8	17	16	9	4	54	4	7	19	6	218
715-730	3	83	12	44	23	2	3	76	7	7	11	7	278
730-745	9	94	17	44	43	5	4	81	6	18	22	11	354
745-800	10	113	18	51	51	6	6	90	9	20	33	11	418
800-815	15	104	17	55	59	2	6	100	7	18	35	11	429
815-830	4	119	13	61	63	12	9	94	15	17	32	7	446
830-845	7	113	28	73	62	6	8	93	7	14	33	10	454
845-900	10	97	22	58	55	8	8	100	12	17	37	20	444
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
700-800	28	358	55	156	133	22	17	301	26	52	85	35	1268
715-815	37	394	64	194	176	15	19	347	29	63	101	40	1479
730-830	38	430	65	211	216	25	25	365	37	73	122	40	1647
745-845	36	449	76	240	235	26	29	377	38	69	133	39	1747
800-900	36	433	80	247	239	28	31	387	41	66	137	48	1773
PHF	0.6	0.909664	0.714286	0.84589	0.948413	0.583333	0.861111	0.9675	0.683333	0.916667	0.925676	0.6	

AM PEAK HOUR: 800-900



PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-715	3	2	4	3	12
715-730	0	12	5	5	22
730-745	0	6	6	8	20
745-800	0	10	8	14	32
800-815	1	13	20	7	41
815-830	0	15	7	9	31
830-845	0	14	6	18	38
845-900	1	16	6	21	44
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-800	3	30	23	30	86
715-815	1	41	39	34	115
730-830	1	44	41	38	124
745-845	1	52	41	48	142
800-900	2	58	39	55	154

BICYCLE COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-715	0	1	2	2	5
715-730	0	0	0	4	4
730-745	0	3	9	3	15
745-800	0	3	10	5	18
800-815	0	3	3	5	11
815-830	1	3	6	10	20
830-845	0	5	8	4	17
845-900	0	6	6	8	20
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-800	0	7	21	14	42
715-815	0	9	22	17	48
730-830	1	12	28	23	64
745-845	1	14	27	24	66
800-900	1	17	23	27	68

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

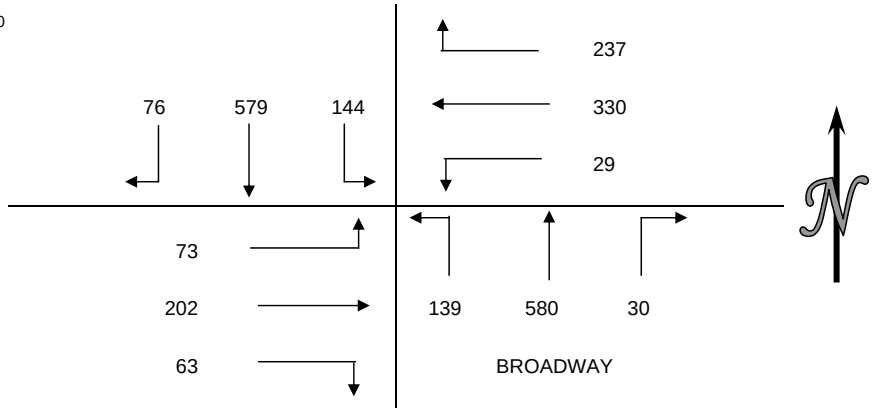
CLIENT:		DOWLING ASSOCIATES
PROJECT:		1938 BROADWAY TRAFFIC COUNTS
DATE:		TUESDAY OCTOBER 21, 2008
PERIOD"		4:00 PM TO 6:00 PM
INTERSECTION:	N/S	BROADWAY
	E/W	27TH STREET
CITY:		OAKLAND

VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
400-415	21	139	28	53	62	8	5	98	28	7	29	22	500
415-430	25	142	32	52	67	7	6	123	31	14	37	16	552
430-445	21	142	34	48	72	7	9	141	42	12	59	15	602
445-500	12	157	31	57	86	4	5	158	35	24	44	14	627
500-515	22	136	35	68	86	10	10	135	29	15	49	27	622
515-530	21	144	44	64	86	8	6	146	33	12	50	17	631
530-545	18	123	44	61	60	13	4	146	34	15	58	17	593
545-600	19	115	47	38	61	10	8	114	23	18	56	17	526
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
400-500	79	580	125	210	287	26	25	520	136	57	169	67	2281
415-515	80	577	132	225	311	28	30	557	137	65	189	72	2403
430-530	76	579	144	237	330	29	30	580	139	63	202	73	2482
445-545	73	560	154	250	318	35	25	585	131	66	201	75	2473
500-600	80	518	170	231	293	41	28	541	119	60	213	78	2372

PHF	0.863636	0.921975	0.818182	0.871324	0.959302	0.725	0.75	0.917722	0.827381	0.65625	0.855932	0.675926

AM PEAK HOUR: 430-530



PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-415	1	6	8	7	22
415-430	1	11	5	9	26
430-445	0	16	9	8	33
445-500	2	11	5	25	43
500-515	1	14	6	7	28
515-530	0	10	9	9	28
530-545	2	23	6	7	38
545-600	0	16	7	10	33
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-500	4	44	27	49	124
415-515	4	52	25	49	130
430-530	3	51	29	49	132
445-545	5	58	26	48	137
500-600	3	63	28	33	127

BICYCLE COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-415	1	8	6	5	20
415-430	0	10	10	3	23
430-445	0	8	4	11	23
445-500	1	9	5	2	17
500-515	0	7	8	3	18
515-530	0	8	12	5	25
530-545	1	12	7	9	29
545-600	1	13	8	11	33
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-500	2	35	25	21	83
415-515	1	34	27	19	81
430-530	1	32	29	21	83
445-545	2	36	32	19	89
500-600	2	40	35	28	105

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City of Oakland — Telegraph Ave & 27th Ave — Date: 05/22/2008

	Telegraph Ave Southbound				27th Ave Westbound				Telegraph Ave Northbound				27th Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	3	28	25	56	5	16	3	24	15	38	5	58	39	34	21	94	232
7:15	5	47	12	64	5	15	5	25	8	53	2	63	39	46	17	102	254
7:30	10	43	33	86	6	25	13	44	13	55	9	77	48	53	24	125	332
7:45	9	61	29	99	9	34	13	56	20	62	5	87	48	66	27	141	383
Total	27	179	99	305	25	90	34	149	56	208	21	285	174	199	89	462	1201
8:00	14	67	32	113	5	38	18	61	17	70	4	91	54	66	31	151	416
8:15	10	71	21	102	11	61	23	95	16	84	7	107	70	72	28	170	474
8:30	10	80	23	113	11	43	24	78	18	76	6	100	78	88	29	195	486
8:45	5	59	37	101	10	66	26	102	18	75	2	95	91	76	26	193	491
Total	39	277	113	429	37	208	91	336	69	305	19	393	293	302	114	709	1867
16:00	18	102	82	202	15	102	22	139	44	97	7	148	44	42	25	111	600
16:15	17	92	60	169	14	101	19	134	47	94	11	152	47	53	26	126	581
16:30	19	90	81	190	12	105	25	142	33	93	9	135	42	76	28	146	613
16:45	20	105	69	194	11	98	34	143	42	94	6	142	39	75	28	142	621
Total	74	389	292	755	52	406	100	558	166	378	33	577	172	246	107	525	2415
17:00	26	94	81	201	17	129	23	169	40	92	14	146	53	93	29	175	691
17:15	31	95	76	202	10	122	23	155	36	116	11	163	45	82	27	154	674
17:30	35	92	68	195	17	106	18	141	29	101	8	138	43	96	33	172	646
17:45	28	101	62	191	15	94	19	128	42	113	17	172	29	67	27	123	614
Total	120	382	287	789	59	451	83	593	147	422	50	619	170	338	116	624	2625
Grand Total	260	1227	791	2278	173	1155	308	1636	438	1313	123	1874	809	1085	426	2320	8108
Apprch%	####	53.9%	34.7%		10.6%	70.6%	18.8%		23.4%	70.1%	6.6%		34.9%	46.8%	18.4%		
Total %	3.2%	15.1%	9.8%	28.1%	2.1%	14.2%	3.8%	20.2%	5.4%	16.2%	1.5%	23.1%	10.0%	13.4%	5.3%	28.6%	

City of Oakland — Telegraph Ave & 27th Ave — Date: 05/22/2008

AM Peak Hr Begins at 800 AM

	Telegraph Ave Southbound				27th Ave Westbound				Telegraph Ave Northbound				27th Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	14	67	32	113	5	38	18	61	17	70	4	91	54	66	31	151	416
815	10	71	21	102	11	61	23	95	16	84	7	107	70	72	28	170	474
830	10	80	23	113	11	43	24	78	18	76	6	100	78	88	29	195	486
845	5	59	37	101	10	66	26	102	18	75	2	95	91	76	26	193	491
Total Volume	39	277	113	429	37	208	91	336	69	305	19	393	293	302	114	709	1867
% App Total.	9.1%	64.6%	26.3%		11.0%	61.9%	27.1%		17.6%	77.6%	4.8%		41.3%	42.6%	16.1%		
PHF	0.949				0.824				0.918				0.909				

PM Peak Hr Begins at 445 PM

	Telegraph Ave Southbound				27th Ave Westbound				Telegraph Ave Northbound				27th Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
445	20	105	69	194	11	98	34	143	42	94	6	142	39	75	28	142	621
500	26	94	81	201	17	129	23	169	40	92	14	146	53	93	29	175	691
515	31	95	76	202	10	122	23	155	36	116	11	163	45	82	27	154	674
530	35	92	68	195	17	106	18	141	29	101	8	138	43	96	33	172	646
Total Volume	112	386	294	792	55	455	98	608	147	403	39	589	180	346	117	643	2632
% App Total.	####	48.7%	37.1%		9.0%	74.8%	16.1%		25.0%	68.4%	6.6%		28.0%	53.8%	18.2%		
PHF	0.980				0.899				0.903				0.919				

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City of Oakland Northgate Ave (NB)/27th St & I-980 EB On-Ramp Date: 05/22/2008

	Northgate Ave (NB)/27th St Southbound				I-980 EB On-Ramp Westbound				Northgate Ave (NB)/27th St Northbound				I-980 EB On-Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	0	0	0	0	0	18	41	59	0	32	1	33	18	91	0	109	201
7:15	0	0	0	0	0	13	24	37	1	29	2	32	11	106	0	117	186
7:30	0	0	0	0	0	26	47	73	0	42	4	46	19	118	0	137	256
7:45	0	0	0	0	0	23	66	89	0	52	6	58	19	135	0	154	301
Total	0	0	0	0	0	80	178	258	1	155	13	169	67	450	0	517	944
8:00	0	0	0	0	0	25	53	78	1	54	3	58	36	145	0	181	317
8:15	0	0	0	0	0	30	60	90	2	62	5	69	37	172	0	209	368
8:30	0	0	0	0	0	35	48	83	1	49	9	59	24	187	0	211	353
8:45	0	0	0	0	0	37	83	120	0	54	4	58	35	198	0	233	411
Total	0	0	0	0	0	127	244	371	4	219	21	244	132	702	0	834	1449
16:00	0	0	0	0	0	40	202	242	7	182	9	198	73	112	0	185	625
16:15	0	0	0	0	0	53	207	260	1	178	7	186	52	121	0	173	619
16:30	0	0	0	0	0	44	192	236	3	186	14	203	53	128	0	181	620
16:45	0	0	0	0	0	59	196	255	7	171	16	194	57	127	0	184	633
Total	0	0	0	0	0	196	797	993	18	717	46	781	235	488	0	723	2497
17:00	0	0	0	0	0	62	201	263	5	156	19	180	54	156	0	210	653
17:15	0	0	0	0	0	56	188	244	3	169	14	186	47	150	0	197	627
17:30	0	0	0	0	0	37	176	213	6	130	19	155	43	151	0	194	562
17:45	0	0	0	0	0	47	153	200	2	142	22	166	46	108	0	154	520
Total	0	0	0	0	0	202	718	920	16	597	74	687	190	565	0	755	2362
Grand Total	0	0	0	0	0	605	1937	2542	39	1688	154	1881	624	2205	0	2829	7252
Apprch%	0.0%	0.0%	0.0%		0.0%	23.8%	76.2%		2.1%	89.7%	8.2%		22.1%	77.9%	0.0%		
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	26.7%	35.1%	0.5%	23.3%	2.1%	25.9%	8.6%	30.4%	0.0%	39.0%	

City of Oakland Northgate Ave (NB)/27th St & I-980 EB On-Ramp Date: 05/22/2008

AM Peak Hr Begins at 800 AM

	Northgate Ave (NB)/27th St Southbound				I-980 EB On-Ramp Westbound				Northgate Ave (NB)/27th St Northbound				I-980 EB On-Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	0	0	0	0	0	25	53	78	1	54	3	58	36	145	0	181	317
815	0	0	0	0	0	30	60	90	2	62	5	69	37	172	0	209	368
830	0	0	0	0	0	35	48	83	1	49	9	59	24	187	0	211	353
845	0	0	0	0	0	37	83	120	0	54	4	58	35	198	0	233	411
Total Volume	0	0	0	0	0	127	244	371	4	219	21	244	132	702	0	834	1449
% App Total.	0.0%	0.0%	0.0%		0.0%	34.2%	65.8%		1.6%	89.8%	8.6%		15.8%	84.2%	0.0%		
PHF	0.000				0.773				0.884				0.895				

PM Peak Hr Begins at 430 PM

	Northgate Ave (NB)/27th St Southbound				I-980 EB On-Ramp Westbound				Northgate Ave (NB)/27th St Northbound				I-980 EB On-Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
430	0	0	0	0	0	44	192	236	3	186	14	203	53	128	0	181	620
445	0	0	0	0	0	59	196	255	7	171	16	194	57	127	0	184	633
500	0	0	0	0	0	62	201	263	5	156	19	180	54	156	0	210	653
515	0	0	0	0	0	56	188	244	3	169	14	186	47	150	0	197	627
Total Volume	0	0	0	0	0	221	777	998	18	682	63	763	211	561	0	772	2533
% App Total.	0.0%	0.0%	0.0%		0.0%	22.1%	77.9%		2.4%	89.4%	8.3%		27.3%	72.7%	0.0%		
PHF	0.000				0.949				0.940				0.919				

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City of Oakland Northgate Ave (SB)/27th St & I-980 WB Off-Ramp Date: 05/22/2008

	Northgate Ave (SB)/27th St Southbound				I-980 WB Off-Ramp Westbound				Northgate Ave (SB)/27th St Northbound				I-980 WB Off-Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	79	140	53	272	0	10	0	10	0	0	0	0	0	26	3	29	311
7:15	86	168	62	316	2	16	0	18	0	0	0	0	0	28	3	31	365
7:30	96	168	59	323	2	24	0	26	0	0	0	0	0	43	5	48	397
7:45	105	177	63	345	4	18	0	22	0	0	0	0	0	48	7	55	422
Total	366	653	237	1256	8	68	0	76	0	0	0	0	0	145	18	163	1495
8:00	136	223	71	430	2	25	0	27	0	0	0	0	0	54	4	58	515
8:15	140	226	97	463	2	30	0	32	0	0	0	0	0	57	9	66	561
8:30	137	213	73	423	1	39	0	40	0	0	0	0	0	62	9	71	534
8:45	164	176	56	396	4	41	0	45	0	0	0	0	0	66	1	67	508
Total	577	838	297	1712	9	135	0	144	0	0	0	0	0	239	23	262	2118
16:00	79	68	50	197	6	42	0	48	0	0	0	0	0	95	7	102	347
16:15	85	54	58	197	2	49	0	51	0	0	0	0	0	91	9	100	348
16:30	83	67	44	194	5	37	0	42	0	0	0	0	0	96	4	100	336
16:45	71	77	45	193	2	56	0	58	0	0	0	0	0	99	8	107	358
Total	318	266	197	781	15	184	0	199	0	0	0	0	0	381	28	409	1389
17:00	78	59	47	184	2	61	0	63	0	0	0	0	0	111	6	117	364
17:15	93	57	31	181	2	55	0	57	0	0	0	0	0	109	10	119	357
17:30	98	49	49	196	4	37	0	41	0	0	0	0	0	104	9	113	350
17:45	84	52	36	172	2	47	0	49	0	0	0	0	0	90	11	101	322
Total	353	217	163	733	10	200	0	210	0	0	0	0	0	414	36	450	1393
Grand Total	1614	1974	894	4482	42	587	0	629	0	0	0	0	0	1179	105	1284	6395
Apprch%	####	44.0%	19.9%		6.7%	93.3%	0.0%		0.0%	0.0%	0.0%		0.0%	91.8%	8.2%		
Total %	####	30.9%	14.0%	70.1%	0.7%	9.2%	0.0%	9.8%	0.0%	0.0%	0.0%	0.0%	0.0%	18.4%	1.6%	20.1%	

City of Oakland Northgate Ave (SB)/27th St & I-980 WB Off-Ramp Date: 05/22/2008

AM Peak Hr Begins at 800 AM

	Northgate Ave (SB)/27th St Southbound				I-980 WB Off-Ramp Westbound				Northgate Ave (SB)/27th St Northbound				I-980 WB Off-Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	136	223	71	430	2	25	0	27	0	0	0	0	0	54	4	58	515
815	140	226	97	463	2	30	0	32	0	0	0	0	0	57	9	66	561
830	137	213	73	423	1	39	0	40	0	0	0	0	0	62	9	71	534
845	164	176	56	396	4	41	0	45	0	0	0	0	0	66	1	67	508
Total Volume	577	838	297	1712	9	135	0	144	0	0	0	0	0	239	23	262	2118
% App Total.	####	48.9%	17.3%		6.3%	93.8%	0.0%		0.0%	0.0%	0.0%		0.0%	91.2%	8.8%		
PHF	0.924				0.800				0.000				0.923				

PM Peak Hr Begins at 445 PM

	Northgate Ave (SB)/27th St Southbound				I-980 WB Off-Ramp Westbound				Northgate Ave (SB)/27th St Northbound				I-980 WB Off-Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
445	71	77	45	193	2	56	0	58	0	0	0	0	0	99	8	107	358
500	78	59	47	184	2	61	0	63	0	0	0	0	0	111	6	117	364
515	93	57	31	181	2	55	0	57	0	0	0	0	0	109	10	119	357
530	98	49	49	196	4	37	0	41	0	0	0	0	0	104	9	113	350
Total Volume	340	242	172	754	10	209	0	219	0	0	0	0	0	423	33	456	1429
% App Total.	####	32.1%	22.8%		4.6%	95.4%	0.0%		0.0%	0.0%	0.0%		0.0%	92.8%	7.2%		
PHF	0.962				0.869				0.000				0.958				

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

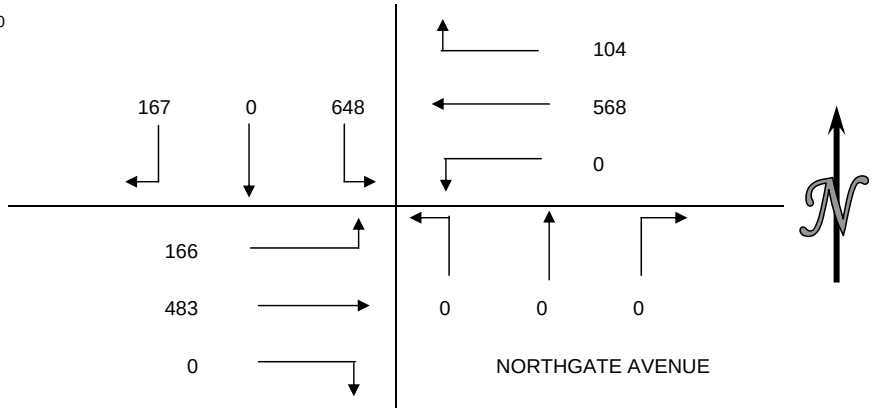
CLIENT:		DOWLING ASSOCIATES
PROJECT:		1938 BROADWAY TRAFFIC COUNTS
DATE:		TUESDAY OCTOBER 21, 2008
PERIOD"		7:00 AM TO 9:00 AM
INTERSECTION:	N/S	NORTHGATE AVENUE
	E/W	GRAND AVENUE
CITY:		OAKLAND

VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
700-715	35	0	77	10	84	0	0	0	0	0	59	19	284
715-730	42	0	106	11	77	0	0	0	0	0	53	33	322
730-745	50	0	119	20	117	0	0	0	0	0	68	28	402
745-800	51	0	133	25	110	0	0	0	0	0	121	34	474
800-815	50	0	144	27	131	0	0	0	0	0	110	54	516
815-830	39	0	151	26	154	0	0	0	0	0	130	47	547
830-845	44	0	191	31	160	0	0	0	0	0	108	26	560
845-900	34	0	162	20	123	0	0	0	0	0	135	39	513
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
700-800	178	0	435	66	388	0	0	0	0	0	301	114	1482
715-815	193	0	502	83	435	0	0	0	0	0	352	149	1714
730-830	190	0	547	98	512	0	0	0	0	0	429	163	1939
745-845	184	0	619	109	555	0	0	0	0	0	469	161	2097
800-900	167	0	648	104	568	0	0	0	0	0	483	166	2136

PHF 0.835 0.848168 0.83871 0.8875 0.894444 0.768519

AM PEAK HOUR: 800-900



PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-715	3	1	0	1	5
715-730	4	0	0	1	5
730-745	5	2	0	5	12
745-800	2	1	0	10	13
800-815	6	0	0	7	13
815-830	7	1	0	7	15
830-845	12	1	0	2	15
845-900	7	2	0	2	11
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-800	14	4	0	17	35
715-815	17	3	0	23	43
730-830	20	4	0	29	53
745-845	27	3	0	26	56
800-900	32	4	0	18	54

BICYCLE COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-715	1	0	0	0	1
715-730	0	1	0	3	4
730-745	3	0	0	3	6
745-800	1	0	0	2	3
800-815	2	0	0	0	2
815-830	2	0	0	9	11
830-845	4	1	0	5	10
845-900	7	1	0	4	12
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-800	5	1	0	8	14
715-815	6	1	0	8	15
730-830	8	0	0	14	22
745-845	9	1	0	16	26
800-900	15	2	0	18	35

ALL TRAFFIC DATA, INC
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City of Oakland — Northgate Ave & West Grand Ave — Date: 05/22/2008

	Northgate Ave Southbound				West Grand Ave Westbound				Northgate Ave Northbound				West Grand Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	92	0	42	134	0	51	13	64	0	0	0	0	17	57	0	74	272
7:15	97	0	52	149	0	99	13	112	0	0	1	1	17	61	0	78	340
7:30	114	0	42	156	0	80	21	101	1	0	1	2	20	66	0	86	345
7:45	122	0	38	160	0	129	23	152	0	0	1	1	21	81	0	102	415
Total	425	0	174	599	0	359	70	429	1	0	3	4	75	265	0	340	1372
8:00	156	0	40	196	0	105	22	127	0	0	0	0	30	81	0	111	434
8:15	179	0	47	226	0	139	30	169	0	0	1	1	32	94	0	126	522
8:30	165	0	42	207	0	133	16	149	0	0	0	0	25	117	0	142	498
8:45	147	0	39	186	0	119	16	135	1	0	0	1	33	108	0	141	463
Total	647	0	168	815	0	496	84	580	1	0	1	2	120	400	0	520	1917
16:00	44	0	18	62	2	110	69	181	0	0	2	2	51	93	0	144	389
16:15	32	0	21	53	0	127	86	213	0	0	0	0	57	95	0	152	418
16:30	44	0	21	65	0	124	91	215	0	1	0	1	79	115	0	194	475
16:45	55	0	26	81	0	122	91	213	0	0	1	1	54	117	0	171	466
Total	175	0	86	261	2	483	337	822	0	1	3	4	241	420	0	661	1748
17:00	27	1	18	46	0	136	90	226	0	0	0	0	57	123	0	180	452
17:15	32	0	24	56	0	146	94	240	0	0	0	0	44	130	1	175	471
17:30	27	0	19	46	0	138	97	235	0	0	0	0	41	132	0	173	454
17:45	31	0	23	54	0	135	58	193	0	0	0	0	46	121	0	167	414
Total	117	1	84	202	0	555	339	894	0	0	0	0	188	506	1	695	1791
Grand Total	1364	1	512	1877	2	1893	830	2725	2	1	7	10	624	1591	1	2216	6828
Apprch%	####	0.1%	27.3%		0.1%	69.5%	30.5%		20.0%	10.0%	70.0%		28.2%	71.8%	0.0%		
Total %	####	0.0%	7.5%	27.5%	0.0%	27.7%	12.2%	39.9%	0.0%	0.0%	0.1%	0.1%	9.1%	23.3%	0.0%	32.5%	

City of Oakland — Northgate Ave & West Grand Ave — Date: 05/22/2008

AM Peak Hr Begins at 800 AM

	Northgate Ave Southbound				West Grand Ave Westbound				Northgate Ave Northbound				West Grand Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	156	0	40	196	0	105	22	127	0	0	0	0	30	81	0	111	434
815	179	0	47	226	0	139	30	169	0	0	1	1	32	94	0	126	522
830	165	0	42	207	0	133	16	149	0	0	0	0	25	117	0	142	498
845	147	0	39	186	0	119	16	135	1	0	0	1	33	108	0	141	463
Total Volume	647	0	168	815	0	496	84	580	1	0	1	2	120	400	0	520	1917
% App Total.	####	0.0%	20.6%		0.0%	85.5%	14.5%		50.0%	0.0%	50.0%		23.1%	76.9%	0.0%		
PHF	0.902				0.858				0.500				0.915				

PM Peak Hr Begins at 430 PM

	Northgate Ave Southbound				West Grand Ave Westbound				Northgate Ave Northbound				West Grand Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
430	44	0	21	65	0	124	91	215	0	1	0	1	79	115	0	194	475
445	55	0	26	81	0	122	91	213	0	0	1	1	54	117	0	171	466
500	27	1	18	46	0	136	90	226	0	0	0	0	57	123	0	180	452
515	32	0	24	56	0	146	94	240	0	0	0	0	44	130	1	175	471
Total Volume	158	1	89	248	0	528	366	894	0	1	1	2	234	485	1	720	1864
% App Total.	####	0.4%	35.9%		0.0%	59.1%	40.9%		0.0%	50.0%	50.0%		32.5%	67.4%	0.1%		
PHF	0.765				0.931				0.500				0.928				

ALL TRAFFIC DATA, INC
(916)771-8700
FAX 786-2879

City of Oakland Telegraph Ave & West Grand Ave Date: 05/22/2008

	Telegraph Ave Southbound				West Grand Ave Westbound				Telegraph Ave Northbound				West Grand Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	8	33	9	50	3	38	7	48	12	29	3	44	16	74	37	127	269
7:15	9	47	10	66	8	78	14	100	36	41	4	81	17	99	42	158	405
7:30	9	53	10	72	7	63	9	79	31	49	9	89	24	121	45	190	430
7:45	9	66	17	92	11	86	18	115	54	53	7	114	23	118	69	210	531
Total	35	199	46	280	29	265	48	342	133	172	23	328	80	412	193	685	1635
8:00	21	74	21	116	13	81	10	104	37	57	4	98	13	169	80	262	580
8:15	18	82	12	112	13	107	18	138	52	52	6	110	30	171	64	265	625
8:30	17	68	14	99	15	81	8	104	37	51	6	94	27	172	89	288	585
8:45	17	76	18	111	17	87	19	123	44	57	10	111	22	147	70	239	584
Total	73	300	65	438	58	356	55	469	170	217	26	413	92	659	303	1054	2374
16:00	32	69	29	130	2	141	20	163	21	101	4	126	10	97	4	111	530
16:15	15	79	22	116	5	164	21	190	13	94	7	114	8	129	2	139	559
16:30	25	73	18	116	4	162	19	185	19	104	11	134	9	148	6	163	598
16:45	27	95	22	144	4	174	17	195	18	118	8	144	4	136	3	143	626
Total	99	316	91	506	15	641	77	733	71	417	30	518	31	510	15	556	2313
17:00	28	92	16	136	7	189	28	224	22	112	2	136	9	181	8	198	694
17:15	33	87	20	140	1	164	29	194	23	140	7	170	7	117	5	129	633
17:30	27	87	31	145	4	166	25	195	17	107	11	135	3	145	11	159	634
17:45	20	66	28	114	5	172	29	206	18	119	3	140	12	126	11	149	609
Total	108	332	95	535	17	691	111	819	80	478	23	581	31	569	35	635	2570
Grand Total	315	1147	297	1759	119	1953	291	2363	454	1284	102	1840	234	2150	546	2930	8892
Apprch%	####	65.2%	16.9%		5.0%	82.6%	12.3%		24.7%	69.8%	5.5%		8.0%	73.4%	18.6%		
Total %	3.5%	12.9%	3.3%	19.8%	1.3%	22.0%	3.3%	26.6%	5.1%	14.4%	1.1%	20.7%	2.6%	24.2%	6.1%	33.0%	

City of Oakland Telegraph Ave & West Grand Ave Date: 05/22/2008

AM Peak Hr Begins at 800 AM

	Telegraph Ave Southbound				West Grand Ave Westbound				Telegraph Ave Northbound				West Grand Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	21	74	21	116	13	81	10	104	37	57	4	98	13	169	80	262	580
815	18	82	12	112	13	107	18	138	52	52	6	110	30	171	64	265	625
830	17	68	14	99	15	81	8	104	37	51	6	94	27	172	89	288	585
845	17	76	18	111	17	87	19	123	44	57	10	111	22	147	70	239	584
Total Volume	73	300	65	438	58	356	55	469	170	217	26	413	92	659	303	1054	2374
% App Total.	####	68.5%	14.8%		12.4%	75.9%	11.7%		41.2%	52.5%	6.3%		8.7%	62.5%	28.7%		
PHF	0.944				0.850				0.930				0.915				

PM Peak Hr Begins at 445 PM

	Telegraph Ave Southbound				West Grand Ave Westbound				Telegraph Ave Northbound				West Grand Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
445	27	95	22	144	4	174	17	195	18	118	8	144	4	136	3	143	626
500	28	92	16	136	7	189	28	224	22	112	2	136	9	181	8	198	694
515	33	87	20	140	1	164	29	194	23	140	7	170	7	117	5	129	633
530	27	87	31	145	4	166	25	195	17	107	11	135	3	145	11	159	634
Total Volume	115	361	89	565	16	693	99	808	80	477	28	585	23	579	27	629	2587
% App Total.	####	63.9%	15.8%		2.0%	85.8%	12.3%		13.7%	81.5%	4.8%		3.7%	92.1%	4.3%		
PHF	0.974				0.902				0.860				0.794				

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

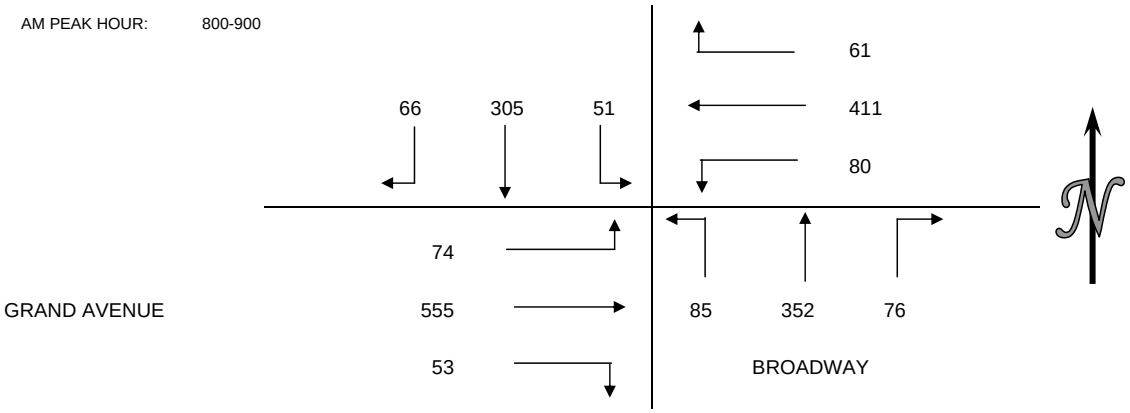
INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT:		DOWLING ASSOCIATES
PROJECT:		1938 BROADWAY TRAFFIC COUNTS
DATE:		TUESDAY OCTOBER 21, 2008
PERIOD"		7:00 AM TO 9:00 AM
INTERSECTION:	N/S	BROADWAY
	E/W	GRAND AVENUE
CITY:		OAKLAND

VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
700-715	11	21	7	4	81	11	10	49	20	5	72	11	302
715-730	12	33	5	7	89	13	17	58	13	7	69	11	334
730-745	14	41	6	9	97	15	14	73	17	18	94	13	411
745-800	12	55	8	6	97	24	12	97	24	15	109	20	479
800-815	17	72	23	17	100	24	10	93	23	9	140	12	540
815-830	20	74	10	13	114	21	17	83	14	17	151	26	560
830-845	13	87	9	14	102	21	20	96	14	9	133	16	534
845-900	16	72	9	17	95	14	29	80	34	18	131	20	535
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
700-800	49	150	26	26	364	63	53	277	74	45	344	55	1526
715-815	55	201	42	39	383	76	53	321	77	49	412	56	1764
730-830	63	242	47	45	408	84	53	346	78	59	494	71	1990
745-845	62	288	50	50	413	90	59	369	75	50	533	74	2113
800-900	66	305	51	61	411	80	76	352	85	53	555	74	2169

AM PEAK HOUR: 800-900



PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-715	5	6	6	8	25
715-730	5	14	8	20	47
730-745	9	19	19	16	63
745-800	7	13	11	14	45
800-815	16	14	9	7	46
815-830	12	14	10	20	56
830-845	8	10	13	15	46
845-900	10	27	15	15	67
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-800	26	52	44	58	180
715-815	37	60	47	57	201
730-830	44	60	49	57	210
745-845	43	51	43	56	193
800-900	46	65	47	57	215

BICYCLE COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-715	1	0	1	1	3
715-730	0	2	2	1	5
730-745	1	0	0	3	4
745-800	4	3	2	5	14
800-815	8	4	1	6	19
815-830	5	6	2	6	19
830-845	4	4	2	4	14
845-900	4	1	4	6	15
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-800	6	5	5	10	26
715-815	13	9	5	15	42
730-830	18	13	5	20	56
745-845	21	17	7	21	66
800-900	21	15	9	22	67

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

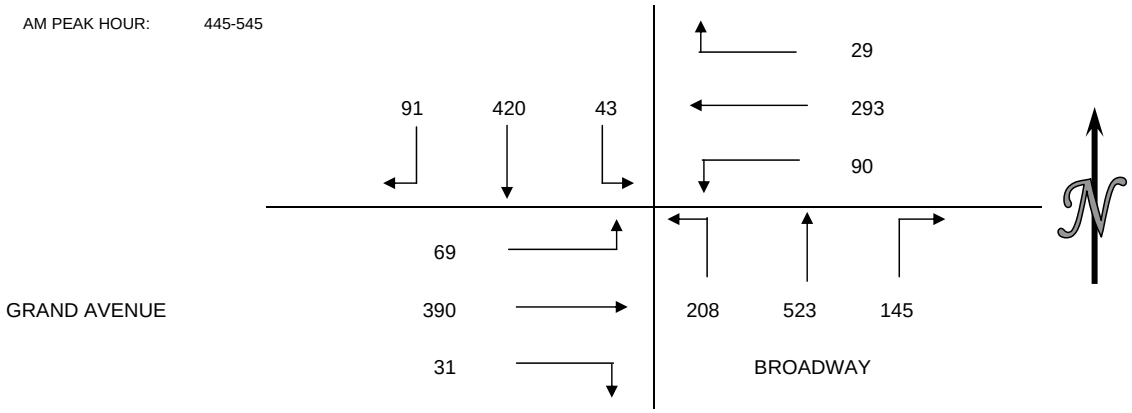
INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT: DOWLING ASSOCIATES
PROJECT: 1938 BROADWAY TRAFFIC COUNTS
DATE: TUESDAY OCTOBER 21, 2008
PERIOD" 4:00 PM TO 6:00 PM
INTERSECTION: N/S BROADWAY
E/W GRAND AVENUE
CITY: OAKLAND

VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
400-415	22	94	9	16	50	19	15	138	50	7	90	29	539
415-430	21	94	5	8	71	11	27	125	65	13	81	20	541
430-445	19	83	7	6	60	23	34	135	54	8	97	15	541
445-500	19	97	8	3	71	19	46	137	50	7	91	11	559
500-515	21	98	8	14	69	16	31	120	60	12	107	17	573
515-530	24	108	19	4	81	19	33	135	53	7	93	17	593
530-545	27	117	8	8	72	36	35	131	45	5	99	24	607
545-600	21	100	11	5	65	11	14	124	43	6	96	20	516
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
400-500	81	368	29	33	252	72	122	535	219	35	359	75	2180
415-515	80	372	28	31	271	69	138	517	229	40	376	63	2214
430-530	83	386	42	27	281	77	144	527	217	34	388	60	2266
445-545	91	420	43	29	293	90	145	523	208	31	390	69	2332
500-600	93	423	46	31	287	82	113	510	201	30	395	78	2289

AM PEAK HOUR: 445-545



PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-415	7	28	17	6	58
415-430	9	26	12	12	59
430-445	5	40	18	6	69
445-500	8	44	22	9	83
500-515	7	37	37	7	88
515-530	5	15	6	5	31
530-545	7	45	16	14	82
545-600	4	11	9	6	30
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-500	29	138	69	33	269
415-515	29	147	89	34	299
430-530	25	136	83	27	271
445-545	27	141	81	35	284
500-600	23	108	68	32	231

BICYCLE COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-415	4	5	3	4	16
415-430	5	6	3	7	21
430-445	4	9	3	5	21
445-500	4	10	2	4	20
500-515	4	8	5	6	23
515-530	4	16	5	3	28
530-545	3	18	9	4	34
545-600	3	31	6	4	44
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-500	17	30	11	20	78
415-515	17	33	13	22	85
430-530	16	43	15	18	92
445-545	15	52	21	17	105
500-600	14	73	25	17	129

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-004 WEBSTER-GRAND-F
Site Code : 00000000
Start Date : 08/06/2008
Page No : 1

Groups Printed- Unshifted

	WEB Southbound					GRAND DS Westbound					WEB Northbound					GRAND DS Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	4	11	2	6	17	10	29	2	7	41	0	0	0	4	0	1	21	23	6	45	23	103	126
07:15	3	10	2	10	15	10	37	0	10	47	0	0	0	1	0	0	27	24	7	51	28	113	141
07:30	8	13	4	14	25	21	76	0	6	97	0	0	0	4	0	2	58	39	14	99	38	221	259
07:45	2	30	5	43	37	20	81	1	20	102	0	0	0	5	0	0	64	69	23	133	91	272	363
Total	17	64	13	73	94	61	223	3	43	287	0	0	0	14	0	3	170	155	50	328	180	709	889
08:00	2	31	2	44	35	23	92	0	12	115	0	0	0	6	0	0	84	68	4	152	66	302	368
08:15	1	35	2	52	38	23	103	0	27	126	0	0	0	15	0	0	75	72	24	147	118	311	429
08:30	4	31	5	54	40	30	94	0	8	124	0	0	0	8	0	0	88	65	14	153	84	317	401
08:45	1	30	6	52	37	25	84	0	9	109	0	0	0	13	0	0	81	60	10	141	84	287	371
Total	8	127	15	202	150	101	373	0	56	474	0	0	0	42	0	0	328	265	52	593	352	1217	1569
*** BREAK ***																							
16:00	6	45	9	7	60	28	49	0	3	77	0	0	0	11	0	0	96	47	33	143	54	280	334
16:15	10	37	7	12	54	25	69	0	8	94	0	0	0	30	0	1	111	41	43	153	93	301	394
16:30	5	55	12	11	72	25	68	0	3	93	0	0	0	25	0	0	107	33	39	140	78	305	383
16:45	9	42	6	8	57	32	68	1	2	101	0	0	0	16	0	1	125	53	28	179	54	337	391
Total	30	179	34	38	243	110	254	1	16	365	0	0	0	82	0	2	439	174	143	615	279	1223	1502
17:00	12	44	18	6	74	25	70	0	6	95	0	0	0	24	0	3	144	47	71	194	107	363	470
17:15	21	49	20	3	90	23	91	2	4	116	0	0	0	10	0	1	142	41	44	184	61	390	451
17:30	18	51	5	4	74	27	88	0	3	115	0	0	0	16	0	1	142	35	45	178	68	367	435
17:45	11	48	12	9	71	25	70	0	2	95	0	0	0	23	0	0	142	40	53	182	87	348	435
Total	62	192	55	22	309	100	319	2	15	421	0	0	0	73	0	5	570	163	213	738	323	1468	1791
Grand Total	117	562	117	335	796	372	1169	6	130	1547	0	0	0	211	0	10	1507	757	458	2274	1134	4617	5751
Apprch %	14.7	70.6	14.7			24	75.6	0.4			0	0	0			0.4	66.3	33.3					
Total %	2.5	12.2	2.5		17.2	8.1	25.3	0.1		33.5	0	0	0		0	0.2	32.6	16.4		49.3	19.7	80.3	

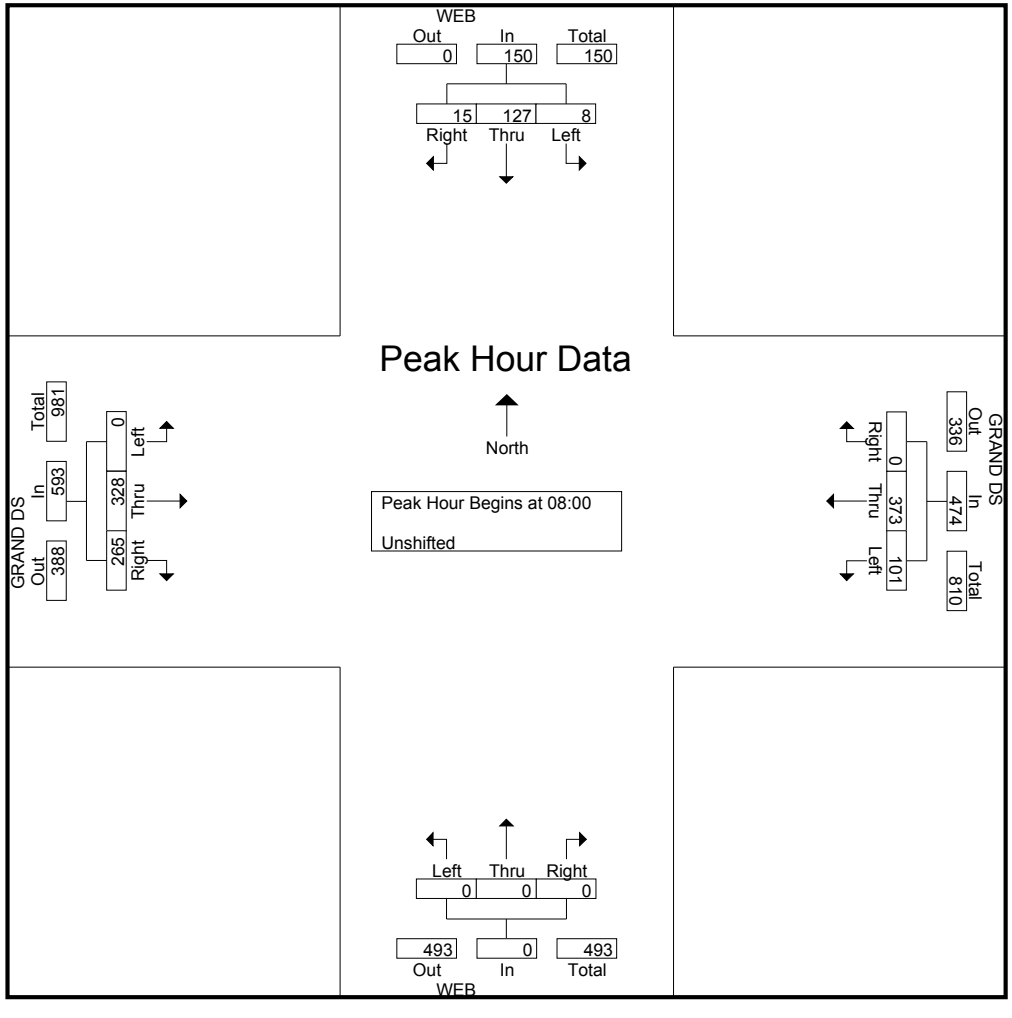
	WEB Southbound				GRAND DS Westbound				WEB Northbound				GRAND DS Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	2	31	2	35	23	92	0	115	0	0	0	0	0	84	68	152	302
08:15	1	**35**	2	38	23	**103**	0	**126**	0	0	0	0	0	75	**72**	147	311
08:30	**4**	31	5	**40**	**30**	94	0	124	0	0	0	0	0	**88**	65	**153**	**317**
08:45	1	30	**6**	37	25	84	0	109	0	0	0	0	0	81	60	141	287
Total Volume	8	127	15	150	101	373	0	474	0	0	0	0	0	328	265	593	1217
% App. Total	5.3	84.7	10		21.3	78.7	0		0	0	0		0	55.3	44.7		
PHF	.500	.907	.625	.938	.842	.905	.000	.940	.000	.000	.000	.000	.000	.932	.920	.969	.960

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-004 WEBSTER-GRAND-F
Site Code : 00000000
Start Date : 08/06/2008
Page No : 2



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

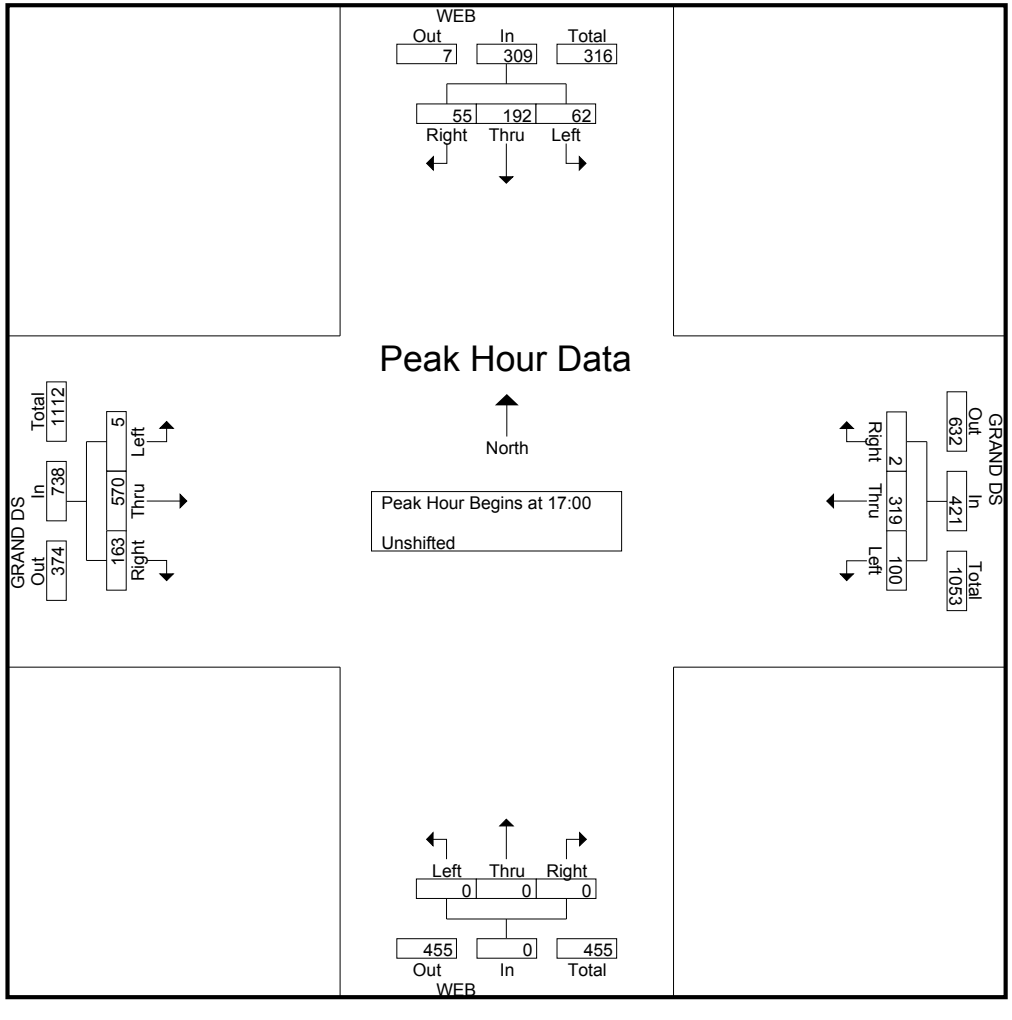
17:00	12	44	18	74	25	70	0	95	0	0	0	0	**3**	**144**	**47**	**194**	363
17:15	**21**	49	**20**	**90**	23	**91**	**2**	**116**	0	0	0	0	1	142	41	184	**390**
17:30	18	**51**	5	74	**27**	88	0	115	0	0	0	0	1	142	35	178	367
17:45	11	48	12	71	25	70	0	95	0	0	0	0	0	142	40	182	348
Total Volume	62	192	55	309	100	319	2	421	0	0	0	0	5	570	163	738	1468
% App. Total	20.1	62.1	17.8		23.8	75.8	0.5		0	0	0		0.7	77.2	22.1		
PHF	.738	.941	.688	.858	.926	.876	.250	.907	.000	.000	.000	.000	.417	.990	.867	.951	.941

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-004 WEBSTER-GRAND-F
Site Code : 00000000
Start Date : 08/06/2008
Page No : 3



ALL TRAFFIC DATA, INC
(916)771-8700
FAX 786-2879

City of Oakland — Harrison St & Grand Ave — Date: 5/22/2008

	Harrison St Southbound				Grand Ave Westbound				Harrison St Northbound				Grand Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	1	82	10	93	37	50	8	95	8	74	40	122	5	26	6	37	347
7:15	1	107	17	125	47	63	2	112	15	83	35	133	2	22	11	35	405
7:30	1	126	25	152	61	95	4	160	26	124	43	193	10	29	11	50	555
7:45	0	157	19	176	81	96	7	184	22	133	58	213	9	31	25	65	638
Total	3	472	71	546	226	304	21	551	71	414	176	661	26	108	53	187	1945
8:00	7	146	12	165	81	105	24	210	25	142	73	240	16	39	15	70	685
8:15	7	138	24	169	97	145	49	291	25	180	70	275	18	29	13	60	795
8:30	14	142	21	177	86	119	21	226	31	175	89	295	10	27	12	49	747
8:45	11	130	18	159	76	84	16	176	28	165	58	251	7	19	10	36	622
Total	39	556	75	670	340	453	110	903	109	662	290	1061	51	114	50	215	2849
16:00	1	75	18	94	56	65	9	130	2	238	95	335	22	80	25	127	686
16:15	1	88	14	103	64	70	13	147	2	217	146	365	32	80	30	142	757
16:30	0	129	9	138	54	62	11	127	2	236	169	407	16	109	36	161	833
16:45	0	120	4	124	68	60	12	140	2	224	193	419	21	122	33	176	859
Total	2	412	45	459	242	257	45	544	8	915	603	1526	91	391	124	606	3135
17:00	1	132	10	143	71	65	11	147	3	290	196	489	30	135	27	192	971
17:15	0	126	25	151	71	64	8	143	4	274	206	484	45	147	22	214	992
17:30	1	126	11	138	69	70	5	144	0	280	112	392	18	134	28	180	854
17:45	1	124	16	141	68	69	9	146	2	258	119	379	23	139	25	187	853
Total	3	508	62	573	279	268	33	580	9	1102	633	1744	116	555	102	773	3670
Grand Total	47	1948	253	2248	1087	1282	209	2578	197	3093	1702	4992	284	1168	329	1781	11599
Apprch%	2.1%	86.7%	11.3%		42.2%	49.7%	8.1%		3.9%	62.0%	34.1%		15.9%	65.6%	18.5%		
Total %	0.4%	16.8%	2.2%	19.4%	9.4%	11.1%	1.8%	22.2%	1.7%	26.7%	14.7%	43.0%	2.4%	10.1%	2.8%	15.4%	

City of Oakland — Harrison St & Grand Ave — Date: 5/22/2008

AM Peak Hr Begins at 745 AM

	Harrison St Southbound				Grand Ave Westbound				Harrison St Northbound				Grand Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
745	0	157	19	176	81	96	7	184	22	133	58	213	9	31	25	65	638
800	7	146	12	165	81	105	24	210	25	142	73	240	16	39	15	70	685
815	7	138	24	169	97	145	49	291	25	180	70	275	18	29	13	60	795
830	14	142	21	177	86	119	21	226	31	175	89	295	10	27	12	49	747
Total Volume	28	583	76	687	345	465	101	911	103	630	290	1023	53	126	65	244	2865
% App Total.	4.1%	84.9%	11.1%		37.9%	51.0%	11.1%		10.1%	61.6%	28.3%		21.7%	51.6%	26.6%		
PHF	0.970				0.783				0.867				0.871				

PM Peak Hr Begins at 445 PM

	Harrison St Southbound				Grand Ave Westbound				Harrison St Northbound				Grand Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
445	0	120	4	124	68	60	12	140	2	224	193	419	21	122	33	176	859
500	1	132	10	143	71	65	11	147	3	290	196	489	30	135	27	192	971
515	0	126	25	151	71	64	8	143	4	274	206	484	45	147	22	214	992
530	1	126	11	138	69	70	5	144	0	280	112	392	18	134	28	180	854
Total Volume	2	504	50	556	279	259	36	574	9	1068	707	1784	114	538	110	762	3676
% App Total.	0.4%	90.6%	9.0%		48.6%	45.1%	6.3%		0.5%	59.9%	39.6%		15.0%	70.6%	14.4%		
PHF	0.921				0.976				0.912				0.890				

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-011 HARRISON-21ST-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 1

Groups Printed- Unshifted

	HARRISON ST. Southbound					Westbound					HARRISON ST. Northbound					21ST ST. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	0	116	20	0	136	0	0	0	0	0	15	84	0	39	99	13	0	3	8	16	47	251	298
07:15	0	130	39	0	169	0	0	0	0	0	19	99	0	30	118	7	0	4	10	11	40	298	338
07:30	0	176	51	0	227	0	0	0	0	0	20	140	0	38	160	11	0	3	17	14	55	401	456
07:45	0	209	53	0	262	0	0	0	0	0	21	168	0	41	189	13	0	4	24	17	65	468	533
Total	0	631	163	0	794	0	0	0	0	0	75	491	0	148	566	44	0	14	59	58	207	1418	1625
08:00	0	216	60	0	276	0	0	0	0	0	17	196	0	60	213	13	0	9	12	22	72	511	583
08:15	0	238	62	0	300	0	0	0	0	0	21	193	0	43	214	10	0	6	19	16	62	530	592
08:30	0	250	73	0	323	0	0	0	0	0	21	210	0	59	231	15	0	8	23	23	82	577	659
08:45	0	221	71	0	292	0	0	0	0	0	25	206	0	56	231	12	0	9	18	21	74	544	618
Total	0	925	266	0	1191	0	0	0	0	0	84	805	0	218	889	50	0	32	72	82	290	2162	2452
*** BREAK ***																							
16:00	0	160	14	0	174	0	0	0	0	0	21	247	0	22	268	48	0	18	18	66	40	508	548
16:15	0	187	17	0	204	0	0	0	0	0	22	286	0	36	308	58	0	17	23	75	59	587	646
16:30	0	170	21	0	191	0	0	0	0	0	23	325	0	46	348	62	0	14	25	76	71	615	686
16:45	0	197	19	0	216	0	0	0	0	0	20	328	0	45	348	66	0	17	16	83	61	647	708
Total	0	714	71	0	785	0	0	0	0	0	86	1186	0	149	1272	234	0	66	82	300	231	2357	2588
17:00	0	212	17	0	229	0	0	0	0	0	19	324	0	37	343	72	0	21	15	93	52	665	717
17:15	0	182	18	0	200	0	0	0	0	0	11	281	0	40	292	65	0	19	18	84	58	576	634
17:30	0	179	14	0	193	0	0	0	0	0	14	283	0	55	297	70	0	15	12	85	67	575	642
17:45	0	200	23	0	223	0	0	0	0	0	13	322	0	79	335	76	0	19	15	95	94	653	747
Total	0	773	72	0	845	0	0	0	0	0	57	1210	0	211	1267	283	0	74	60	357	271	2469	2740
Grand Total	0	3043	572	0	3615	0	0	0	0	0	302	3692	0	726	3994	611	0	186	273	797	999	8406	9405
Apprch %	0	84.2	15.8			0	0	0			7.6	92.4	0			76.7	0	23.3					
Total %	0	36.2	6.8		43	0	0	0		0	3.6	43.9	0		47.5	7.3	0	2.2		9.5	10.6	89.4	

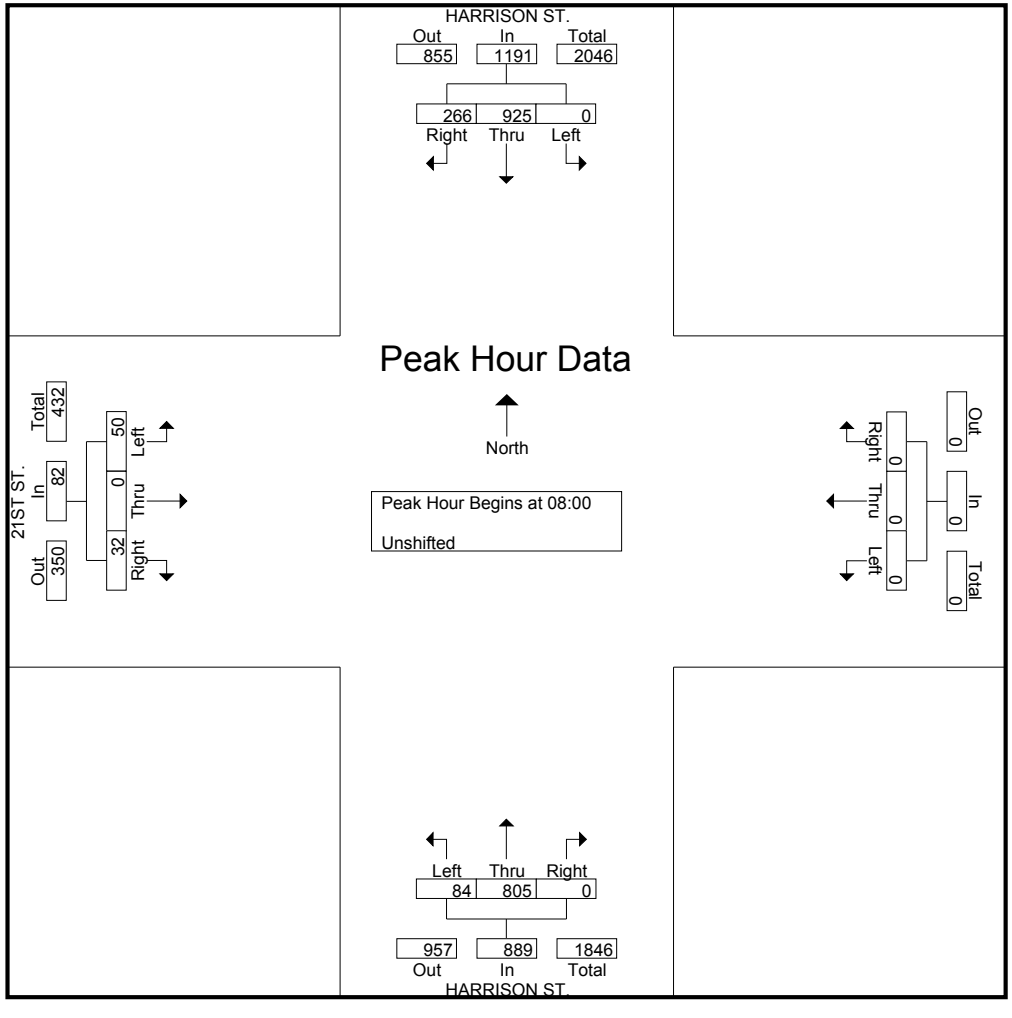
	HARRISON ST. Southbound				Westbound				HARRISON ST. Northbound				21ST ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	0	216	60	276	0	0	0	0	17	196	0	213	13	0	**9**	22	511
08:15	0	238	62	300	0	0	0	0	21	193	0	214	10	0	6	16	530
08:30	0	**250**	**73**	**323**	0	0	0	0	21	**210**	0	**231**	**15**	0	8	**23**	**577**
08:45	0	221	71	292	0	0	0	0	**25**	206	0	231	12	0	9	21	544
Total Volume	0	925	266	1191	0	0	0	0	84	805	0	889	50	0	32	82	2162
% App. Total	0	77.7	22.3		0	0	0		9.4	90.6	0		61	0	39		
PHF	.000	.925	.911	.922	.000	.000	.000	.000	.840	.958	.000	.962	.833	.000	.889	.891	.937

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-011 HARRISON-21ST-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 2



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 16:15

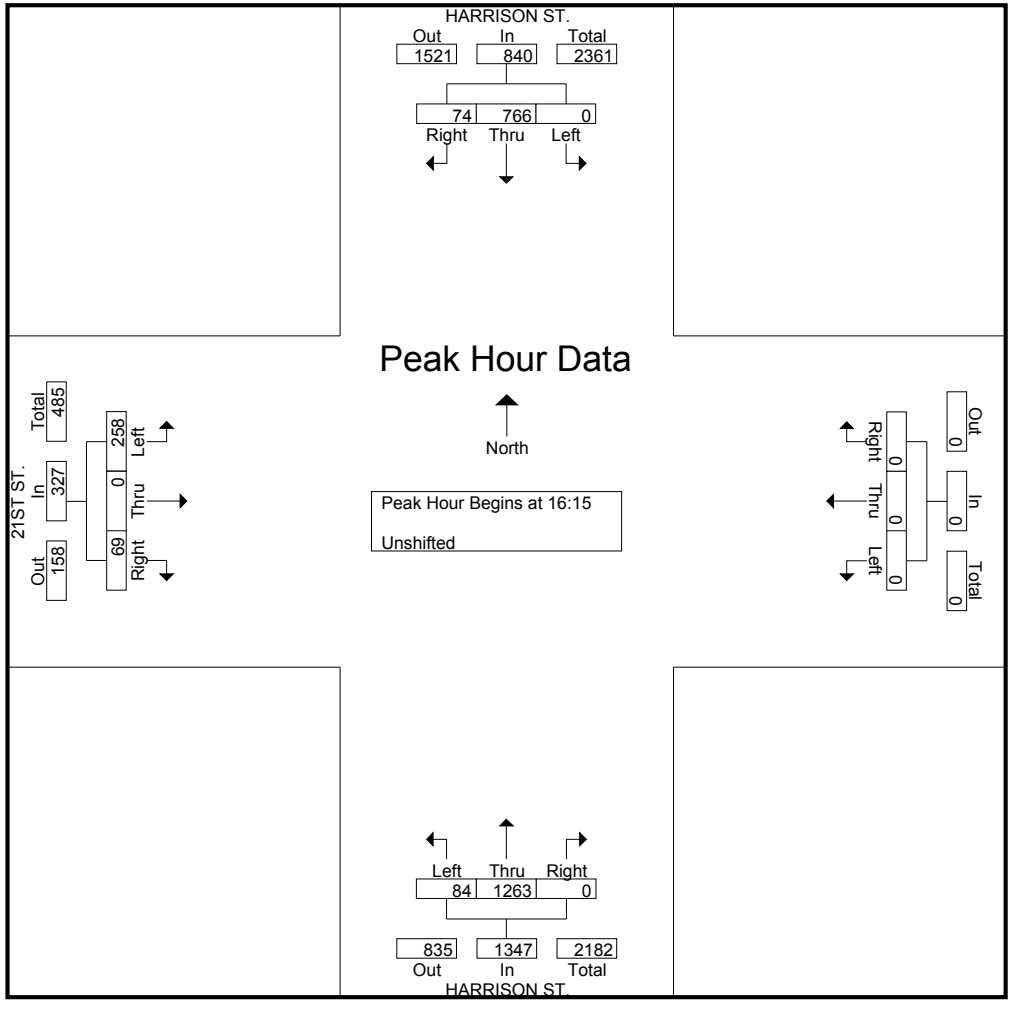
16:15	0	187	17	204	0	0	0	0	22	286	0	308	58	0	17	75	587
16:30	0	170	**21**	191	0	0	0	0	**23**	325	0	**348**	62	0	14	76	615
16:45	0	197	19	216	0	0	0	0	20	**328**	0	348	66	0	17	83	647
17:00	0	**212**	17	**229**	0	0	0	0	19	324	0	343	**72**	0	**21**	**93**	**665**
Total Volume	0	766	74	840	0	0	0	0	84	1263	0	1347	258	0	69	327	2514
% App. Total	0	91.2	8.8		0	0	0		6.2	93.8	0		78.9	0	21.1		
PHF	.000	.903	.881	.917	.000	.000	.000	.000	.913	.963	.000	.968	.896	.000	.821	.879	.945

All Traffic Data

(916) 771-8700
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OAKLAND

File Name : 08-7458-011 HARRISON-21ST-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 3



All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-009 EAST GARAGE-21ST-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 1

Groups Printed- Unshifted

	Southbound					21ST ST. Westbound					GARAGE (EAST) Northbound					21ST ST. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	0	0	0	0	0	2	33	0	0	35	0	0	0	3	0	0	15	1	0	16	3	51	54
07:15	0	0	0	0	0	5	49	0	2	54	1	0	0	17	1	0	10	1	4	11	23	66	89
07:30	0	0	0	0	0	7	52	0	1	59	0	0	1	7	1	0	13	1	3	14	11	74	85
07:45	0	0	0	0	0	10	52	0	1	62	0	0	0	11	0	0	14	3	2	17	14	79	93
Total	0	0	0	0	0	24	186	0	4	210	1	0	1	38	2	0	52	6	9	58	51	270	321
08:00	0	0	0	0	0	22	58	0	1	80	0	0	1	13	1	0	22	8	3	30	17	111	128
08:15	0	0	0	0	0	14	60	0	0	74	0	0	0	10	0	0	14	2	0	16	10	90	100
08:30	0	0	0	0	0	23	79	0	0	102	1	0	0	9	1	0	24	8	0	32	9	135	144
08:45	0	0	0	0	0	26	66	0	0	92	0	0	0	17	0	0	21	11	0	32	17	124	141
Total	0	0	0	0	0	85	263	0	1	348	1	0	1	49	2	0	81	29	3	110	53	460	513
*** BREAK ***																							
16:00	0	0	0	0	0	1	32	0	0	33	2	0	4	11	6	0	40	1	0	41	11	80	91
16:15	0	0	0	0	0	1	39	0	0	40	1	0	7	16	8	0	43	3	1	46	17	94	111
16:30	0	0	0	0	0	4	39	0	0	43	3	0	1	22	4	0	51	4	0	55	22	102	124
16:45	0	0	0	0	0	2	38	0	1	40	3	0	3	14	6	0	59	2	1	61	16	107	123
Total	0	0	0	0	0	8	148	0	1	156	9	0	15	63	24	0	193	10	2	203	66	383	449
17:00	0	0	0	0	0	4	36	0	0	40	1	0	16	9	17	0	57	4	0	61	9	118	127
17:15	0	0	0	0	0	8	36	0	1	44	4	0	16	13	20	0	58	1	0	59	14	123	137
17:30	0	0	0	0	0	5	38	0	0	43	3	0	14	19	17	0	55	2	0	57	19	117	136
17:45	0	0	0	0	0	4	29	0	0	33	3	0	8	13	11	0	62	3	0	65	13	109	122
Total	0	0	0	0	0	21	139	0	1	160	11	0	54	54	65	0	232	10	0	242	55	467	522
Grand Total	0	0	0	0	0	138	736	0	7	874	22	0	71	204	93	0	558	55	14	613	225	1580	1805
Apprch %	0	0	0			15.8	84.2	0			23.7	0	76.3			0	91	9					
Total %	0	0	0		0	8.7	46.6	0		55.3	1.4	0	4.5		5.9	0	35.3	3.5		38.8	12.5	87.5	

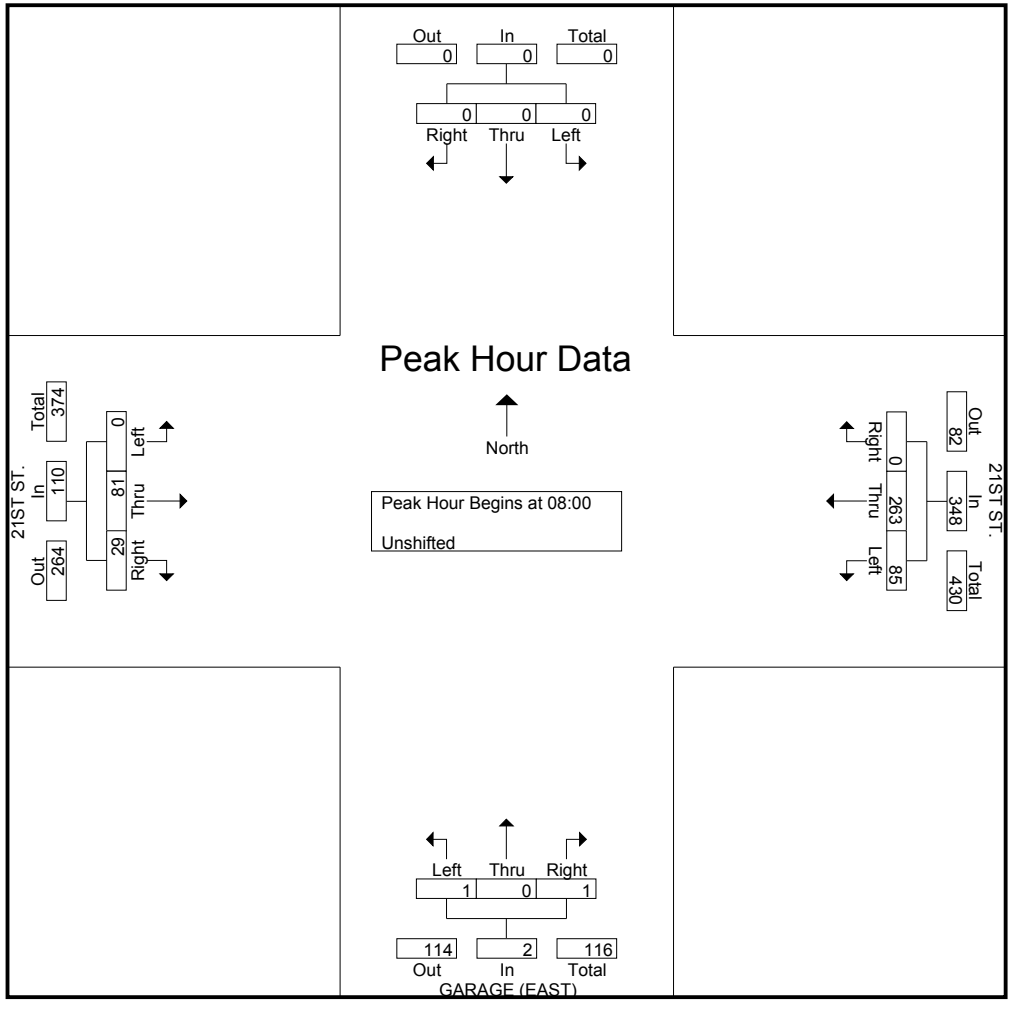
	Southbound				21ST ST. Westbound				GARAGE (EAST) Northbound				21ST ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	0	0	0	0	22	58	0	80	0	0	**1**	**1**	0	22	8	30	111
08:15	0	0	0	0	14	60	0	74	0	0	0	0	0	14	2	16	90
08:30	0	0	0	0	23	**79**	0	**102**	**1**	0	0	1	0	**24**	8	**32**	**135**
08:45	0	0	0	0	**26**	66	0	92	0	0	0	0	0	21	**11**	32	124
Total Volume	0	0	0	0	85	263	0	348	1	0	1	2	0	81	29	110	460
% App. Total	0	0	0		24.4	75.6	0		50	0	50		0	73.6	26.4		
PHF	.000	.000	.000	.000	.817	.832	.000	.853	.250	.000	.250	.500	.000	.844	.659	.859	.852

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-009 EAST GARAGE-21ST-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 2



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

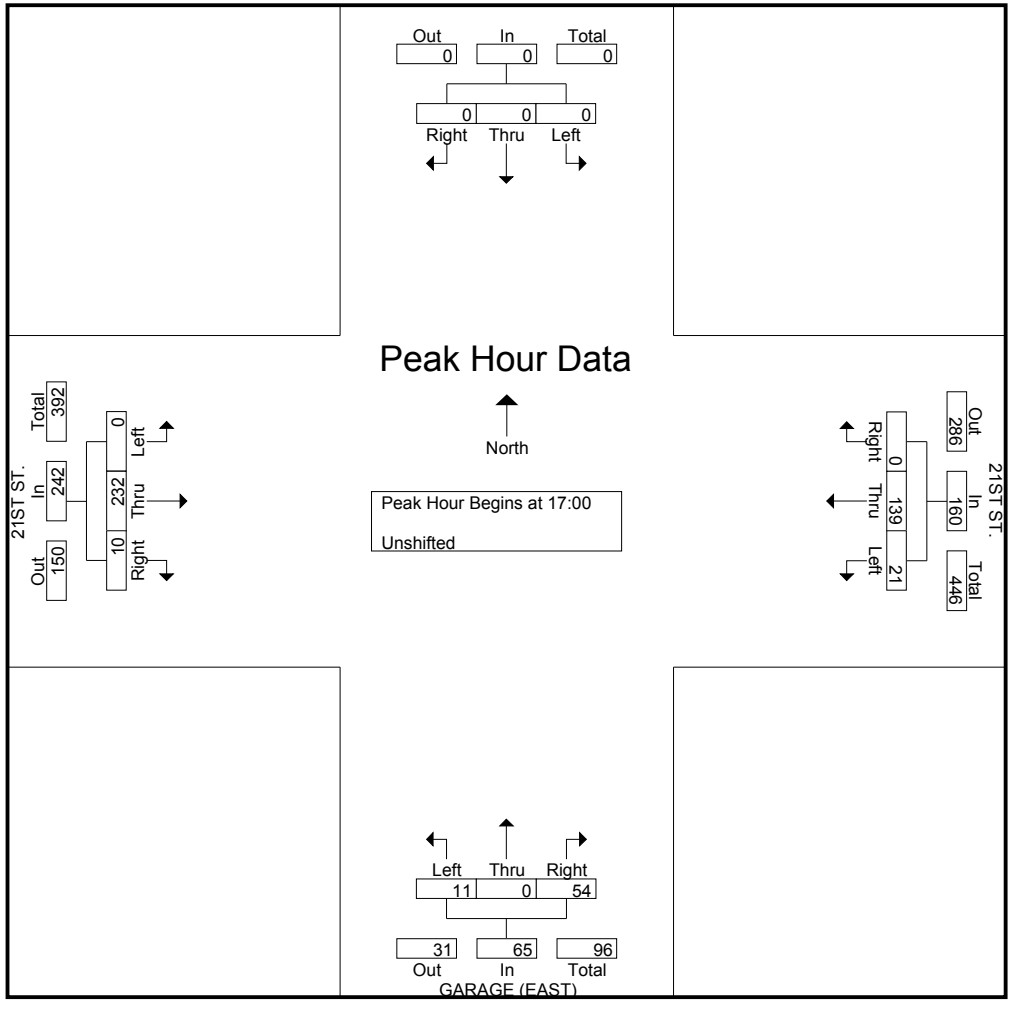
17:00	0	0	0	0	4	36	0	40	1	0	**16**	17	0	57	**4**	61	118
17:15	0	0	0	0	**8**	36	0	**44**	**4**	0	16	**20**	0	58	1	59	**123**
17:30	0	0	0	0	5	**38**	0	43	3	0	14	17	0	55	2	57	117
17:45	0	0	0	0	4	29	0	33	3	0	8	11	0	**62**	3	**65**	109
Total Volume	0	0	0	0	21	139	0	160	11	0	54	65	0	232	10	242	467
% App. Total	0	0	0		13.1	86.9	0		16.9	0	83.1		0	95.9	4.1		
PHF	.000	.000	.000	.000	.656	.914	.000	.909	.688	.000	.844	.813	.000	.935	.625	.931	.949

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-009 EAST GARAGE-21ST-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 3



All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-008 WEST GARAGE-21ST-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 1

Groups Printed- Unshifted

	Southbound					21ST ST. Westbound					GARAGE (WEST) Northbound					21ST ST. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	0	0	0	0	0	10	18	0	0	28	0	0	0	2	0	0	16	6	1	22	3	50	53
07:15	0	0	0	0	0	15	17	0	0	32	0	0	0	8	0	0	12	8	0	20	8	52	60
07:30	0	0	0	0	0	14	28	0	1	42	1	0	0	6	1	0	11	8	0	19	7	62	69
07:45	0	0	0	0	0	10	28	0	0	38	0	0	1	10	1	0	17	27	2	44	12	83	95
Total	0	0	0	0	0	49	91	0	1	140	1	0	1	26	2	0	56	49	3	105	30	247	277
08:00	0	0	0	0	0	29	20	0	1	49	0	0	0	7	0	0	31	26	1	57	9	106	115
08:15	0	0	0	0	0	22	27	0	0	49	1	0	0	6	1	0	17	26	1	43	7	93	100
08:30	0	0	0	0	0	24	38	0	1	62	0	0	1	9	1	0	20	18	0	38	10	101	111
08:45	0	0	0	0	0	27	31	0	2	58	1	0	1	10	2	0	25	30	2	55	14	115	129
Total	0	0	0	0	0	102	116	0	4	218	2	0	2	32	4	0	93	100	4	193	40	415	455
*** BREAK ***																							
16:00	0	0	0	0	0	1	23	0	0	24	3	0	6	5	9	0	34	1	1	35	6	68	74
16:15	0	0	0	0	0	2	28	0	0	30	4	0	10	15	14	0	30	1	0	31	15	75	90
16:30	0	0	0	0	0	6	27	0	0	33	6	0	3	13	9	0	41	1	0	42	13	84	97
16:45	0	0	0	0	0	3	22	0	1	25	7	0	9	8	16	0	42	2	0	44	9	85	94
Total	0	0	0	0	0	12	100	0	1	112	20	0	28	41	48	0	147	5	1	152	43	312	355
17:00	0	0	0	0	0	0	25	0	0	25	6	0	13	7	19	0	45	2	0	47	7	91	98
17:15	0	0	0	0	0	4	21	0	1	25	6	0	10	8	16	0	48	2	0	50	9	91	100
17:30	0	0	0	0	0	1	20	0	0	21	10	0	20	11	30	0	36	3	0	39	11	90	101
17:45	0	0	0	0	0	0	17	0	0	17	7	0	17	14	24	0	43	2	0	45	14	86	100
Total	0	0	0	0	0	5	83	0	1	88	29	0	60	40	89	0	172	9	0	181	41	358	399
Grand Total	0	0	0	0	0	168	390	0	7	558	52	0	91	139	143	0	468	163	8	631	154	1332	1486
Apprch %	0	0	0			30.1	69.9	0			36.4	0	63.6			0	74.2	25.8					
Total %	0	0	0		0	12.6	29.3	0		41.9	3.9	0	6.8		10.7	0	35.1	12.2		47.4	10.4	89.6	

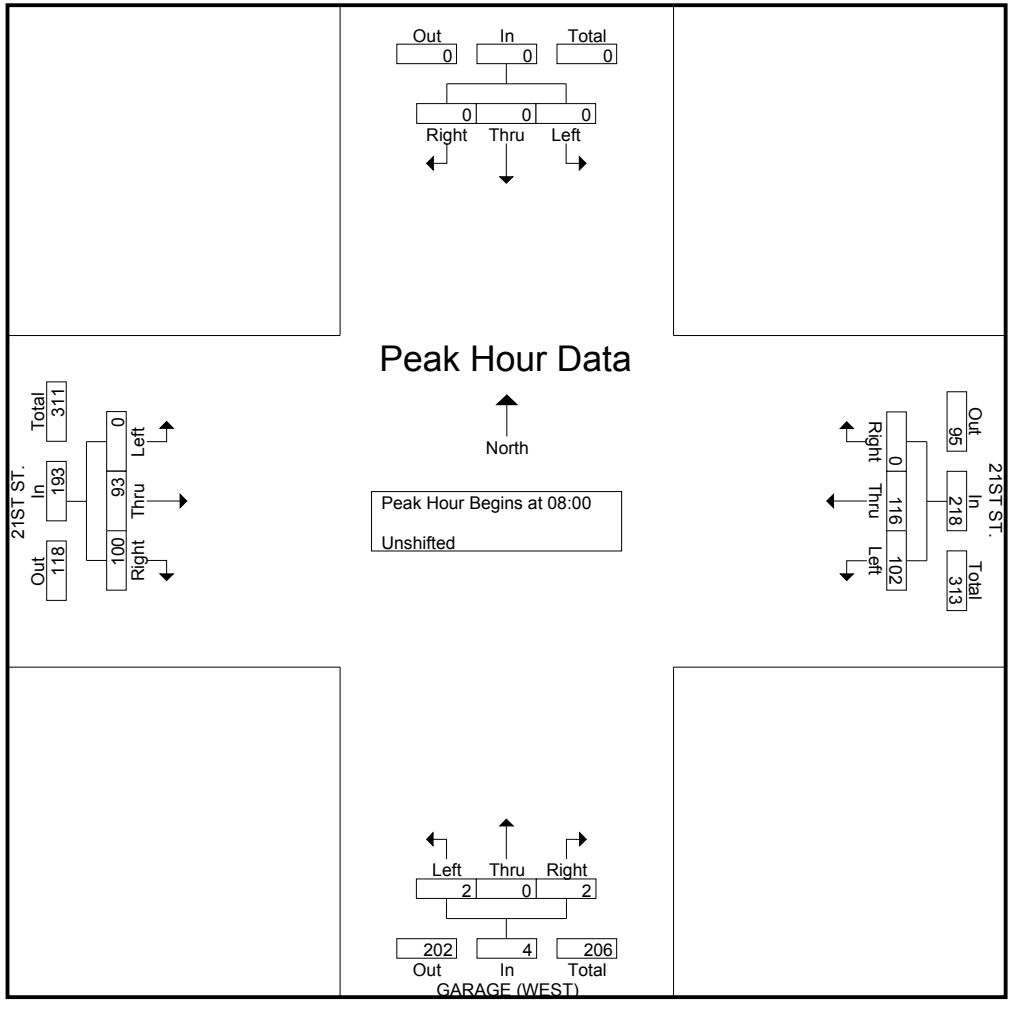
	Southbound				21ST ST. Westbound				GARAGE (WEST) Northbound				21ST ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	0	0	0	0	**29**	20	0	49	0	0	0	0	0	**31**	26	**57**	106
08:15	0	0	0	0	22	27	0	49	**1**	0	0	1	0	17	26	43	93
08:30	0	0	0	0	24	**38**	0	**62**	0	0	**1**	1	0	20	18	38	101
08:45	0	0	0	0	27	31	0	58	1	0	1	**2**	0	25	**30**	55	**115**
Total Volume	0	0	0	0	102	116	0	218	2	0	2	4	0	93	100	193	415
% App. Total	0	0	0		46.8	53.2	0		50	0	50		0	48.2	51.8		
PHF	.000	.000	.000	.000	.879	.763	.000	.879	.500	.000	.500	.500	.000	.750	.833	.846	.902

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-008 WEST GARAGE-21ST-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 2



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

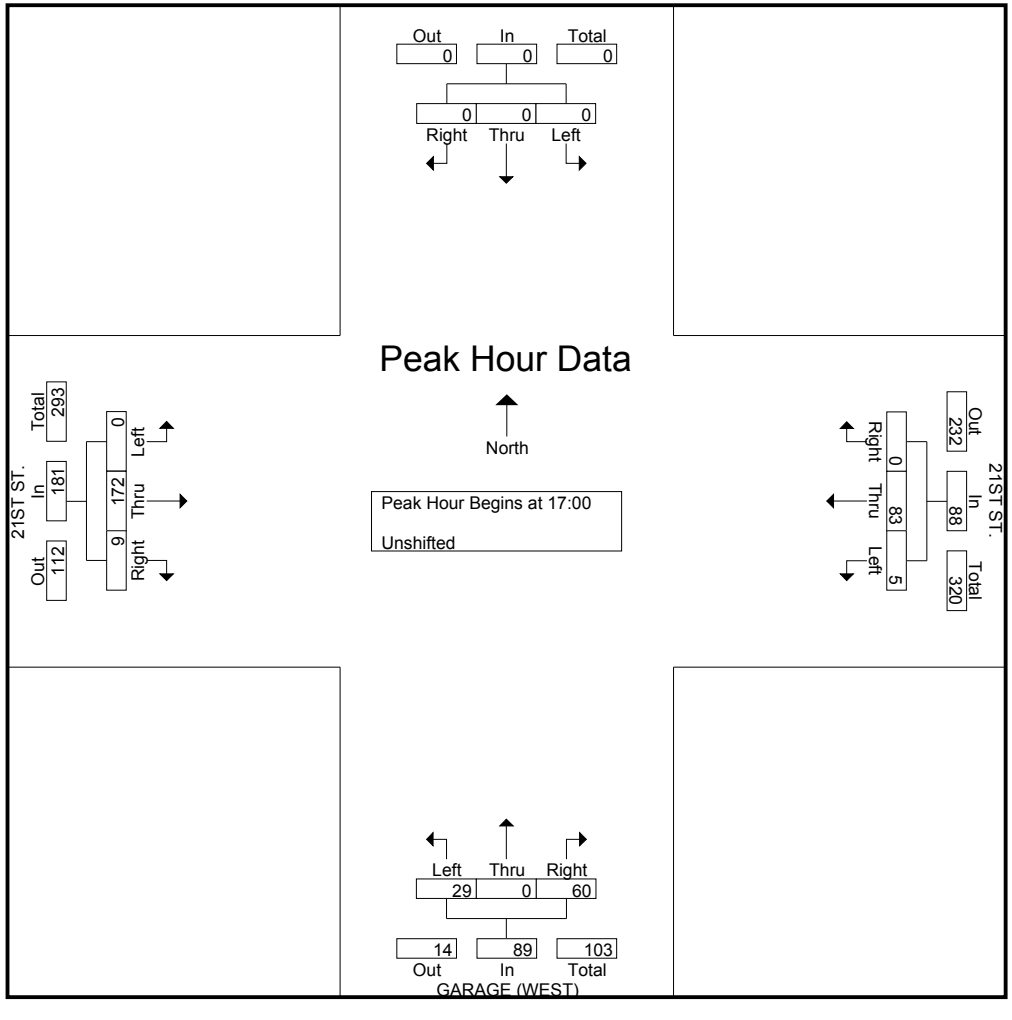
17:00	0	0	0	0	0	**25**	0	**25**	6	0	13	19	0	45	2	47	**91**
17:15	0	0	0	0	**4**	21	0	25	6	0	10	16	0	**48**	2	**50**	91
17:30	0	0	0	0	1	20	0	21	**10**	0	**20**	**30**	0	36	**3**	39	90
17:45	0	0	0	0	0	17	0	17	7	0	17	24	0	43	2	45	86
Total Volume	0	0	0	0	5	83	0	88	29	0	60	89	0	172	9	181	358
% App. Total	0	0	0		5.7	94.3	0		32.6	0	67.4		0	95	5		
PHF	.000	.000	.000	.000	.313	.830	.000	.880	.725	.000	.750	.742	.000	.896	.750	.905	.984

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-008 WEST GARAGE-21ST-F
Site Code : 00000000
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All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-010 INTERNAL-21ST-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 1

Groups Printed- Unshifted

	Southbound					21ST ST. Westbound					INTERNAL DRIVEWAY Northbound					21ST ST. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	0	0	0	0	0	3	32	0	0	35	2	0	2	1	4	0	15	0	0	15	1	54	55
07:15	0	0	0	0	0	3	51	0	0	54	3	0	3	2	6	0	9	1	1	10	3	70	73
07:30	0	0	0	0	0	12	61	0	1	73	1	0	6	1	7	0	10	2	0	12	2	92	94
07:45	0	0	0	0	0	11	53	0	0	64	7	0	4	3	11	0	13	1	0	14	3	89	92
Total	0	0	0	0	0	29	197	0	1	226	13	0	15	7	28	0	47	4	1	51	9	305	314
08:00	0	0	0	0	0	8	69	0	0	77	7	0	4	5	11	0	20	2	1	22	6	110	116
08:15	0	0	0	0	0	13	68	0	0	81	5	0	2	2	7	0	13	2	1	15	3	103	106
08:30	0	0	0	0	0	8	94	0	0	102	7	0	4	5	11	0	22	2	2	24	7	137	144
08:45	0	0	0	0	0	9	88	0	0	97	5	0	5	3	10	0	20	2	0	22	3	129	132
Total	0	0	0	0	0	38	319	0	0	357	24	0	15	15	39	0	75	8	4	83	19	479	498
*** BREAK ***																							
16:00	0	0	0	0	0	3	30	0	0	33	5	0	28	5	33	0	42	2	0	44	5	110	115
16:15	0	0	0	0	0	4	32	0	0	36	8	0	25	8	33	0	50	0	0	50	8	119	127
16:30	0	0	0	0	0	3	37	0	1	40	6	0	23	12	29	0	51	2	0	53	13	122	135
16:45	0	0	0	0	0	2	35	0	0	37	6	0	24	8	30	0	58	3	0	61	8	128	136
Total	0	0	0	0	0	12	134	0	1	146	25	0	100	33	125	0	201	7	0	208	34	479	513
17:00	0	0	0	0	0	2	31	0	0	33	9	0	21	7	30	0	73	0	0	73	7	136	143
17:15	0	0	0	0	0	4	30	0	1	34	14	0	17	9	31	0	71	1	0	72	10	137	147
17:30	0	0	0	0	0	3	27	0	0	30	14	0	19	15	33	0	70	0	0	70	15	133	148
17:45	0	0	0	0	0	6	28	0	0	34	8	0	25	6	33	0	68	2	0	70	6	137	143
Total	0	0	0	0	0	15	116	0	1	131	45	0	82	37	127	0	282	3	0	285	38	543	581
Grand Total	0	0	0	0	0	94	766	0	3	860	107	0	212	92	319	0	605	22	5	627	100	1806	1906
Apprch %	0	0	0			10.9	89.1	0			33.5	0	66.5			0	96.5	3.5					
Total %	0	0	0		0	5.2	42.4	0		47.6	5.9	0	11.7		17.7	0	33.5	1.2		34.7	5.2	94.8	

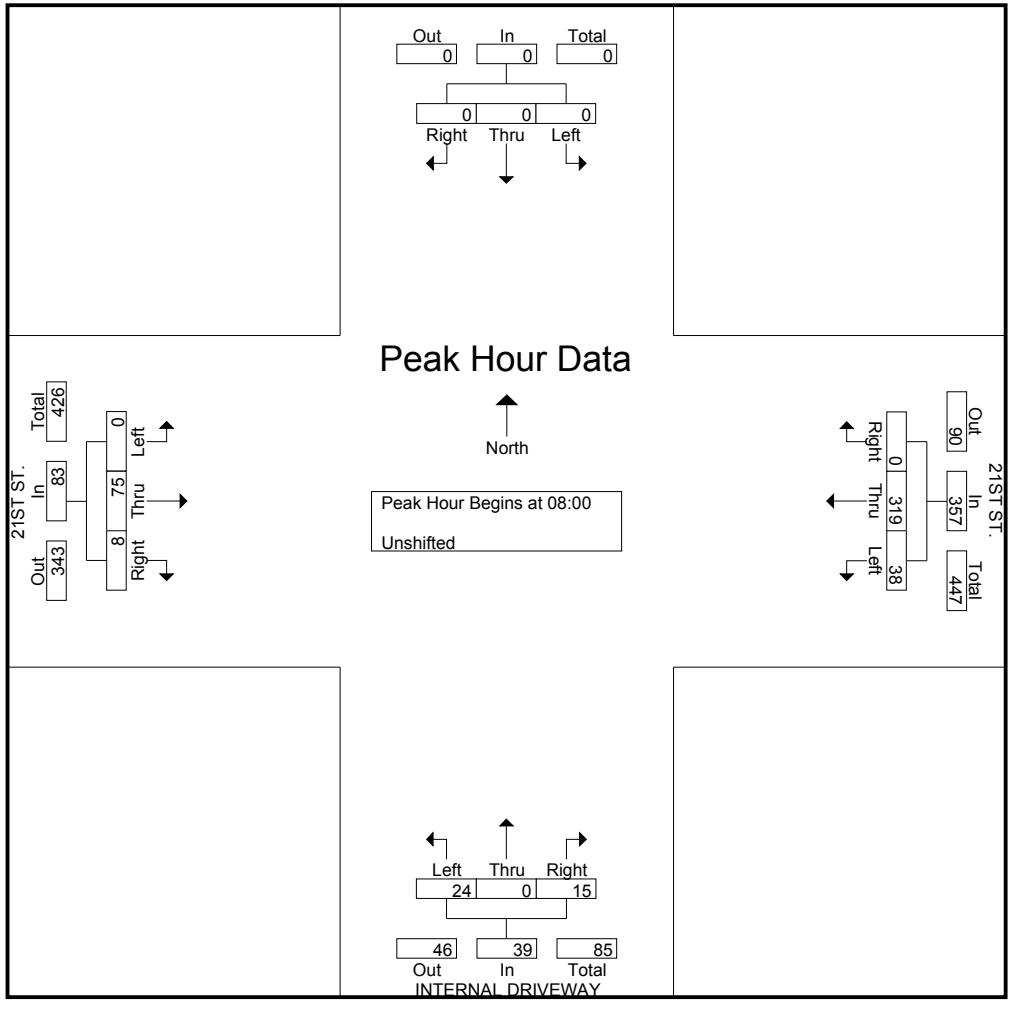
	Southbound				21ST ST. Westbound				INTERNAL DRIVEWAY Northbound				21ST ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	0	0	0	0	8	69	0	77	**7**	0	4	**11**	0	20	**2**	22	110
08:15	0	0	0	0	**13**	68	0	81	5	0	2	7	0	13	2	15	103
08:30	0	0	0	0	8	**94**	0	**102**	7	0	4	11	0	**22**	2	**24**	**137**
08:45	0	0	0	0	9	88	0	97	5	0	**5**	10	0	20	2	22	129
Total Volume	0	0	0	0	38	319	0	357	24	0	15	39	0	75	8	83	479
% App. Total	0	0	0		10.6	89.4	0		61.5	0	38.5		0	90.4	9.6		
PHF	.000	.000	.000	.000	.731	.848	.000	.875	.857	.000	.750	.886	.000	.852	1.000	.865	.874

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-010 INTERNAL-21ST-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 2



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

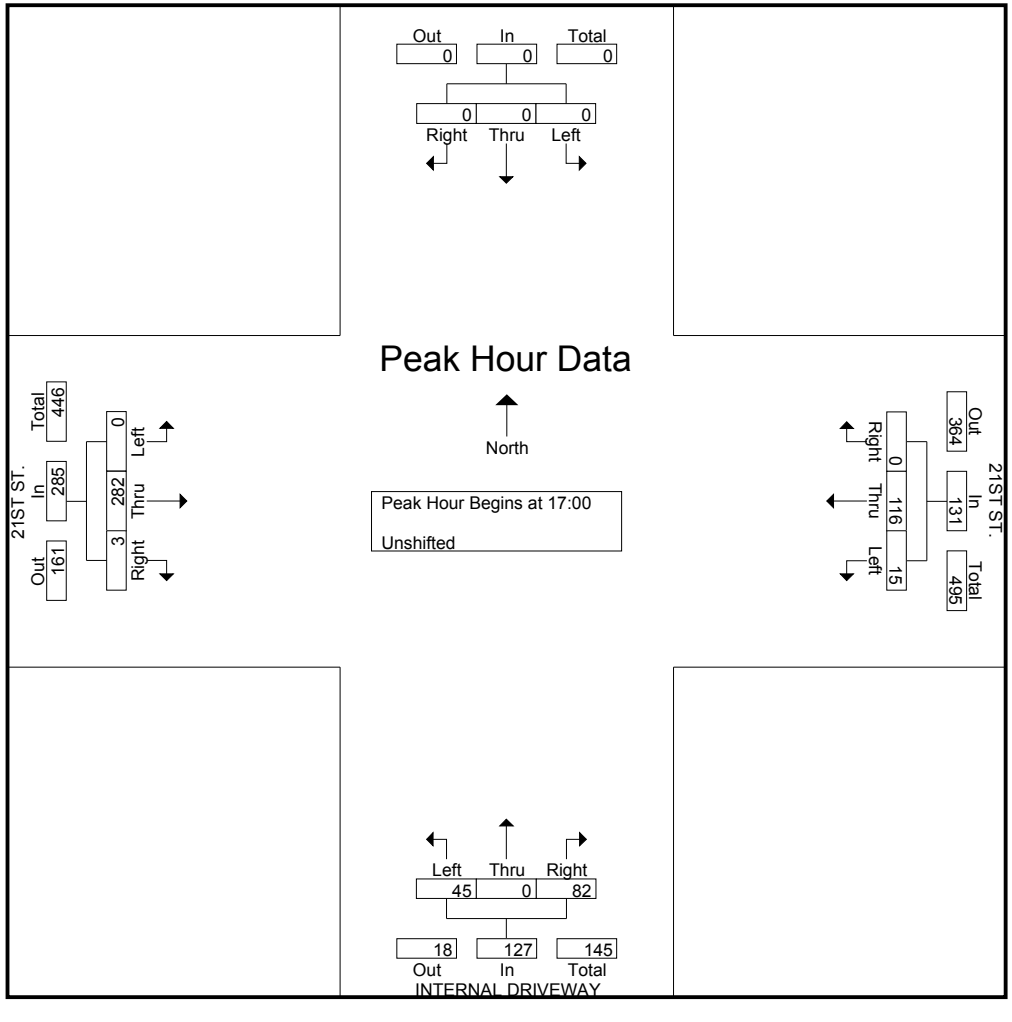
17:00	0	0	0	0	2	**31**	0	33	9	0	21	30	0	**73**	0	**73**	136
17:15	0	0	0	0	4	30	0	**34**	**14**	0	17	31	0	71	1	72	**137**
17:30	0	0	0	0	3	27	0	30	14	0	19	**33**	0	70	0	70	133
17:45	0	0	0	0	**6**	28	0	34	8	0	**25**	33	0	68	**2**	70	137
Total Volume	0	0	0	0	15	116	0	131	45	0	82	127	0	282	3	285	543
% App. Total	0	0	0		11.5	88.5	0		35.4	0	64.6		0	98.9	1.1		
PHF	.000	.000	.000	.000	.625	.935	.000	.963	.804	.000	.820	.962	.000	.966	.375	.976	.991

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-010 INTERNAL-21ST-F
Site Code : 00000000
Start Date : 08/07/2008
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All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-007 WEBSTER-21ST-F
Site Code : 00000000
Start Date : 08/06/2008
Page No : 1

Groups Printed- Unshifted

	WEBSTER ST. Southbound					21ST ST. Westbound					WEBSTER ST. Northbound					21ST ST. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	10	32	5	8	47	12	10	0	12	22	0	0	0	15	0	0	20	5	16	25	51	94	145
07:15	7	35	2	15	44	11	8	0	17	19	0	0	0	28	0	0	22	2	35	24	95	87	182
07:30	5	55	11	23	71	7	12	0	22	19	0	0	0	30	0	0	22	7	40	29	115	119	234
07:45	21	78	11	28	110	12	14	0	35	26	0	0	0	40	0	0	28	6	38	34	141	170	311
Total	43	200	29	74	272	42	44	0	86	86	0	0	0	113	0	0	92	20	129	112	402	470	872
08:00	30	80	7	38	117	11	11	0	29	22	0	0	0	34	0	0	44	6	53	50	154	189	343
08:15	34	77	3	23	114	8	11	0	27	19	0	0	0	32	0	0	32	13	52	45	134	178	312
08:30	33	89	8	22	130	8	7	0	53	15	0	0	0	39	0	0	34	12	65	46	179	191	370
08:45	27	76	6	22	109	13	12	0	37	25	0	0	0	42	0	0	43	14	43	57	144	191	335
Total	124	322	24	105	470	40	41	0	146	81	0	0	0	147	0	0	153	45	213	198	611	749	1360
*** BREAK ***																							
16:00	5	96	7	40	108	10	21	0	34	31	0	0	0	27	0	0	26	19	22	45	123	184	307
16:15	12	94	2	59	108	12	20	0	39	32	0	0	0	22	0	0	24	26	18	50	138	190	328
16:30	10	87	4	70	101	12	25	0	51	37	0	0	0	23	0	0	26	29	28	55	172	193	365
16:45	7	102	7	39	116	12	21	0	37	33	0	0	0	11	0	0	23	21	15	44	102	193	295
Total	34	379	20	208	433	46	87	0	161	133	0	0	0	83	0	0	99	95	83	194	535	760	1295
17:00	13	95	8	71	116	12	39	0	59	51	0	0	0	23	0	0	43	25	21	68	174	235	409
17:15	10	104	7	39	121	19	30	0	40	49	0	0	0	24	0	0	41	14	28	55	131	225	356
17:30	7	99	2	45	108	13	33	0	56	46	0	0	0	19	0	0	40	22	31	62	151	216	367
17:45	9	104	5	53	118	14	29	0	45	43	0	0	0	35	0	0	33	18	37	51	170	212	382
Total	39	402	22	208	463	58	131	0	200	189	0	0	0	101	0	0	157	79	117	236	626	888	1514
Grand Total	240	1303	95	595	1638	186	303	0	593	489	0	0	0	444	0	0	501	239	542	740	2174	2867	5041
Apprch %	14.7	79.5	5.8			38	62	0			0	0	0			0	67.7	32.3					
Total %	8.4	45.4	3.3		57.1	6.5	10.6	0		17.1	0	0	0		0	0	17.5	8.3		25.8	43.1	56.9	

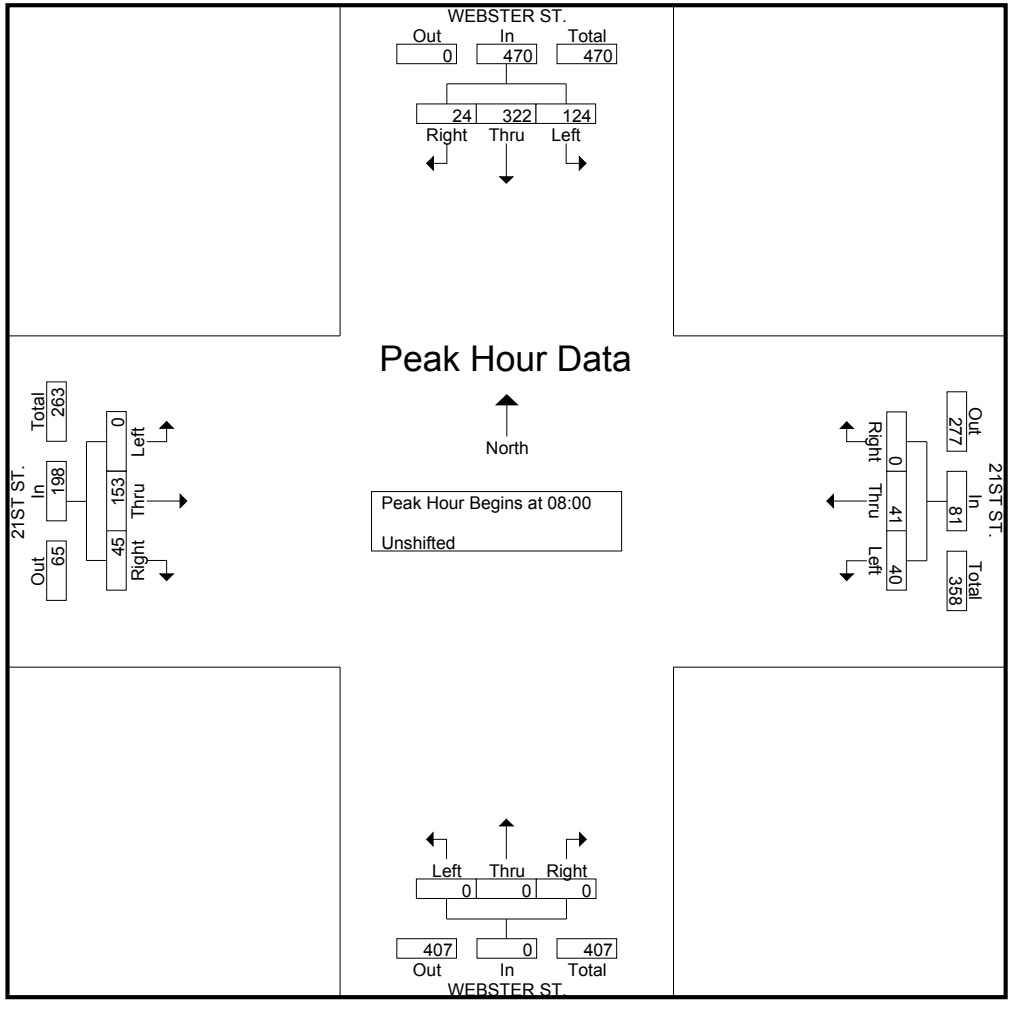
	WEBSTER ST. Southbound				21ST ST. Westbound				WEBSTER ST. Northbound				21ST ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	30	80	7	117	11	11	0	22	0	0	0	0	0	**44**	6	50	189
08:15	**34**	77	3	114	8	11	0	19	0	0	0	0	0	32	13	45	178
08:30	33	**89**	**8**	**130**	8	7	0	15	0	0	0	0	0	34	12	46	**191**
08:45	27	76	6	109	**13**	**12**	0	**25**	0	0	0	0	0	43	**14**	**57**	191
Total Volume	124	322	24	470	40	41	0	81	0	0	0	0	0	153	45	198	749
% App. Total	26.4	68.5	5.1		49.4	50.6	0		0	0	0		0	77.3	22.7		
PHF	.912	.904	.750	.904	.769	.854	.000	.810	.000	.000	.000	.000	.000	.869	.804	.868	.980

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-007 WEBSTER-21ST-F
Site Code : 00000000
Start Date : 08/06/2008
Page No : 2



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

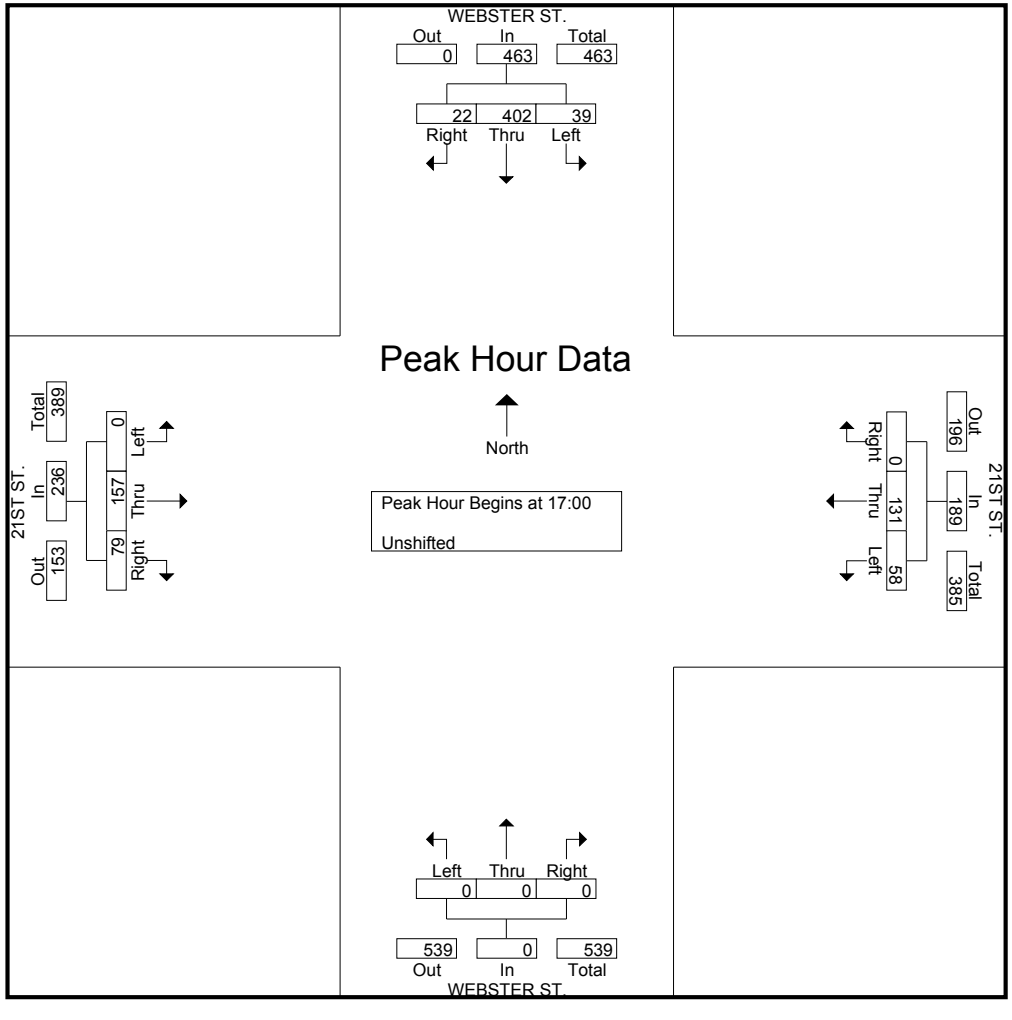
17:00	**13**	95	**8**	116	12	**39**	0	**51**	0	0	0	0	0	**43**	**25**	**68**	**235**
17:15	10	**104**	7	**121**	**19**	30	0	49	0	0	0	0	0	41	14	55	225
17:30	7	99	2	108	13	33	0	46	0	0	0	0	0	40	22	62	216
17:45	9	104	5	118	14	29	0	43	0	0	0	0	0	33	18	51	212
Total Volume	39	402	22	463	58	131	0	189	0	0	0	0	0	157	79	236	888
% App. Total	8.4	86.8	4.8		30.7	69.3	0		0	0	0		0	66.5	33.5		
PHF	.750	.966	.688	.957	.763	.840	.000	.926	.000	.000	.000	.000	.000	.913	.790	.868	.945

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-007 WEBSTER-21ST-F
Site Code : 00000000
Start Date : 08/06/2008
Page No : 3



All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-006 FRANKLIN-21ST-F
Site Code : 00000000
Start Date : 08/06/2008
Page No : 1

Groups Printed- Unshifted

	FRANKLIN ST. Southbound					21ST ST. Westbound					FRANKLIN ST. Northbound					21ST ST. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	0	0	0	36	0	0	5	7	28	12	0	11	8	22	19	1	15	0	31	16	117	47	164
07:15	0	0	0	31	0	0	4	4	47	8	2	27	10	20	39	1	17	0	15	18	113	65	178
07:30	0	0	0	42	0	0	14	8	60	22	0	38	10	23	48	2	18	0	42	20	167	90	257
07:45	0	0	0	45	0	0	12	10	69	22	1	32	14	44	47	3	22	0	42	25	200	94	294
Total	0	0	0	154	0	0	35	29	204	64	3	108	42	109	153	7	72	0	130	79	597	296	893
08:00	0	0	0	40	0	0	11	6	66	17	1	30	15	30	46	0	37	0	29	37	165	100	265
08:15	0	0	0	38	0	0	7	8	55	15	0	36	13	34	49	2	34	0	33	36	160	100	260
08:30	0	0	0	53	0	0	8	6	58	14	4	53	18	39	75	1	34	3	29	38	179	127	306
08:45	0	0	0	43	0	0	7	9	89	16	3	44	19	43	66	3	41	0	25	44	200	126	326
Total	0	0	0	174	0	0	33	29	268	62	8	163	65	146	236	6	146	3	116	155	704	453	1157
*** BREAK ***																							
16:00	0	0	0	28	0	0	10	16	65	26	4	64	24	66	92	1	20	0	24	21	183	139	322
16:15	0	0	0	30	0	0	16	7	66	23	3	54	33	52	90	5	16	0	23	21	171	134	305
16:30	0	0	0	46	0	0	15	12	72	27	3	56	22	67	81	4	29	0	49	33	234	141	375
16:45	0	0	0	40	0	0	18	11	50	29	5	64	24	55	93	2	23	0	49	25	194	147	341
Total	0	0	0	144	0	0	59	46	253	105	15	238	103	240	356	12	88	0	145	100	782	561	1343
17:00	0	0	0	44	0	0	25	18	51	43	5	62	40	62	107	3	27	0	47	30	204	180	384
17:15	0	0	0	43	0	0	19	19	48	38	5	66	33	50	104	2	21	0	33	23	174	165	339
17:30	0	0	0	38	0	0	22	12	41	34	2	71	37	32	110	2	25	1	37	28	148	172	320
17:45	0	0	0	25	0	0	21	13	25	34	4	65	30	31	99	4	18	0	25	22	106	155	261
Total	0	0	0	150	0	0	87	62	165	149	16	264	140	175	420	11	91	1	142	103	632	672	1304
Grand Total	0	0	0	622	0	0	214	166	890	380	42	773	350	670	1165	36	397	4	533	437	2715	1982	4697
Apprch %	0	0	0			0	56.3	43.7			3.6	66.4	30			8.2	90.8	0.9					
Total %	0	0	0		0	0	10.8	8.4		19.2	2.1	39	17.7		58.8	1.8	20	0.2		22	57.8	42.2	

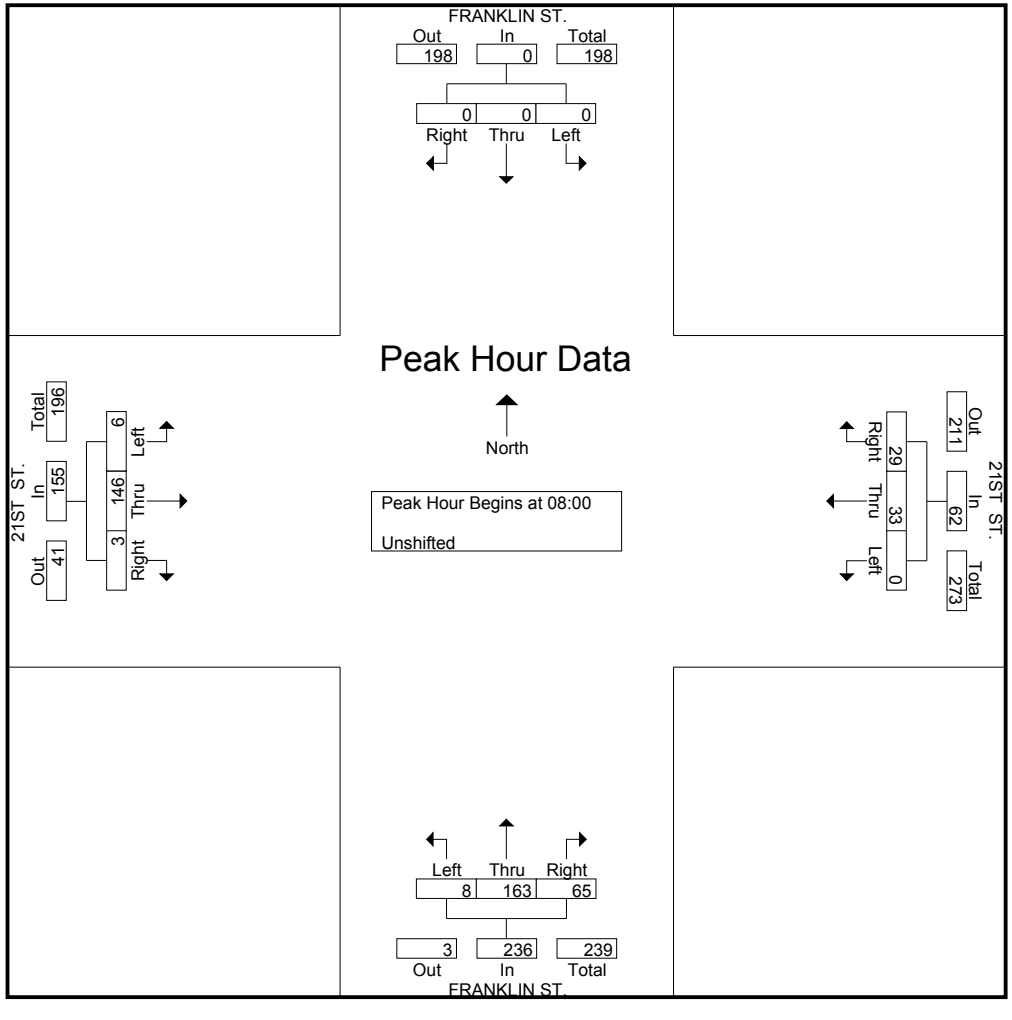
	FRANKLIN ST. Southbound				21ST ST. Westbound				FRANKLIN ST. Northbound				21ST ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	0	0	0	0	0	**11**	6	**17**	1	30	15	46	0	37	0	37	100
08:15	0	0	0	0	0	7	8	15	0	36	13	49	2	34	0	36	100
08:30	0	0	0	0	0	8	6	14	**4**	**53**	18	**75**	1	34	**3**	38	**127**
08:45	0	0	0	0	0	7	**9**	16	3	44	**19**	66	**3**	**41**	0	**44**	126
Total Volume	0	0	0	0	0	33	29	62	8	163	65	236	6	146	3	155	453
% App. Total	0	0	0		0	53.2	46.8		3.4	69.1	27.5		3.9	94.2	1.9		
PHF	.000	.000	.000	.000	.000	.750	.806	.912	.500	.769	.855	.787	.500	.890	.250	.881	.892

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-006 FRANKLIN-21ST-F
Site Code : 00000000
Start Date : 08/06/2008
Page No : 2



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

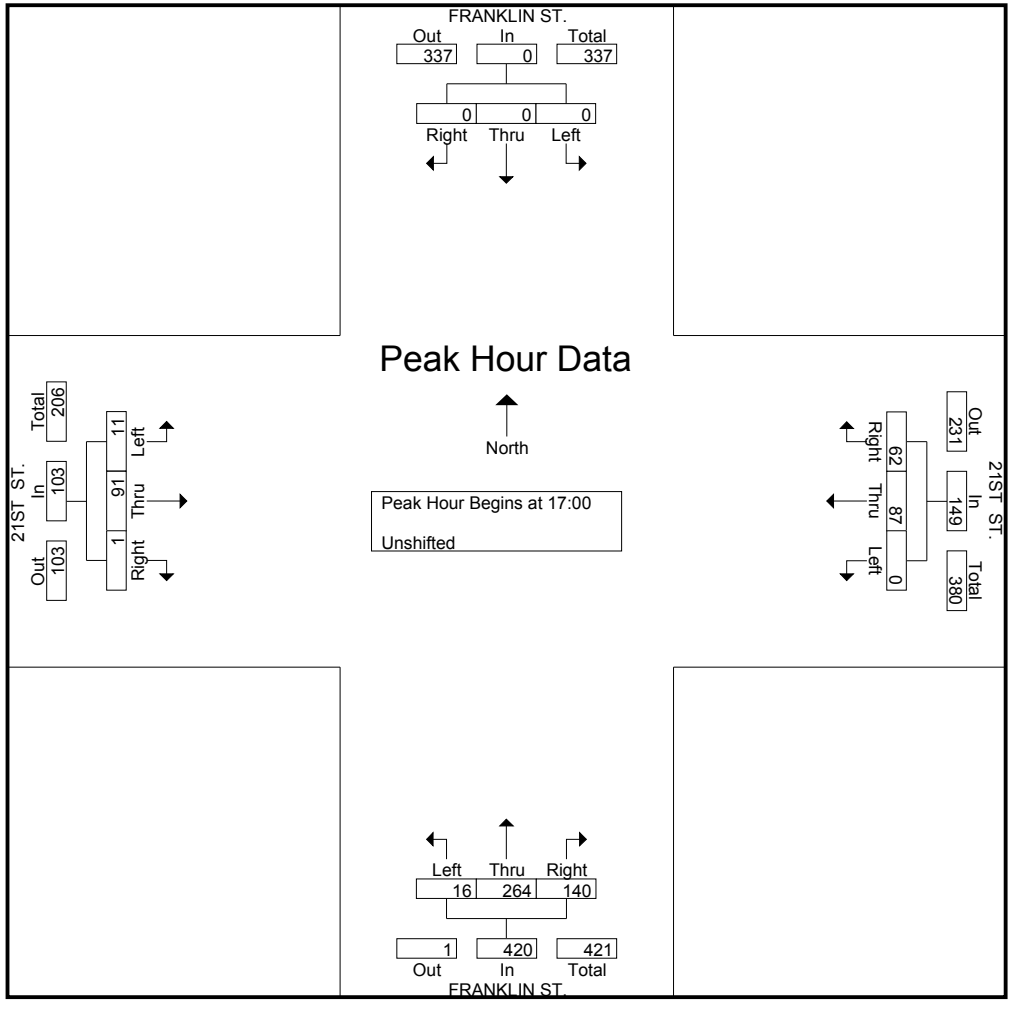
17:00	0	0	0	0	0	**25**	18	**43**	**5**	62	**40**	107	3	**27**	0	**30**	**180**
17:15	0	0	0	0	0	19	**19**	38	5	66	33	104	2	21	0	23	165
17:30	0	0	0	0	0	22	12	34	2	**71**	37	**110**	2	25	**1**	28	172
17:45	0	0	0	0	0	21	13	34	4	65	30	99	**4**	18	0	22	155
Total Volume	0	0	0	0	0	87	62	149	16	264	140	420	11	91	1	103	672
% App. Total	0	0	0		0	58.4	41.6		3.8	62.9	33.3		10.7	88.3	1		
PHF	.000	.000	.000	.000	.000	.870	.816	.866	.800	.930	.875	.955	.688	.843	.250	.858	.933

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-006 FRANKLIN-21ST-F
Site Code : 00000000
Start Date : 08/06/2008
Page No : 3



All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-005 BROADWAY-21ST-F
Site Code : 00000000
Start Date : 08/06/2008
Page No : 1

Groups Printed- Unshifted

	BROADWAY Southbound					21ST ST. Westbound					BROADWAY Northbound					21ST ST. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	5	24	0	3	29	1	0	4	11	5	0	21	2	12	23	0	8	2	3	10	29	67	96
07:15	5	34	0	13	39	2	0	3	14	5	0	39	3	20	42	1	8	1	6	10	53	96	149
07:30	7	44	0	8	51	4	0	10	7	14	0	40	5	21	45	2	10	2	5	14	41	124	165
07:45	7	58	0	12	65	4	0	10	9	14	0	56	5	15	61	3	12	4	11	19	47	159	206
Total	24	160	0	36	184	11	0	27	41	38	0	156	15	68	171	6	38	9	25	53	170	446	616
08:00	8	59	0	19	67	3	0	6	6	9	0	76	7	17	83	1	20	3	5	24	47	183	230
08:15	8	75	0	29	83	5	0	9	8	14	0	60	7	28	67	4	24	4	9	32	74	196	270
08:30	8	80	0	26	88	6	0	8	9	14	0	59	7	21	66	2	23	3	7	28	63	196	259
08:45	10	71	0	25	81	5	0	5	11	10	0	62	10	20	72	2	25	4	11	31	67	194	261
Total	34	285	0	99	319	19	0	28	34	47	0	257	31	86	288	9	92	14	32	115	251	769	1020
*** BREAK ***																							
16:00	3	72	0	28	75	8	0	5	8	13	0	70	8	24	78	10	12	2	7	24	67	190	257
16:15	2	65	0	27	67	10	0	8	6	18	0	82	8	6	90	7	11	2	12	20	51	195	246
16:30	7	73	0	19	80	6	0	10	14	16	0	76	12	12	88	6	14	4	3	24	48	208	256
16:45	7	82	0	26	89	10	0	9	16	19	0	79	9	26	88	5	8	2	7	15	75	211	286
Total	19	292	0	100	311	34	0	32	44	66	0	307	37	68	344	28	45	10	29	83	241	804	1045
17:00	7	92	0	40	99	14	0	16	23	30	0	97	7	22	104	3	11	4	17	18	102	251	353
17:15	5	93	0	26	98	10	0	12	1	22	0	92	8	17	100	3	7	5	7	15	51	235	286
17:30	7	91	0	17	98	13	0	9	18	22	0	119	10	25	129	1	10	4	11	15	71	264	335
17:45	6	92	0	13	98	12	0	12	7	24	0	115	10	17	125	4	8	4	10	16	47	263	310
Total	25	368	0	96	393	49	0	49	49	98	0	423	35	81	458	11	36	17	45	64	271	1013	1284
Grand Total	102	1105	0	331	1207	113	0	136	168	249	0	1143	118	303	1261	54	211	50	131	315	933	3032	3965
Apprch %	8.5	91.5	0			45.4	0	54.6			0	90.6	9.4			17.1	67	15.9					
Total %	3.4	36.4	0		39.8	3.7	0	4.5		8.2	0	37.7	3.9		41.6	1.8	7	1.6		10.4	23.5	76.5	

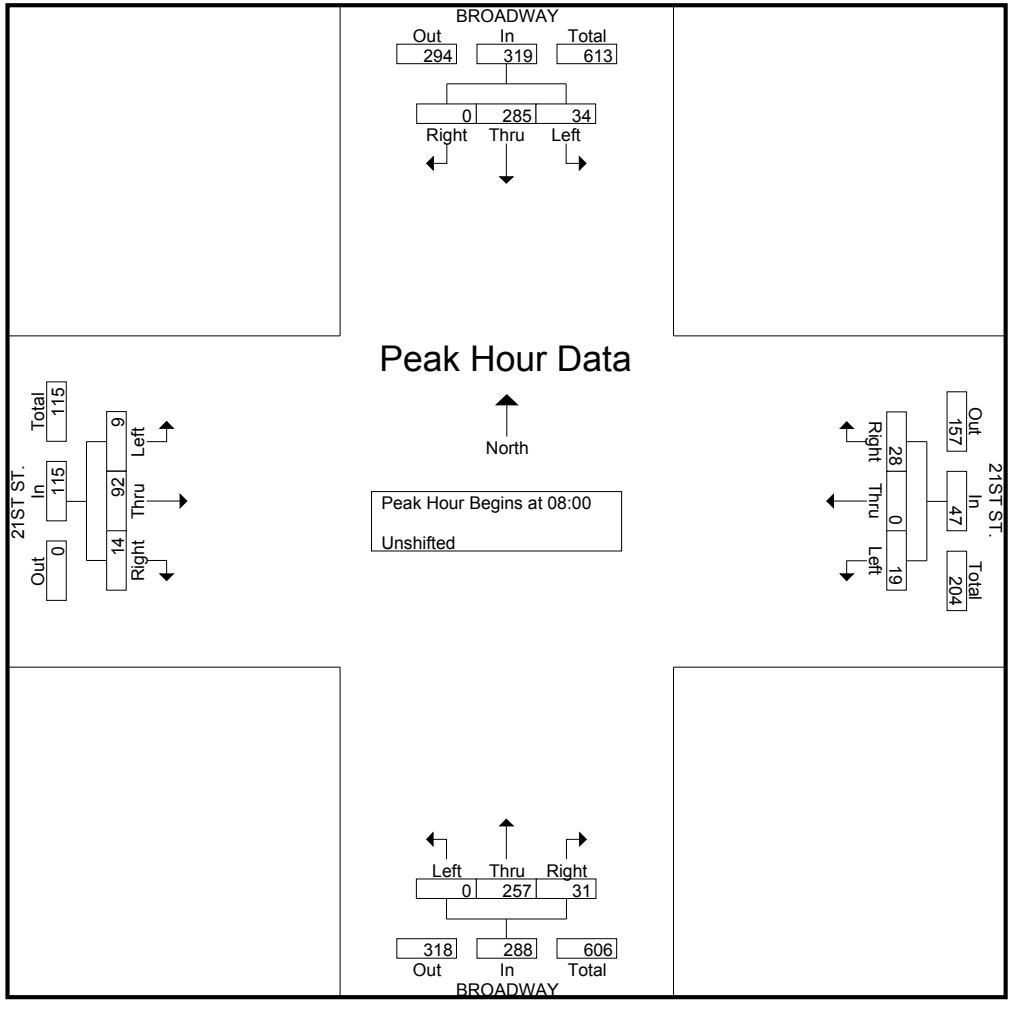
	BROADWAY Southbound				21ST ST. Westbound				BROADWAY Northbound				21ST ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	8	59	0	67	3	0	6	9	0	**76**	7	**83**	1	20	3	24	183
08:15	8	75	0	83	5	0	**9**	**14**	0	60	7	67	**4**	24	**4**	**32**	**196**
08:30	8	**80**	0	**88**	**6**	0	8	14	0	59	7	66	2	23	3	28	196
08:45	**10**	71	0	81	5	0	5	10	0	62	**10**	72	2	**25**	4	31	194
Total Volume	34	285	0	319	19	0	28	47	0	257	31	288	9	92	14	115	769
% App. Total	10.7	89.3	0		40.4	0	59.6		0	89.2	10.8		7.8	80	12.2		
PHF	.850	.891	.000	.906	.792	.000	.778	.839	.000	.845	.775	.867	.563	.920	.875	.898	.981

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-005 BROADWAY-21ST-F
Site Code : 00000000
Start Date : 08/06/2008
Page No : 2



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

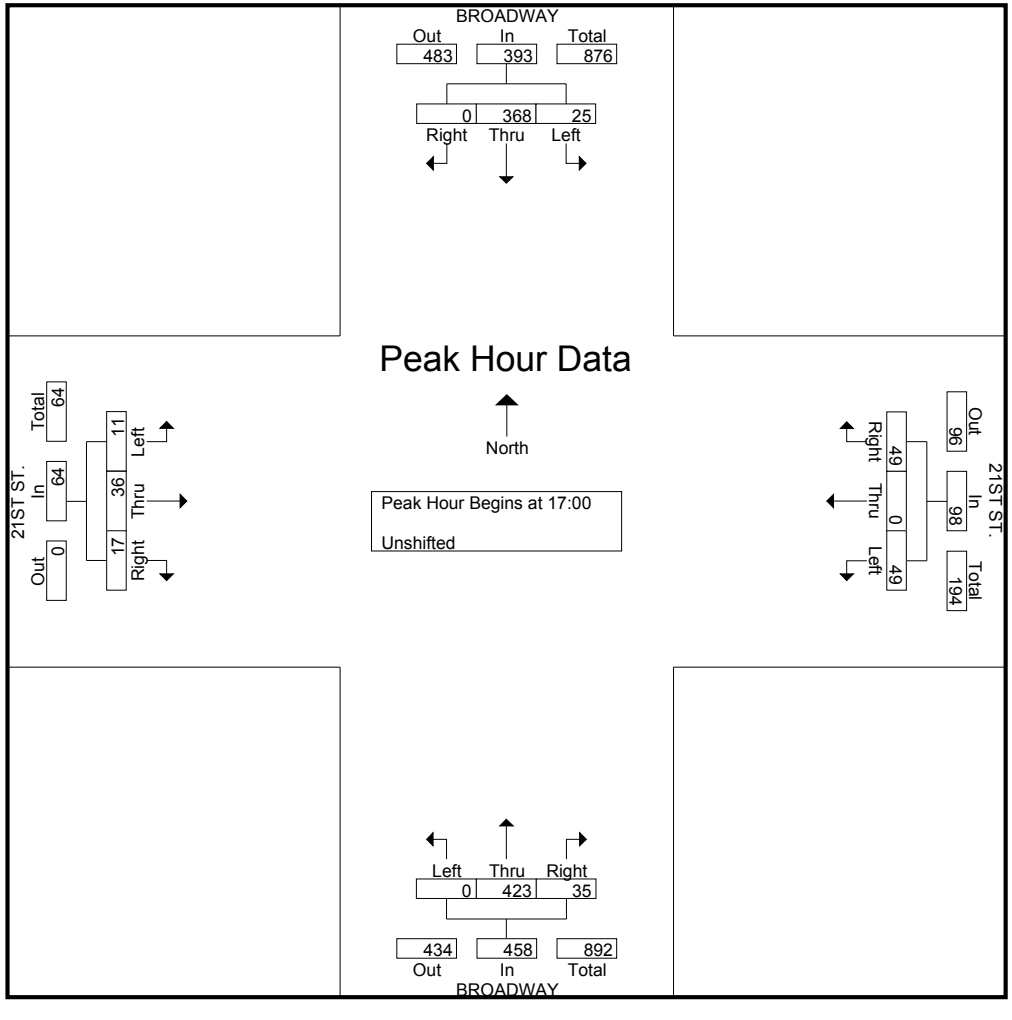
17:00	**7**	92	0	**99**	**14**	0	**16**	**30**	0	97	7	104	3	**11**	4	**18**	251
17:15	5	**93**	0	98	10	0	12	22	0	92	8	100	3	7	**5**	15	235
17:30	7	91	0	98	13	0	9	22	0	**119**	**10**	**129**	1	10	4	15	**264**
17:45	6	92	0	98	12	0	12	24	0	115	10	125	**4**	8	4	16	263
Total Volume	25	368	0	393	49	0	49	98	0	423	35	458	11	36	17	64	1013
% App. Total	6.4	93.6	0		50	0	50		0	92.4	7.6		17.2	56.2	26.6		
PHF	.893	.989	.000	.992	.875	.000	.766	.817	.000	.889	.875	.888	.688	.818	.850	.889	.959

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-005 BROADWAY-21ST-F
Site Code : 00000000
Start Date : 08/06/2008
Page No : 3



WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

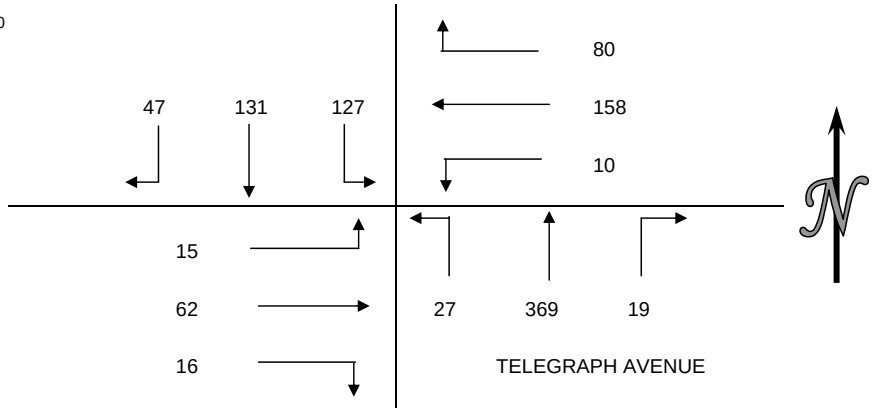
INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT:		DOWLING ASSOCIATES
PROJECT:		1938 BROADWAY TRAFFIC COUNTS
DATE:		WEDNESDAY OCTOBER 29, 2008
PERIOD"		7:00 AM TO 9:00 AM
INTERSECTION:	N/S	TELEGRAPH AVENUE
	E/W	20TH STREET
CITY:		OAKLAND

VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
700-715	3	15	15	9	16	1	1	23	2	4	10	2	101
715-730	5	24	24	20	32	2	1	78	4	4	11	0	205
730-745	3	20	14	15	14	2	1	55	4	1	12	6	147
745-800	8	29	29	37	40	1	2	83	7	0	10	0	246
800-815	10	43	30	26	42	2	6	89	4	5	11	5	273
815-830	10	37	35	27	40	2	6	93	11	5	20	5	291
830-845	15	25	30	7	35	3	4	93	7	1	17	3	240
845-900	12	26	32	20	41	3	3	94	5	5	14	2	257
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
700-800	19	88	82	81	102	6	5	239	17	9	43	8	699
715-815	26	116	97	98	128	7	10	305	19	10	44	11	871
730-830	31	129	108	105	136	7	15	320	26	11	53	16	957
745-845	43	134	124	97	157	8	18	358	29	11	58	13	1050
800-900	47	131	127	80	158	10	19	369	27	16	62	15	1061

AM PEAK HOUR: 800-900



PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-715	6	6	2	0	14
715-730	10	12	6	1	29
730-745	2	22	5	1	30
745-800	14	32	4	9	59
800-815	17	29	15	0	61
815-830	14	26	23	2	65
830-845	6	18	14	1	39
845-900	13	21	13	4	51
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-800	32	72	17	11	132
715-815	43	95	30	11	179
730-830	47	109	47	12	215
745-845	51	105	56	12	224
800-900	50	94	65	7	216

BICYCLE COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-715	4	2	0	0	6
715-730	0	3	1	0	4
730-745	0	1	2	0	3
745-800	2	7	2	2	13
800-815	2	2	3	1	8
815-830	2	3	3	0	8
830-845	2	4	4	1	11
845-900	1	4	2	2	9
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-800	6	13	5	2	26
715-815	4	13	8	3	28
730-830	6	13	10	3	32
745-845	8	16	12	4	40
800-900	7	13	12	4	36

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

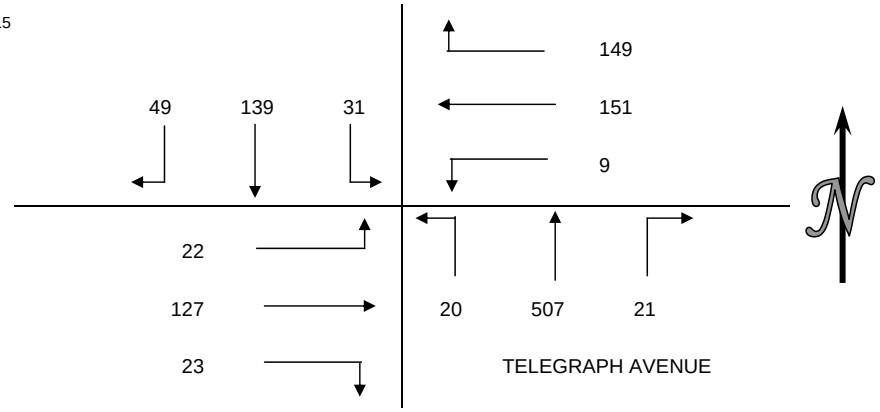
INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

CLIENT:		DOWLING ASSOCIATES
PROJECT:		1938 BROADWAY TRAFFIC COUNTS
DATE:		WEDNESDAY OCTOBER 29, 2008
PERIOD"		4:00 PM TO 6:00 PM
INTERSECTION:	N/S	TELEGRAPH AVENUE
	E/W	20TH STREET
CITY:		OAKLAND

VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
400-415	15	38	18	29	44	5	11	117	7	5	20	6	315
415-430	22	41	8	13	37	2	8	139	7	11	32	4	324
430-445	9	38	7	44	37	2	4	110	3	7	38	3	302
445-500	4	28	9	35	23	4	5	129	5	3	30	5	280
500-515	14	32	7	57	54	1	4	129	5	2	27	10	342
515-530	11	29	12	39	45	3	18	108	2	3	19	2	291
530-545	4	24	12	36	32	3	13	88	7	0	14	4	237
545-600	15	37	2	23	45	4	13	96	9	5	21	4	274
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
400-500	50	145	42	121	141	13	28	495	22	26	120	18	1221
415-515	49	139	31	149	151	9	21	507	20	23	127	22	1248
430-530	38	127	35	175	159	10	31	476	15	15	114	20	1215
445-545	33	113	40	167	154	11	40	454	19	8	90	21	1150
500-600	44	122	33	155	176	11	48	421	23	10	81	20	1144

AM PEAK HOUR: 415-515



PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-415	10	32	7	9	58
415-430	18	56	29	3	106
430-445	18	48	15	8	89
445-500	9	32	14	4	59
500-515	15	53	35	8	111
515-530	5	32	40	5	82
530-545	21	31	17	7	76
545-600	23	32	14	10	79
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-500	55	168	65	24	312
415-515	60	189	93	23	365
430-530	47	165	104	25	341
445-545	50	148	106	24	328
500-600	64	148	106	30	348

BICYCLE COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-415	2	7	2	2	13
415-430	3	20	4	1	28
430-445	2	19	1	3	25
445-500	0	5	2	1	8
500-515	1	14	13	2	30
515-530	0	14	8	0	22
530-545	6	9	6	3	24
545-600	6	14	4	2	26
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-500	7	51	9	7	74
415-515	6	58	20	7	91
430-530	3	52	24	6	85
445-545	7	42	29	6	84
500-600	13	51	31	7	102

ALL TRAFFIC DATA, INC
(916)771-8700
FAX 786-2879

City of Oakland — Broadway & 20th St — Date: 05/22/2008

	Broadway Southbound				20th St Westbound				Broadway Northbound				20th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	6	35	2	43	6	18	13	37	5	52	6	63	0	13	7	20	163
7:15	3	40	8	51	4	14	18	36	5	53	9	67	1	20	13	34	188
7:30	7	51	12	70	3	34	16	53	10	63	10	83	3	17	7	27	233
7:45	10	69	9	88	6	31	23	60	9	83	13	105	2	27	11	40	293
Total	26	195	31	252	19	97	70	186	29	251	38	318	6	77	38	121	877
8:00	6	73	6	85	13	25	26	64	12	96	16	124	2	25	14	41	314
8:15	16	92	4	112	8	35	27	70	14	98	15	127	2	26	17	45	354
8:30	17	98	7	122	10	34	20	64	13	102	12	127	1	40	9	50	363
8:45	14	87	5	106	10	36	21	67	12	109	15	136	2	38	12	52	361
Total	53	350	22	425	41	130	94	265	51	405	58	514	7	129	52	188	1392
16:00	7	79	13	99	5	45	9	59	14	144	23	181	1	36	22	59	398
16:15	8	100	14	122	9	45	19	73	17	146	25	188	2	39	25	66	449
16:30	10	101	10	121	10	43	14	67	21	156	21	198	5	35	22	62	448
16:45	8	107	8	123	13	47	14	74	23	152	24	199	6	39	17	62	458
Total	33	387	45	465	37	180	56	273	75	598	93	766	14	149	86	249	1753
17:00	6	108	13	127	13	56	21	90	23	174	25	222	5	34	18	57	496
17:15	10	133	4	147	14	51	24	89	21	165	21	207	2	29	21	52	495
17:30	13	118	8	139	11	45	27	83	25	184	25	234	6	26	24	56	512
17:45	10	124	5	139	12	43	20	75	17	152	19	188	7	27	15	49	451
Total	39	483	30	552	50	195	92	337	86	675	90	851	20	116	78	214	1954
Grand Total	151	1415	128	1694	147	602	312	1061	241	1929	279	2449	47	471	254	772	5976
Apprch%	8.9%	83.5%	7.6%		13.9%	56.7%	29.4%		9.8%	78.8%	11.4%		6.1%	61.0%	32.9%		
Total %	2.5%	23.7%	2.1%	28.3%	2.5%	10.1%	5.2%	17.8%	4.0%	32.3%	4.7%	41.0%	0.8%	7.9%	4.3%	12.9%	

City of Oakland — Broadway & 20th St — Date: 05/22/2008

AM Peak Hr Begins at 800 AM

	Broadway Southbound				20th St Westbound				Broadway Northbound				20th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	6	73	6	85	13	25	26	64	12	96	16	124	2	25	14	41	314
815	16	92	4	112	8	35	27	70	14	98	15	127	2	26	17	45	354
830	17	98	7	122	10	34	20	64	13	102	12	127	1	40	9	50	363
845	14	87	5	106	10	36	21	67	12	109	15	136	2	38	12	52	361
Total Volume	53	350	22	425	41	130	94	265	51	405	58	514	7	129	52	188	1392
% App Total.	####	82.4%	5.2%		15.5%	49.1%	35.5%		9.9%	78.8%	11.3%		3.7%	68.6%	27.7%		
PHF	0.871				0.946				0.945				0.904				

PM Peak Hr Begins at 445 PM

	Broadway Southbound				20th St Westbound				Broadway Northbound				20th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
445	8	107	8	123	13	47	14	74	23	152	24	199	6	39	17	62	458
500	6	108	13	127	13	56	21	90	23	174	25	222	5	34	18	57	496
515	10	133	4	147	14	51	24	89	21	165	21	207	2	29	21	52	495
530	13	118	8	139	11	45	27	83	25	184	25	234	6	26	24	56	512
Total Volume	37	466	33	536	51	199	86	336	92	675	95	862	19	128	80	227	1961
% App Total.	6.9%	86.9%	6.2%		15.2%	59.2%	25.6%		10.7%	78.3%	11.0%		8.4%	56.4%	35.2%		
PHF	0.912				0.933				0.921				0.915				

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKALND

File Name : 08-7458-013 FRANKLIN-20TH-F
Site Code : 00000000
Start Date : 08/06/2008
Page No : 1

Groups Printed- Unshifted

	FRANKLIN ST. Southbound					20TH ST. Westbound					FRANKLIN ST. Northbound					20TH ST. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	0	0	0	52	0	0	27	10	23	37	4	10	6	15	20	2	20	0	21	22	111	79	190
07:15	0	0	0	61	0	0	28	19	25	47	3	21	8	21	32	3	28	0	14	31	121	110	231
07:30	0	0	0	83	0	0	47	15	15	62	8	31	14	17	53	5	24	0	19	29	134	144	278
07:45	0	0	0	102	0	0	56	11	29	67	4	35	23	19	62	5	46	0	21	51	171	180	351
Total	0	0	0	298	0	0	158	55	92	213	19	97	51	72	167	15	118	0	75	133	537	513	1050
08:00	0	0	0	107	0	0	47	15	21	62	7	29	21	24	57	6	50	0	11	56	163	175	338
08:15	0	0	0	98	0	0	51	16	19	67	9	30	21	27	60	5	61	0	23	66	167	193	360
08:30	0	0	0	112	0	0	55	19	26	74	4	52	19	31	75	6	58	0	26	64	195	213	408
08:45	0	0	0	97	0	0	50	19	24	69	6	42	15	21	63	6	54	0	21	60	163	192	355
Total	0	0	0	414	0	0	203	69	90	272	26	153	76	103	255	23	223	0	81	246	688	773	1461
*** BREAK ***																							
16:00	0	0	0	92	0	0	66	18	33	84	10	60	29	39	99	10	33	0	18	43	182	226	408
16:15	0	0	0	102	0	0	61	14	21	75	9	60	40	24	109	7	57	0	19	64	166	248	414
16:30	0	0	0	112	0	0	53	8	29	61	11	62	47	26	120	11	58	0	12	69	179	250	429
16:45	0	0	0	96	0	0	70	20	35	90	15	64	46	19	125	11	60	0	24	71	174	286	460
Total	0	0	0	402	0	0	250	60	118	310	45	246	162	108	453	39	208	0	73	247	701	1010	1711
17:00	0	0	0	107	0	0	78	19	37	97	14	75	50	28	139	7	60	0	21	67	193	303	496
17:15	0	0	0	88	0	0	82	16	25	98	13	80	49	35	142	4	62	0	17	66	165	306	471
17:30	0	0	0	101	0	0	70	20	29	90	8	83	53	25	144	7	73	0	23	80	178	314	492
17:45	0	0	0	91	0	0	64	20	17	84	13	75	43	29	131	3	64	0	23	67	160	282	442
Total	0	0	0	387	0	0	294	75	108	369	48	313	195	117	556	21	259	0	84	280	696	1205	1901
Grand Total	0	0	0	1501	0	0	905	259	408	1164	138	809	484	400	1431	98	808	0	313	906	2622	3501	6123
Apprch %	0	0	0			0	77.7	22.3			9.6	56.5	33.8			10.8	89.2	0					
Total %	0	0	0		0	0	25.8	7.4		33.2	3.9	23.1	13.8		40.9	2.8	23.1	0		25.9	42.8	57.2	

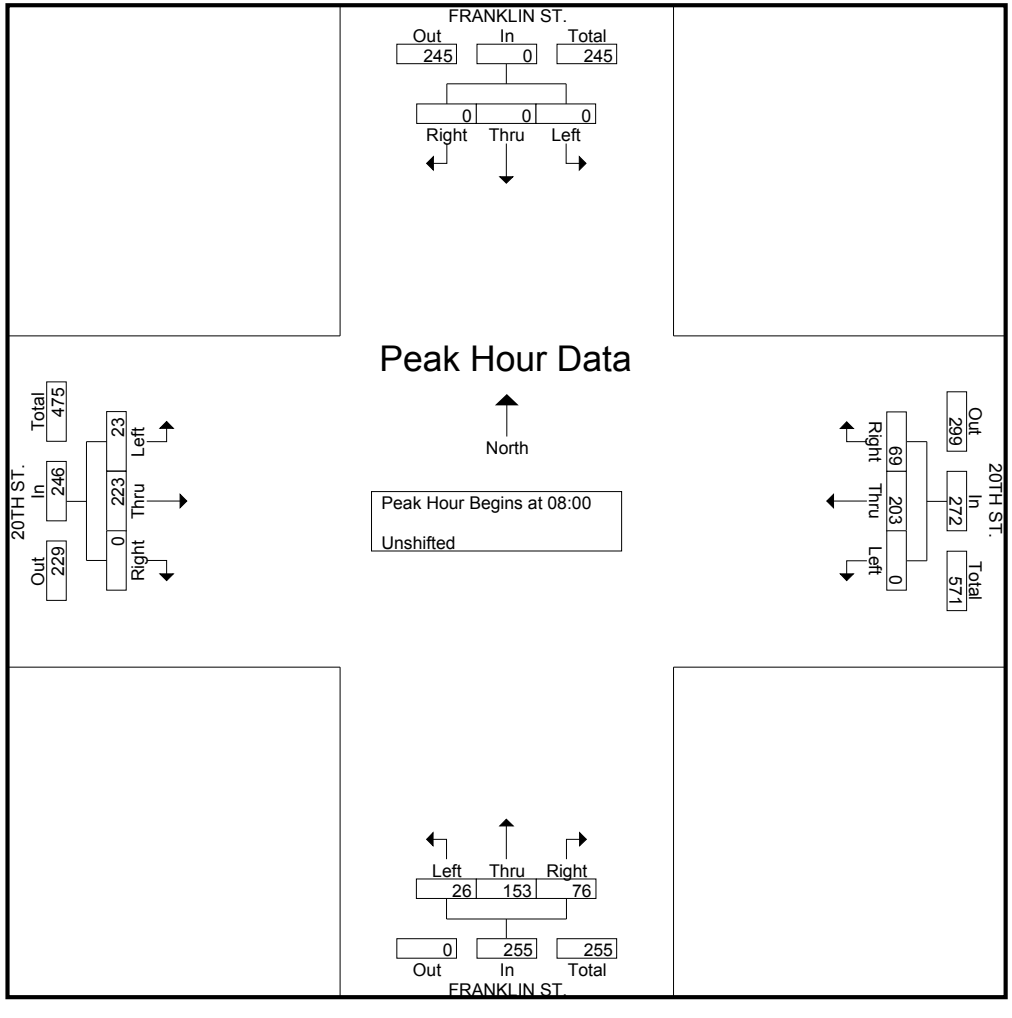
	FRANKLIN ST. Southbound				20TH ST. Westbound				FRANKLIN ST. Northbound				20TH ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	0	0	0	0	0	47	15	62	7	29	**21**	57	**6**	50	0	56	175
08:15	0	0	0	0	0	51	16	67	**9**	30	21	60	5	**61**	0	**66**	193
08:30	0	0	0	0	0	**55**	**19**	**74**	4	**52**	19	**75**	6	58	0	64	**213**
08:45	0	0	0	0	0	50	19	69	6	42	15	63	6	54	0	60	192
Total Volume	0	0	0	0	0	203	69	272	26	153	76	255	23	223	0	246	773
% App. Total	0	0	0		0	74.6	25.4		10.2	60	29.8		9.3	90.7	0		
PHF	.000	.000	.000	.000	.000	.923	.908	.919	.722	.736	.905	.850	.958	.914	.000	.932	.907

All Traffic Data

(916) 771-8700
F (916) 786-2879

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File Name : 08-7458-013 FRANKLIN-20TH-F
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Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 16:45

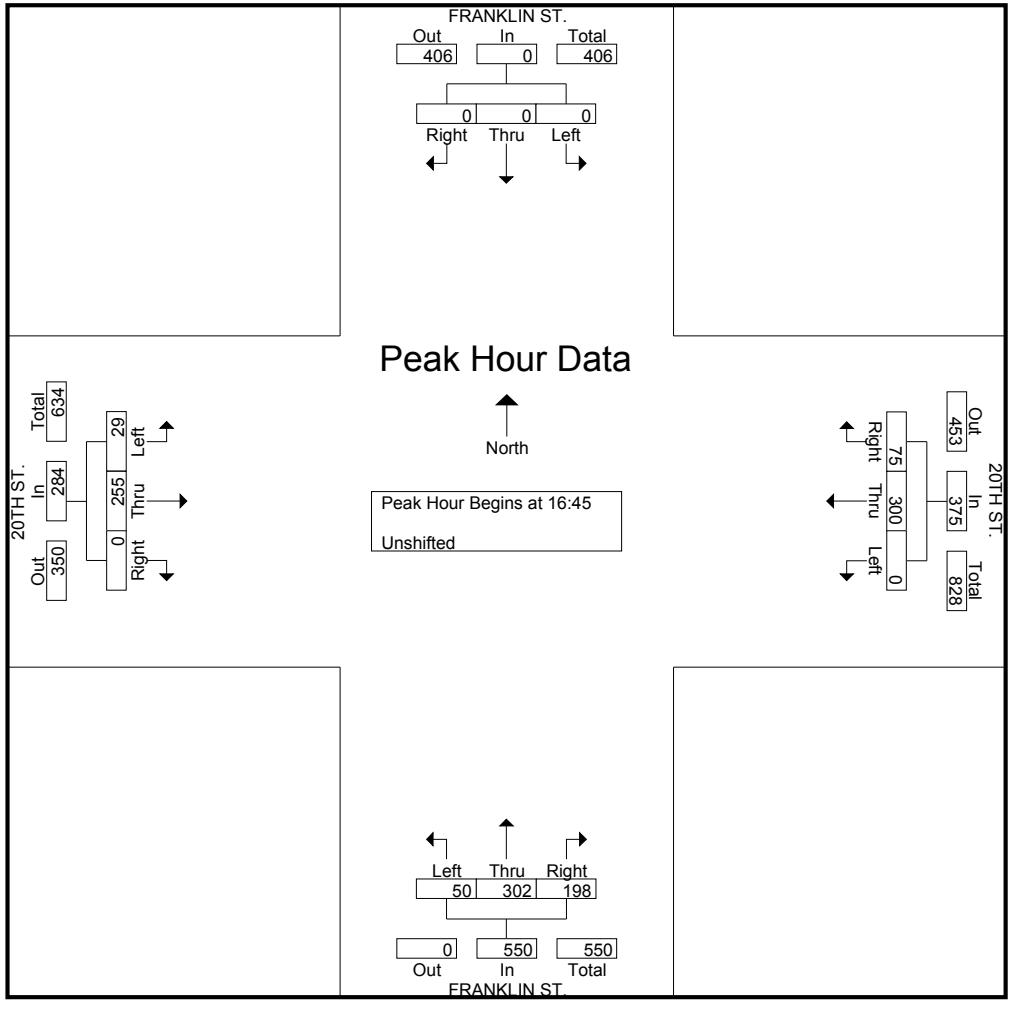
16:45	0	0	0	0	0	70	**20**	90	**15**	64	46	125	**11**	60	0	71	286
17:00	0	0	0	0	0	78	19	97	14	75	50	139	7	60	0	67	303
17:15	0	0	0	0	0	**82**	16	**98**	13	80	49	142	4	62	0	66	306
17:30	0	0	0	0	0	70	20	90	8	**83**	**53**	**144**	7	**73**	0	**80**	**314**
Total Volume	0	0	0	0	0	300	75	375	50	302	198	550	29	255	0	284	1209
% App. Total	0	0	0		0	80	20		9.1	54.9	36		10.2	89.8	0		
PHF	.000	.000	.000	.000	.000	.915	.938	.957	.833	.910	.934	.955	.659	.873	.000	.888	.963

All Traffic Data

(916) 771-8700
F (916) 786-2879

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File Name : 08-7458-013 FRANKLIN-20TH-F
Site Code : 00000000
Start Date : 08/06/2008
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All Traffic Data

(916) 771-8700
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OAKLAND

File Name : 08-7458-014 WEBSTER-20TH-F
Site Code : 00000000
Start Date : 08/06/2008
Page No : 1

Groups Printed- Unshifted

	WEBSTER ST. Southbound					20TH ST. Westbound					WEBSTER ST. Northbound					20TH ST. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	9	20	8	72	37	12	31	0	33	43	0	0	0	19	0	0	12	11	13	23	137	103	240
07:15	5	35	10	101	50	18	37	0	21	55	0	0	0	19	0	0	19	18	5	37	146	142	288
07:30	11	40	9	149	60	22	48	0	21	70	0	0	0	26	0	0	30	12	14	42	210	172	382
07:45	19	64	13	160	96	30	57	0	33	87	0	0	0	52	0	0	38	31	17	69	262	252	514
Total	44	159	40	482	243	82	173	0	108	255	0	0	0	116	0	0	99	72	49	171	755	669	1424
08:00	14	66	14	167	94	26	43	0	29	69	0	0	0	52	0	0	34	32	15	66	263	229	492
08:15	16	62	15	178	93	35	57	0	50	92	0	0	0	56	0	0	55	30	23	85	307	270	577
08:30	13	75	23	176	111	34	52	0	47	86	0	0	0	62	0	0	51	31	40	82	325	279	604
08:45	11	71	20	142	102	32	49	0	46	81	0	0	0	41	0	0	42	28	29	70	258	253	511
Total	54	274	72	663	400	127	201	0	172	328	0	0	0	211	0	0	182	121	107	303	1153	1031	2184
*** BREAK ***																							
16:00	11	105	15	151	131	17	73	0	61	90	0	0	0	61	0	0	40	24	24	64	297	285	582
16:15	14	98	19	100	131	24	51	0	41	75	0	0	0	35	0	0	64	31	24	95	200	301	501
16:30	17	98	16	153	131	20	45	0	53	65	0	0	0	48	0	0	77	32	33	109	287	305	592
16:45	18	93	19	102	130	21	68	0	20	89	0	0	0	28	0	0	64	31	25	95	175	314	489
Total	60	394	69	506	523	82	237	0	175	319	0	0	0	172	0	0	245	118	106	363	959	1205	2164
17:00	22	91	23	177	136	27	74	0	60	101	0	0	0	66	0	0	70	35	37	105	340	342	682
17:15	12	110	22	169	144	33	69	0	68	102	0	0	0	58	0	0	75	38	16	113	311	359	670
17:30	13	100	22	164	135	25	77	6	51	108	0	0	0	64	0	0	90	35	28	125	307	368	675
17:45	16	102	25	156	143	24	62	0	49	86	0	0	0	42	0	0	80	29	21	109	268	338	606
Total	63	403	92	666	558	109	282	6	228	397	0	0	0	230	0	0	315	137	102	452	1226	1407	2633
Grand Total	221	1230	273	2317	1724	400	893	6	683	1299	0	0	0	729	0	0	841	448	364	1289	4093	4312	8405
Apprch %	12.8	71.3	15.8			30.8	68.7	0.5			0	0	0			0	65.2	34.8				
Total %	5.1	28.5	6.3		40	9.3	20.7	0.1		30.1	0	0	0		0	0	19.5	10.4		29.9	48.7	51.3	

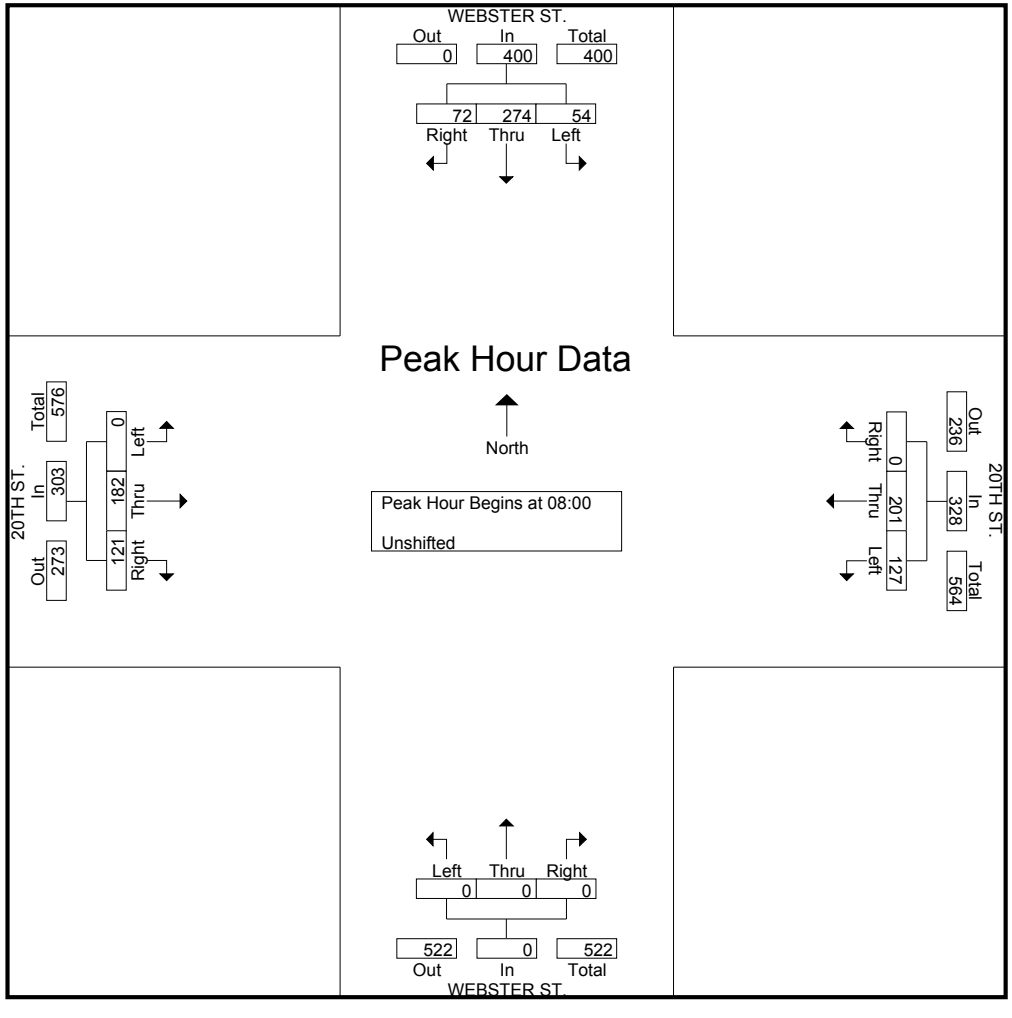
	WEBSTER ST. Southbound				20TH ST. Westbound				WEBSTER ST. Northbound				20TH ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	14	66	14	94	26	43	0	69	0	0	0	0	0	34	**32**	66	229
08:15	**16**	62	15	93	**35**	**57**	0	**92**	0	0	0	0	0	**55**	30	**85**	270
08:30	13	**75**	**23**	**111**	34	52	0	86	0	0	0	0	0	51	31	82	**279**
08:45	11	71	20	102	32	49	0	81	0	0	0	0	0	42	28	70	253
Total Volume	54	274	72	400	127	201	0	328	0	0	0	0	0	182	121	303	1031
% App. Total	13.5	68.5	18		38.7	61.3	0		0	0	0		0	60.1	39.9		
PHF	.844	.913	.783	.901	.907	.882	.000	.891	.000	.000	.000	.000	.000	.827	.945	.891	.924

All Traffic Data

(916) 771-8700
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OAKLAND

File Name : 08-7458-014 WEBSTER-20TH-F
Site Code : 00000000
Start Date : 08/06/2008
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Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

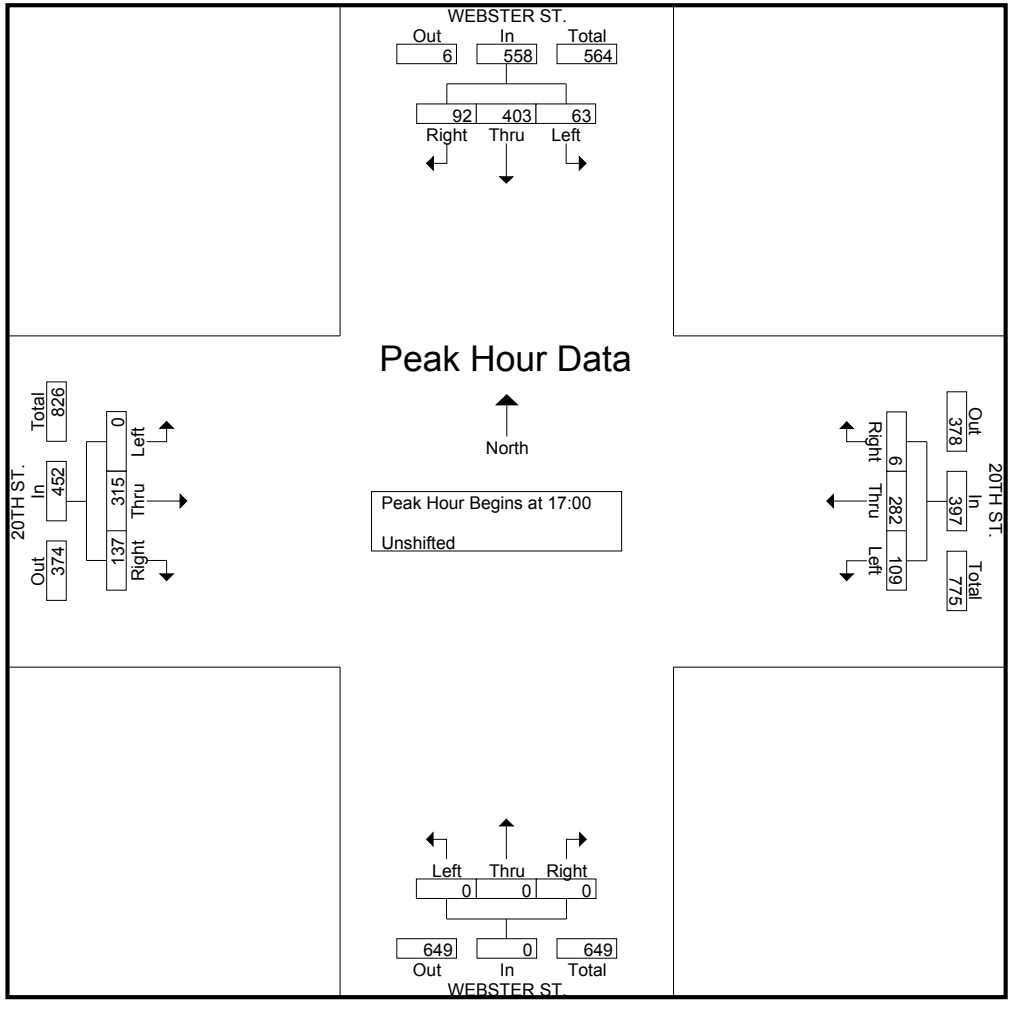
17:00	**22**	91	23	136	27	74	0	101	0	0	0	0	0	70	35	105	342
17:15	12	**110**	22	**144**	**33**	69	0	102	0	0	0	0	0	75	**38**	113	359
17:30	13	100	22	135	25	**77**	**6**	**108**	0	0	0	0	0	**90**	35	**125**	**368**
17:45	16	102	**25**	143	24	62	0	86	0	0	0	0	0	80	29	109	338
Total Volume	63	403	92	558	109	282	6	397	0	0	0	0	0	315	137	452	1407
% App. Total	11.3	72.2	16.5		27.5	71	1.5		0	0	0		0	69.7	30.3		
PHF	.716	.916	.920	.969	.826	.916	.250	.919	.000	.000	.000	.000	.000	.875	.901	.904	.956

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-014 WEBSTER-20TH-F
Site Code : 00000000
Start Date : 08/06/2008
Page No : 3



ALL TRAFFIC DATA, INC
(916)771-8700
FAX 786-2879

City of Oakland — Harrison St & 20th St — Date: 05/22/2008

	Harrison St Southbound				20th St Westbound				Harrison St Northbound				20th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	0	33	38	71	0	11	0	11	13	35	1	49	13	5	8	26	157
7:15	0	57	34	91	4	8	0	12	12	30	1	43	16	5	15	36	182
7:30	0	47	38	85	3	20	1	24	11	45	1	57	15	4	11	30	196
7:45	0	80	32	112	2	29	0	31	19	49	4	72	15	4	20	39	254
Total	0	217	142	359	9	68	1	78	55	159	7	221	59	18	54	131	789
8:00	0	72	50	122	2	26	0	28	20	58	5	83	14	6	24	44	277
8:15	0	73	50	123	3	33	0	36	17	65	4	86	25	7	26	58	303
8:30	0	75	44	119	4	38	0	42	21	62	2	85	21	10	37	68	314
8:45	0	91	47	138	2	41	0	43	21	64	4	89	23	8	35	66	336
Total	0	311	191	502	11	138	0	149	79	249	15	343	83	31	122	236	1230
16:00	0	52	24	76	2	20	0	22	16	103	6	125	60	17	6	83	306
16:15	0	37	36	73	1	19	0	20	15	113	3	131	58	20	7	85	309
16:30	0	39	33	72	2	14	0	16	17	119	3	139	69	16	10	95	322
16:45	0	38	29	67	2	23	0	25	20	127	5	152	70	23	10	103	347
Total	0	166	122	288	7	76	0	83	68	462	17	547	257	76	33	366	1284
17:00	0	44	35	79	1	25	0	26	34	165	3	202	75	23	9	107	414
17:15	0	29	31	60	2	20	0	22	26	178	5	209	60	26	12	98	389
17:30	0	27	37	64	0	18	0	18	16	159	7	182	51	17	4	72	336
17:45	0	32	28	60	0	19	1	20	15	146	8	169	67	21	7	95	344
Total	0	132	131	263	3	82	1	86	91	648	23	762	253	87	32	372	1483
Grand Total	0	826	586	1412	30	364	2	396	293	1518	62	1873	652	212	241	1105	4786
Apprch%	0.0%	58.5%	41.5%		7.6%	91.9%	0.5%		15.6%	81.0%	3.3%		59.0%	19.2%	21.8%		
Total %	0.0%	17.3%	12.2%	29.5%	0.6%	7.6%	0.0%	8.3%	6.1%	31.7%	1.3%	39.1%	13.6%	4.4%	5.0%	23.1%	

City of Oakland — Harrison St & 20th St — Date: 05/22/2008

AM Peak Hr Begins at 800 AM

	Harrison St Southbound				20th St Westbound				Harrison St Northbound				20th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	0	72	50	122	2	26	0	28	20	58	5	83	14	6	24	44	277
815	0	73	50	123	3	33	0	36	17	65	4	86	25	7	26	58	303
830	0	75	44	119	4	38	0	42	21	62	2	85	21	10	37	68	314
845	0	91	47	138	2	41	0	43	21	64	4	89	23	8	35	66	336
Total Volume	0	311	191	502	11	138	0	149	79	249	15	343	83	31	122	236	1230
% App Total.	0.0%	62.0%	38.0%		7.4%	92.6%	0.0%		23.0%	72.6%	4.4%		35.2%	13.1%	51.7%		
PHF		0.909				0.866				0.963				0.868			

PM Peak Hr Begins at 445 PM

	Harrison St Southbound				20th St Westbound				Harrison St Northbound				20th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
445	0	38	29	67	2	23	0	25	20	127	5	152	70	23	10	103	347
500	0	44	35	79	1	25	0	26	34	165	3	202	75	23	9	107	414
515	0	29	31	60	2	20	0	22	26	178	5	209	60	26	12	98	389
530	0	27	37	64	0	18	0	18	16	159	7	182	51	17	4	72	336
Total Volume	0	138	132	270	5	86	0	91	96	629	20	745	256	89	35	380	1486
% App Total.	0.0%	51.1%	48.9%		5.5%	94.5%	0.0%		12.9%	84.4%	2.7%		67.4%	23.4%	9.2%		
PHF		0.854				0.875				0.891				0.888			

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-015 INTERNAL-20TH ST-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 1

Groups Printed- Unshifted

	INTERNAL DRIVEWAY Southbound					INTERNAL DRIVEWAY Westbound					FROM 20TH AND HARRISON Northbound					TO 20TH ST. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	0	0	1	11	1	0	4	2	1	6	0	14	0	11	14	0	0	0	0	0	23	21	44
07:15	0	0	0	21	0	0	1	1	0	2	0	11	0	19	11	0	0	0	0	0	40	13	53
07:30	0	0	3	62	3	0	3	3	0	6	0	15	0	46	15	0	0	0	0	0	108	24	132
07:45	0	0	9	84	9	0	8	5	0	13	0	17	0	64	17	0	0	0	0	0	148	39	187
Total	0	0	13	178	13	0	16	11	1	27	0	57	0	140	57	0	0	0	0	0	319	97	416
08:00	0	0	2	96	2	0	3	5	0	8	0	22	0	79	22	0	0	0	0	0	175	32	207
08:15	0	0	2	92	2	0	4	9	0	13	0	15	0	60	15	0	0	0	0	0	152	30	182
08:30	0	0	4	64	4	0	4	10	0	14	0	26	0	54	26	0	0	0	0	0	118	44	162
08:45	0	0	0	84	0	0	6	8	0	14	0	18	0	65	18	0	0	0	0	0	149	32	181
Total	0	0	8	336	8	0	17	32	0	49	0	81	0	258	81	0	0	0	0	0	594	138	732
*** BREAK ***																							
16:00	0	0	12	55	12	0	11	10	0	21	0	5	0	65	5	0	0	0	0	0	120	38	158
16:15	0	0	10	33	10	0	8	9	0	17	0	13	0	67	13	0	0	0	0	0	100	40	140
16:30	0	0	14	53	14	0	7	11	0	18	0	11	0	61	11	0	0	0	0	0	114	43	157
16:45	0	0	22	54	22	0	12	12	0	24	0	7	0	85	7	0	0	0	0	0	139	53	192
Total	0	0	58	195	58	0	38	42	0	80	0	36	0	278	36	0	0	0	0	0	473	174	647
17:00	0	0	12	37	12	0	9	10	0	19	0	9	0	54	9	0	0	0	0	0	91	40	131
17:15	0	0	15	57	15	0	3	12	0	15	0	10	0	79	10	0	0	0	0	0	136	40	176
17:30	0	0	10	34	10	0	11	5	0	16	0	11	0	61	11	0	0	0	0	0	95	37	132
17:45	0	0	10	26	10	0	10	9	0	19	0	9	0	54	9	0	0	0	0	0	80	38	118
Total	0	0	47	154	47	0	33	36	0	69	0	39	0	248	39	0	0	0	0	0	402	155	557
Grand Total	0	0	126	863	126	0	104	121	1	225	0	213	0	924	213	0	0	0	0	0	1788	564	2352
Apprch %	0	0	100			0	46.2	53.8			0	100	0			0	0	0					
Total %	0	0	22.3		22.3	0	18.4	21.5		39.9	0	37.8	0		37.8	0	0	0		0	76	24	

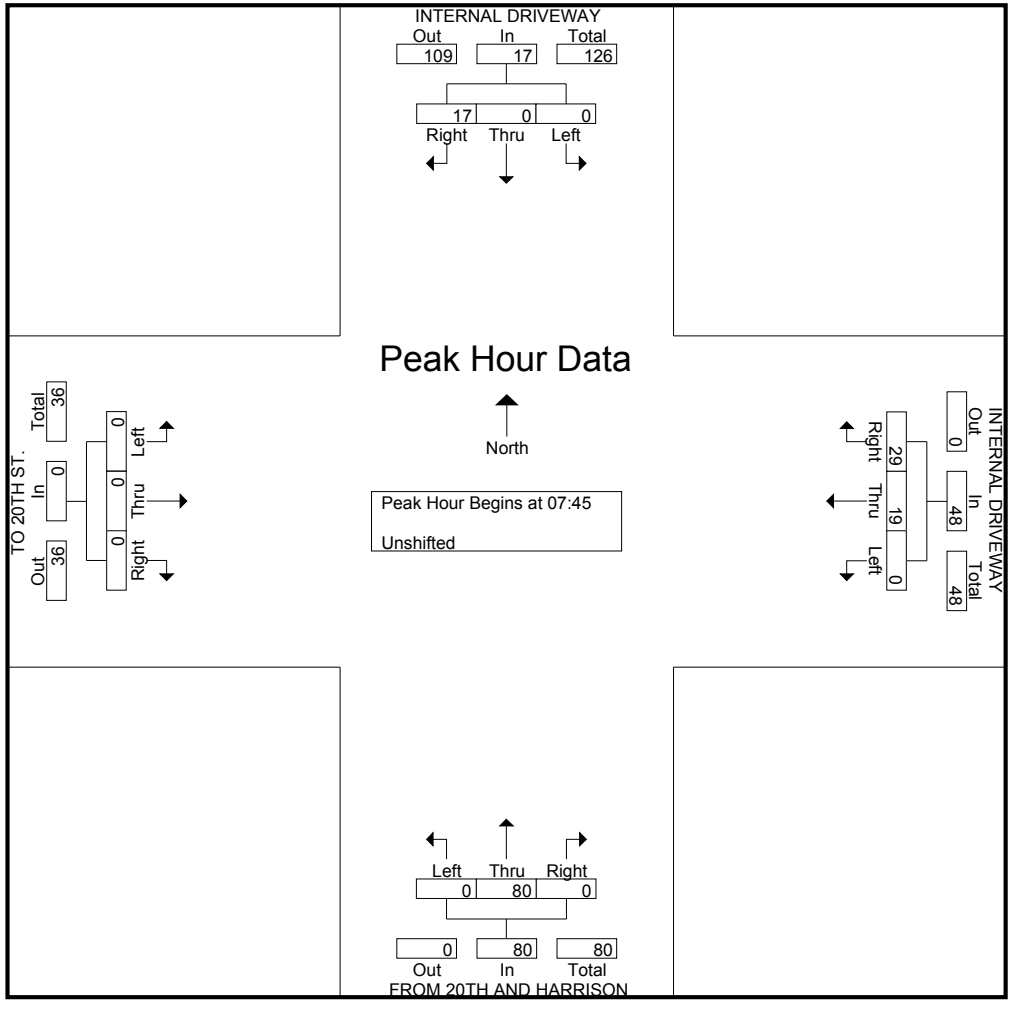
	INTERNAL DRIVEWAY Southbound				INTERNAL DRIVEWAY Westbound				FROM 20TH AND HARRISON Northbound				TO 20TH ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45																	
07:45	0	0	**9**	**9**	0	**8**	5	13	0	17	0	17	0	0	0	0	39
08:00	0	0	2	2	0	3	5	8	0	22	0	22	0	0	0	0	32
08:15	0	0	2	2	0	4	9	13	0	15	0	15	0	0	0	0	30
08:30	0	0	4	4	0	4	**10**	**14**	0	**26**	0	**26**	0	0	0	0	**44**
Total Volume	0	0	17	17	0	19	29	48	0	80	0	80	0	0	0	0	145
% App. Total	0	0	100		0	39.6	60.4		0	100	0		0	0	0		
PHF	.000	.000	.472	.472	.000	.594	.725	.857	.000	.769	.000	.769	.000	.000	.000	.000	.824

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-015 INTERNAL-20TH ST-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 2



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 16:15

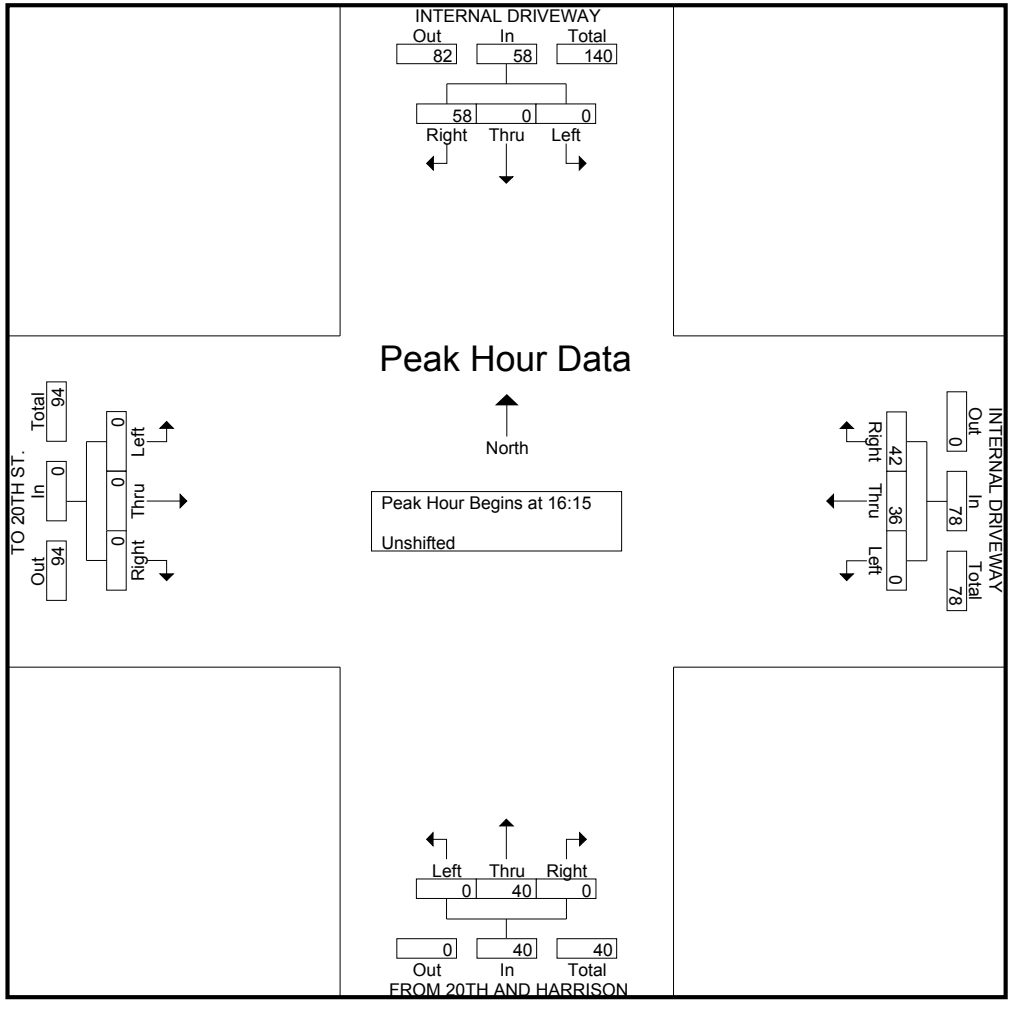
16:15	0	0	10	10	0	8	9	17	0	**13**	0	**13**	0	0	0	0	40
16:30	0	0	14	14	0	7	11	18	0	11	0	11	0	0	0	0	43
16:45	0	0	**22**	**22**	0	**12**	**12**	**24**	0	7	0	7	0	0	0	0	**53**
17:00	0	0	12	12	0	9	10	19	0	9	0	9	0	0	0	0	40
Total Volume	0	0	58	58	0	36	42	78	0	40	0	40	0	0	0	0	176
% App. Total	0	0	100		0	46.2	53.8		0	100	0		0	0	0		
PHF	.000	.000	.659	.659	.000	.750	.875	.813	.000	.769	.000	.769	.000	.000	.000	.000	.830

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-015 INTERNAL-20TH ST-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 3



ALL TRAFFIC DATA, INC
(916)771-8700
FAX 786-2879

City of Oakland — Harrison St & Lakeside Dr — Date: 05/22/2008

	Harrison St Southbound				Lakeside Dr Westbound				Harrison St Northbound				Lakeside Dr Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	0	42	76	118	0	0	0	0	0	96	0	96	0	50	0	50	264
7:15	0	48	85	133	0	0	0	0	0	103	0	103	0	42	0	42	278
7:30	0	63	85	148	0	0	0	0	0	131	0	131	0	66	0	66	345
7:45	0	77	115	192	0	0	0	0	0	152	0	152	0	65	0	65	409
Total	0	230	361	591	0	0	0	0	0	482	0	482	0	223	0	223	1296
8:00	0	90	114	204	0	0	0	0	0	160	0	160	0	71	0	71	435
8:15	0	94	126	220	0	0	0	0	0	167	0	167	0	92	0	92	479
8:30	0	98	120	218	0	0	0	0	0	159	0	159	0	83	0	83	460
8:45	0	96	139	235	0	0	0	0	0	168	0	168	0	86	0	86	489
Total	0	378	499	877	0	0	0	0	0	654	0	654	0	332	0	332	1863
16:00	0	88	70	158	0	0	0	0	0	176	0	176	0	165	0	165	499
16:15	0	115	75	190	0	0	0	0	0	164	0	164	0	165	0	165	519
16:30	0	154	70	224	0	0	0	0	0	173	0	173	0	184	0	184	581
16:45	0	151	70	221	0	0	0	0	0	158	0	158	0	195	0	195	574
Total	0	508	285	793	0	0	0	0	0	671	0	671	0	709	0	709	2173
17:00	0	155	81	236	0	0	0	0	0	189	0	189	0	236	0	236	661
17:15	0	156	65	221	0	0	0	0	0	179	0	179	0	233	0	233	633
17:30	0	158	68	226	0	0	0	0	0	172	0	172	0	212	0	212	610
17:45	0	155	58	213	0	0	0	0	0	163	0	163	0	212	0	212	588
Total	0	624	272	896	0	0	0	0	0	703	0	703	0	893	0	893	2492
Grand Total	0	1740	1417	3157	0	0	0	0	0	2510	0	2510	0	2157	0	2157	7824
Apprch%	0.0%	55.1%	44.9%		0.0%	0.0%	0.0%		0.0%	100.0%	0.0%		0.0%	100.0%	0.0%		
Total %	0.0%	22.2%	18.1%	40.4%	0.0%	0.0%	0.0%	0.0%	0.0%	32.1%	0.0%	32.1%	0.0%	27.6%	0.0%	27.6%	

City of Oakland — Harrison St & Lakeside Dr — Date: 05/22/2008

AM Peak Hr Begins at 800 AM

	Harrison St Southbound				Lakeside Dr Westbound				Harrison St Northbound				Lakeside Dr Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	0	90	114	204	0	0	0	0	0	160	0	160	0	71	0	71	435
815	0	94	126	220	0	0	0	0	0	167	0	167	0	92	0	92	479
830	0	98	120	218	0	0	0	0	0	159	0	159	0	83	0	83	460
845	0	96	139	235	0	0	0	0	0	168	0	168	0	86	0	86	489
Total Volume	0	378	499	877	0	0	0	0	0	654	0	654	0	332	0	332	1863
% App Total.	0.0%	43.1%	56.9%		0.0%	0.0%	0.0%		0.0%	100.0%	0.0%		0.0%	100.0%	0.0%		
PHF	0.933				0.000				0.973				0.902				

PM Peak Hr Begins at 500 PM

	Harrison St Southbound				Lakeside Dr Westbound				Harrison St Northbound				Lakeside Dr Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
500	0	155	81	236	0	0	0	0	0	189	0	189	0	236	0	236	661
515	0	156	65	221	0	0	0	0	0	179	0	179	0	233	0	233	633
530	0	158	68	226	0	0	0	0	0	172	0	172	0	212	0	212	610
545	0	155	58	213	0	0	0	0	0	163	0	163	0	212	0	212	588
Total Volume	0	624	272	896	0	0	0	0	0	703	0	703	0	893	0	893	2492
% App Total.	0.0%	69.6%	30.4%		0.0%	0.0%	0.0%		0.0%	100.0%	0.0%		0.0%	100.0%	0.0%		
PHF	0.949				0.000				0.930				0.946				

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-016 LAKESIDE-20TH-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 1

Groups Printed- Unshifted

	LAKESIDE DR. Southbound					Westbound					LAKESIDE DR. Northbound					20TH ST. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	0	38	0	0	38	0	0	0	0	0	12	68	0	0	80	0	7	0	0	7	0	125	125
07:15	0	46	0	0	46	0	0	0	0	0	17	73	0	0	90	0	5	0	0	5	0	141	141
07:30	0	67	0	0	67	0	0	0	0	0	24	118	0	0	142	0	8	0	0	8	0	217	217
07:45	0	68	0	0	68	0	0	0	0	0	26	124	0	0	150	0	11	0	0	11	0	229	229
Total	0	219	0	0	219	0	0	0	0	0	79	383	0	0	462	0	31	0	0	31	0	712	712
08:00	0	77	0	0	77	0	0	0	0	0	26	142	0	0	168	0	14	0	0	14	0	259	259
08:15	0	86	0	0	86	0	0	0	0	0	36	137	0	0	173	0	10	0	0	10	0	269	269
08:30	0	105	0	0	105	0	0	0	0	0	27	152	0	0	179	0	14	0	0	14	0	298	298
08:45	0	76	0	0	76	0	0	0	0	0	33	138	0	0	171	0	15	0	0	15	0	262	262
Total	0	344	0	0	344	0	0	0	0	0	122	569	0	0	691	0	53	0	0	53	0	1088	1088
*** BREAK ***																							
16:00	0	112	0	0	112	0	0	0	0	0	24	158	0	0	182	0	21	0	0	21	0	315	315
16:15	0	90	0	0	90	0	0	0	0	0	21	129	0	0	150	0	13	0	0	13	0	253	253
16:30	0	103	0	0	103	0	0	0	0	0	19	169	0	0	188	0	20	0	0	20	0	311	311
16:45	0	123	0	0	123	0	0	0	0	0	25	168	0	0	193	0	20	0	0	20	0	336	336
Total	0	428	0	0	428	0	0	0	0	0	89	624	0	0	713	0	74	0	0	74	0	1215	1215
17:00	0	146	0	0	146	0	0	0	0	0	27	125	0	0	152	0	20	0	0	20	0	318	318
17:15	0	129	0	0	129	0	0	0	0	0	48	174	0	0	222	0	34	0	0	34	0	385	385
17:30	0	137	0	0	137	0	0	0	0	0	32	144	0	0	176	0	23	0	0	23	0	336	336
17:45	0	121	0	0	121	0	0	0	0	0	26	149	0	0	175	0	27	0	0	27	0	323	323
Total	0	533	0	0	533	0	0	0	0	0	133	592	0	0	725	0	104	0	0	104	0	1362	1362
Grand Total	0	1524	0	0	1524	0	0	0	0	0	423	2168	0	0	2591	0	262	0	0	262	0	4377	4377
Apprch %	0	100	0			0	0	0			16.3	83.7	0			0	100	0					
Total %	0	34.8	0		34.8	0	0	0		0	9.7	49.5	0		59.2	0	6	0		6	0	100	

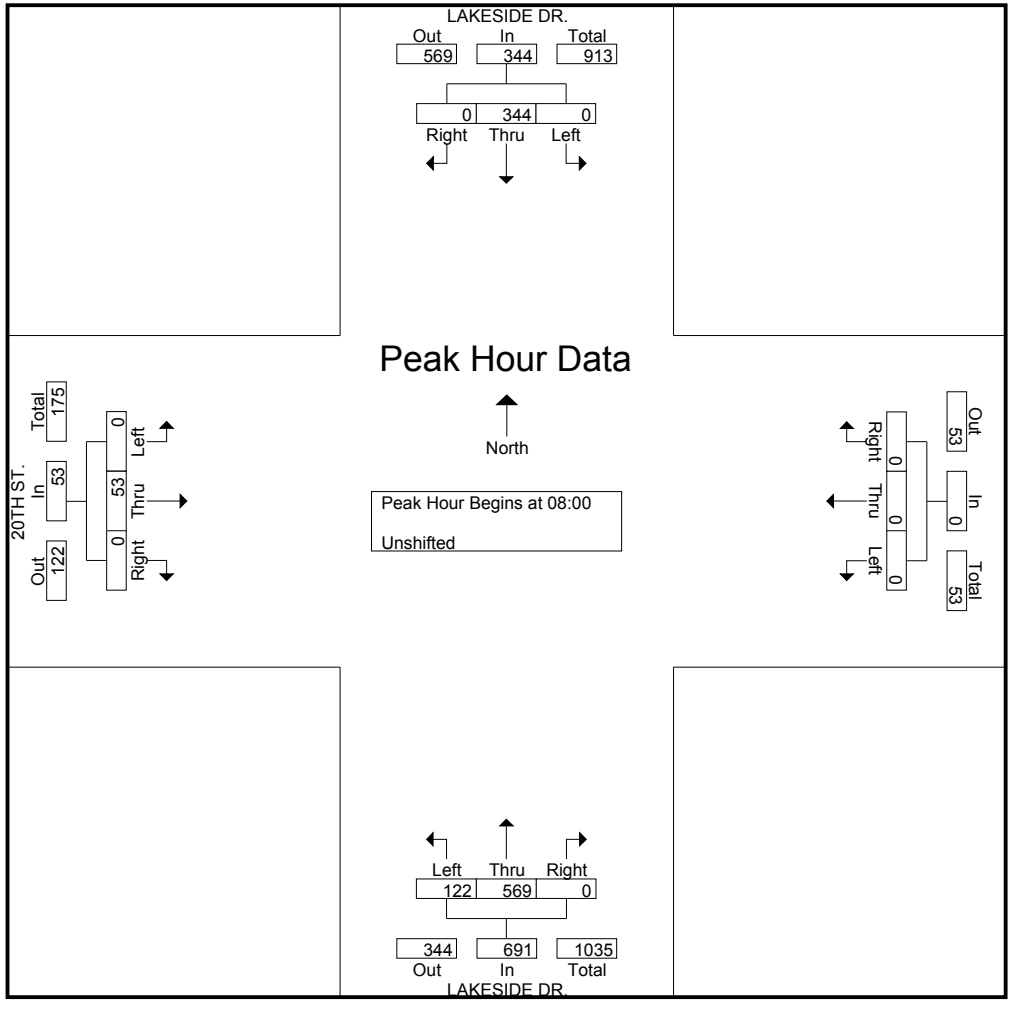
	LAKESIDE DR. Southbound				Westbound				LAKESIDE DR. Northbound				20TH ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	0	77	0	77	0	0	0	0	26	142	0	168	0	14	0	14	259
08:15	0	86	0	86	0	0	0	0	**36**	137	0	173	0	10	0	10	269
08:30	0	**105**	0	**105**	0	0	0	0	27	**152**	0	**179**	0	14	0	14	**298**
08:45	0	76	0	76	0	0	0	0	33	138	0	171	0	**15**	0	**15**	262
Total Volume	0	344	0	344	0	0	0	0	122	569	0	691	0	53	0	53	1088
% App. Total	0	100	0		0	0	0		17.7	82.3	0		0	100	0		
PHF	.000	.819	.000	.819	.000	.000	.000	.000	.847	.936	.000	.965	.000	.883	.000	.883	.913

All Traffic Data

(916) 771-8700
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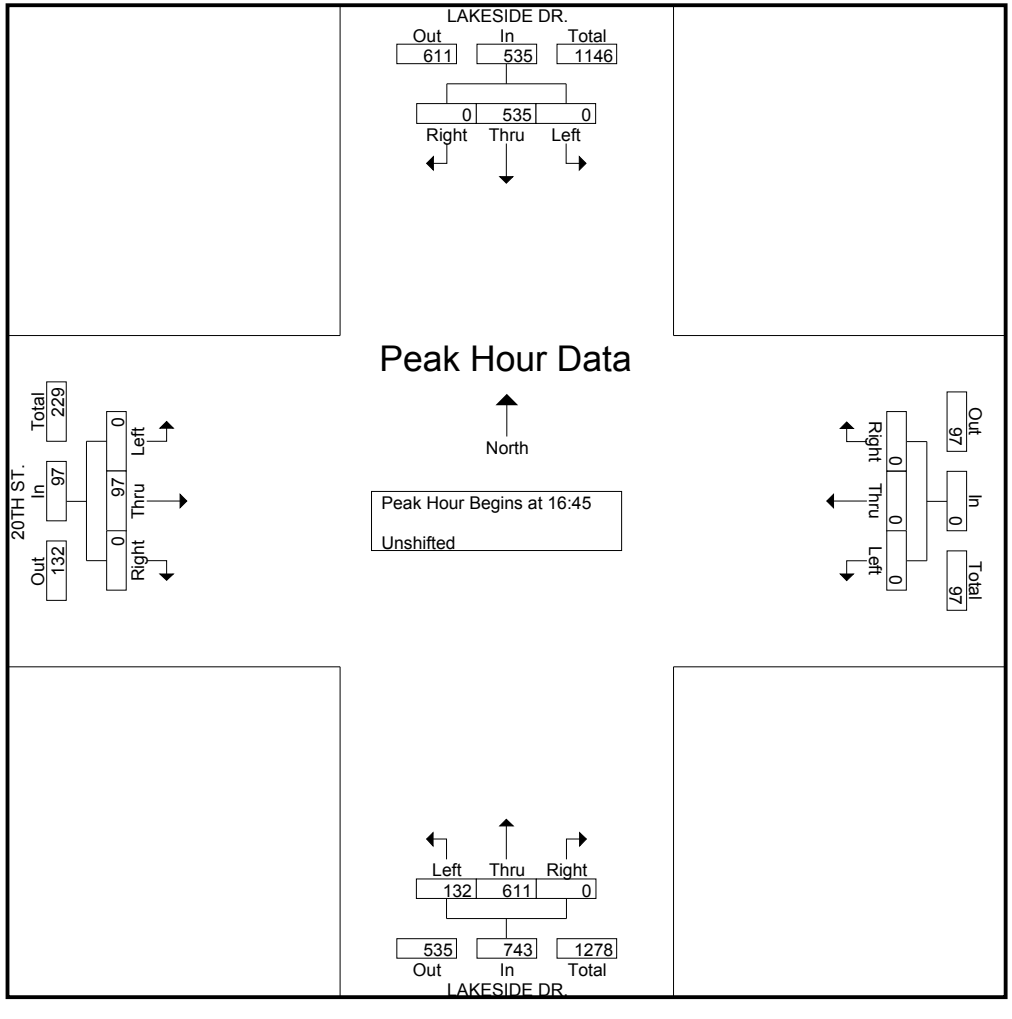
OAKLAND

File Name : 08-7458-016 LAKESIDE-20TH-F
Site Code : 00000000
Start Date : 08/07/2008
Page No : 2



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 16:45

16:45	0	123	0	123	0	0	0	0	25	168	0	193	0	20	0	20	336
17:00	0	**146**	0	**146**	0	0	0	0	27	125	0	152	0	20	0	20	318
17:15	0	129	0	129	0	0	0	0	**48**	**174**	0	**222**	0	**34**	0	**34**	**385**
17:30	0	137	0	137	0	0	0	0	32	144	0	176	0	23	0	23	336
Total Volume	0	535	0	535	0	0	0	0	132	611	0	743	0	97	0	97	1375
% App. Total	0	100	0		0	0	0		17.8	82.2	0		0	100	0		
PHF	.000	.916	.000	.916	.000	.000	.000	.000	.688	.878	.000	.837	.000	.713	.000	.713	.893


LAKESIDE DR.
Out
611
In
535
Total
1146
0
535
0
Right
Thru
Left
Peak Hour Data
North
Peak Hour Begins at 16:45
Unshifted
20TH ST.
In
97
Total
229
Out
132
0
97
0
Left
Thru
Right
Right
Thru
Left
0
0
0
Out
97
In
0
Total
97
Left
Thru
Right
132
611
0
535
Out
743
In
1278
Total
LAKESIDE DR.

All Traffic Data

(916) 771-8700
Fax 786-2879

OAKLAND

File Name : 08-7065-009 BRUSH-18TH-F
Site Code : 00000000
Start Date : 06/02/2008
Page No : 1

Groups Printed- Unshifted

	BRUSH ST. Southbound						SB I-980 OFF RAMP Southwestbound						18TH ST. Westbound						BRUSH ST. Northbound						18TH ST. Eastbound								
Start Time	Hard Left	Left	Thru	Right	Peds	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	Peds	App. Total	Left	Thru	Right	Hard Right	Peds	App. Total	Left	Thru	Bear Right	Right	Peds	App. Total	Left	Bear Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	0	0	35	2	0	37	0	232	0	0	0	232	15	21	0	0	0	36	0	0	0	0	1	0	0	0	0	0	0	0	1	305	306
07:15	0	0	42	4	0	46	0	290	0	0	0	290	12	23	0	0	0	35	0	0	0	0	2	0	0	0	0	0	5	5	2	376	378
07:30	0	0	53	4	0	57	0	398	0	0	0	398	18	32	0	0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	0	505	505
07:45	0	0	64	2	0	66	0	401	0	0	0	401	17	38	0	0	0	55	0	0	0	0	3	0	0	0	0	0	6	6	3	528	531
Total	0	0	194	12	0	206	0	1321	0	0	0	1321	62	114	0	0	0	176	0	0	0	0	6	0	0	0	0	0	11	11	6	1714	1720
08:00	0	0	49	0	0	49	0	484	0	0	0	484	19	30	0	0	0	49	0	0	0	0	3	0	0	0	0	0	6	6	3	588	591
08:15	0	0	67	4	0	71	0	541	0	0	0	541	22	24	0	0	0	46	0	0	0	0	9	0	0	0	0	0	5	5	9	663	672
08:30	0	0	65	0	0	65	0	539	0	0	0	539	20	33	0	0	0	53	0	0	0	0	2	0	0	0	0	0	0	0	2	657	659
08:45	0	0	67	5	0	72	0	503	0	0	0	503	21	23	0	0	0	44	0	0	0	0	6	0	0	0	0	0	3	3	6	622	628
Total	0	0	248	9	0	257	0	2067	0	0	0	2067	82	110	0	0	0	192	0	0	0	0	20	0	0	0	0	0	14	14	20	2530	2550
*** BREAK ***																																	
16:00	0	0	91	2	0	93	0	154	27	0	0	181	25	31	0	0	0	56	0	0	0	0	2	0	0	0	0	0	5	5	2	335	337
16:15	0	0	91	2	0	93	0	143	21	0	0	164	21	30	0	0	0	51	0	0	0	0	7	0	0	0	0	0	9	9	7	317	324
16:30	0	0	106	2	0	108	0	124	31	0	0	155	29	30	0	0	0	59	0	0	0	0	7	0	0	0	0	0	5	5	7	327	334
16:45	0	0	94	0	0	94	0	147	27	0	0	174	32	40	0	0	0	72	0	0	0	0	4	0	0	0	0	0	1	1	4	341	345
Total	0	0	382	6	0	388	0	568	106	0	0	674	107	131	0	0	0	238	0	0	0	0	20	0	0	0	0	0	20	20	20	1320	1340
17:00	0	0	104	0	0	104	0	141	27	0	0	168	38	42	0	0	0	80	0	0	0	0	7	0	0	0	0	0	4	4	7	356	363
17:15	0	0	110	0	0	110	0	139	32	0	0	171	40	35	0	0	0	75	0	0	0	0	8	0	0	0	0	0	4	4	8	360	368
17:30	0	0	106	0	0	106	0	145	28	0	0	173	36	34	0	0	0	70	0	0	0	0	5	0	0	0	0	0	1	1	5	350	355
17:45	0	0	72	2	0	74	0	151	34	0	0	185	31	30	0	0	0	61	0	0	0	0	3	0	0	0	0	0	0	0	3	320	323
Total	0	0	392	2	0	394	0	576	121	0	0	697	145	141	0	0	0	286	0	0	0	0	23	0	0	0	0	0	9	9	23	1386	1409
Grand Total	0	0	1216	29	0	1245	0	4532	227	0	0	4759	396	496	0	0	0	892	0	0	0	0	69	0	0	0	0	0	54	54	69	6950	7019
Apprch %	0	0	97.7	2.3			0	95.2	4.8	0			44.4	55.6	0	0			0	0	0	0			0	0	0	0	100				
Total %	0	0	17.5	0.4		17.9	0	65.2	3.3	0		68.5	5.7	7.1	0	0		12.8	0	0	0	0		0	0	0	0	0	0.8	0.8	1	99	

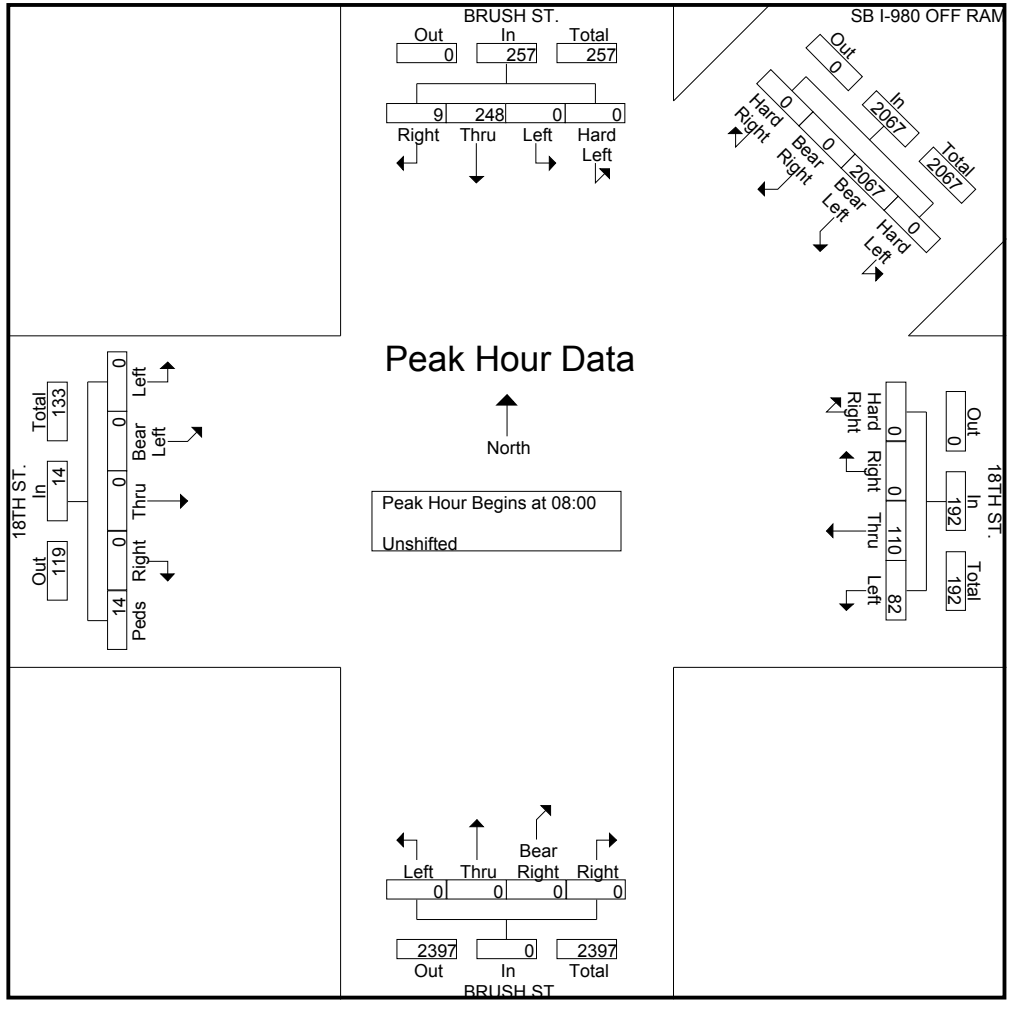
	BRUSH ST. Southbound					SB I-980 OFF RAMP Southwestbound					18TH ST. Westbound					BRUSH ST. Northbound					18TH ST. Eastbound							
Start Time	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																											
Peak Hour for Entire Intersection Begins at 08:00																											
08:00	0	0	49	0	49	0	484	0	0	484	19	30	0	0	49	0	0	0	0	0	0	0	0	0	**6**	**6**	588
08:15	0	0	**67**	4	71	0	**541**	0	0	**541**	**22**	24	0	0	46	0	0	0	0	0	0	0	0	0	5	5	**663**
08:30	0	0	65	0	65	0	539	0	0	539	20	**33**	0	0	**53**	0	0	0	0	0	0	0	0	0	0	0	657
08:45	0	0	67	**5**	**72**	0	503	0	0	503	21	23	0	0	44	0	0	0	0	0	0	0	0	0	3	3	622
Total Volume	0	0	248	9	257	0	2067	0	0	2067	82	110	0	0	192	0	0	0	0	0	0	0	0	0	14	14	2530
% App. Total	0	0	96.5	3.5		0	100	0	0		42.7	57.3	0	0		0	0	0	0		0	0	0	0	100		
PHF	.000	.000	.925	.450	.892	.000	.955	.000	.000	.955	.932	.833	.000	.000	.906	.000	.000	.000	.000	.000	.000	.000	.000	.000	.583	.583	.954

All Traffic Data

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OAKLAND

File Name : 08-7065-009 BRUSH-18TH-F
Site Code : 00000000
Start Date : 06/02/2008
Page No : 2



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 16:45

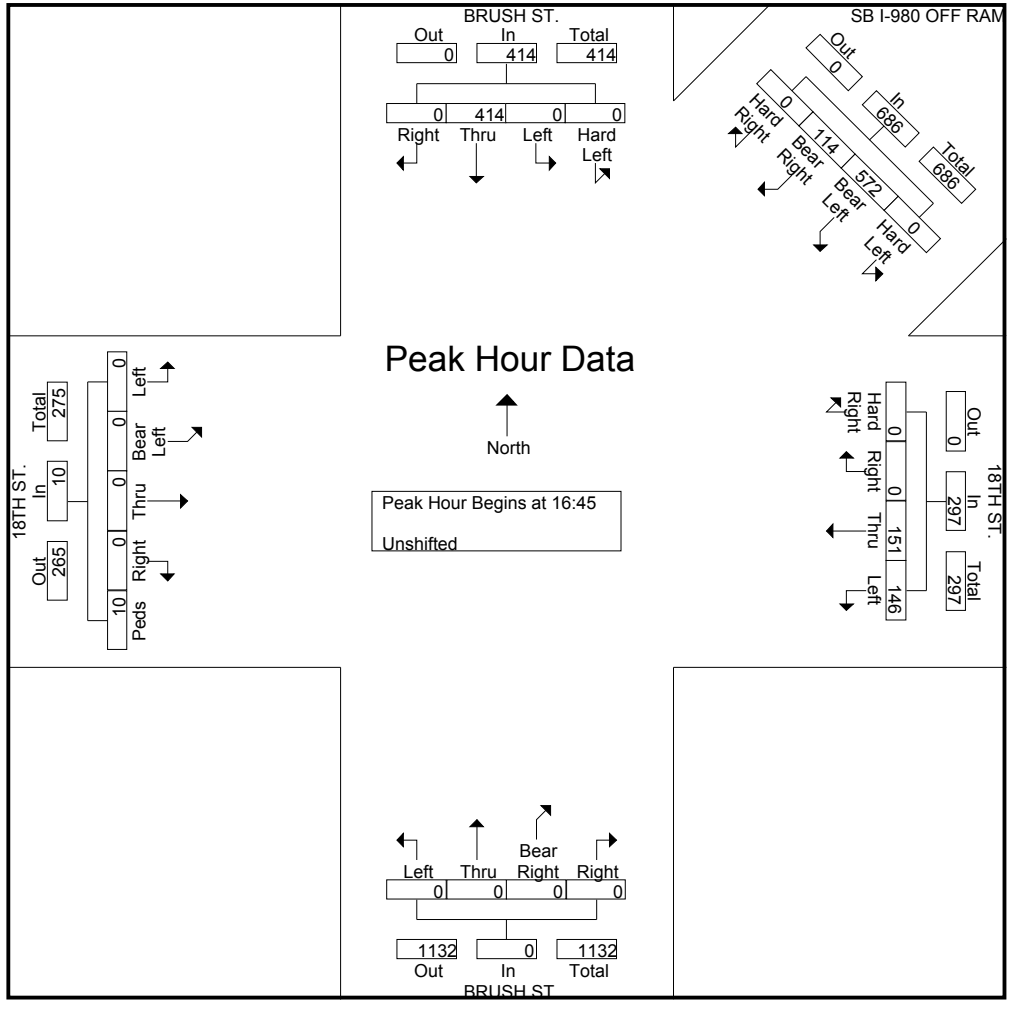
16:45	0	0	94	0	94	0	**147**	27	0	**174**	32	40	0	0	72	0	0	0	0	0	0	0	0	0	1	1	341
17:00	0	0	104	0	104	0	141	27	0	168	38	**42**	0	0	**80**	0	0	0	0	0	0	0	0	0	**4**	**4**	356
17:15	0	0	**110**	0	**110**	0	139	**32**	0	171	**40**	35	0	0	75	0	0	0	0	0	0	0	0	0	4	4	**360**
17:30	0	0	106	0	106	0	145	28	0	173	36	34	0	0	70	0	0	0	0	0	0	0	0	0	1	1	350
Total Volume	0	0	414	0	414	0	572	114	0	686	146	151	0	0	297	0	0	0	0	0	0	0	0	0	10	10	1407
% App. Total	0	0	100	0		0	83.4	16.6	0		49.2	50.8	0	0		0	0	0	0		0	0	0	0	100		
PHF	.000	.000	.941	.000	.941	.000	.973	.891	.000	.986	.913	.899	.000	.000	.928	.000	.000	.000	.000	.000	.000	.000	.000	.000	.625	.625	.977

All Traffic Data

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OAKLAND

File Name : 08-7065-009 BRUSH-18TH-F
Site Code : 00000000
Start Date : 06/02/2008
Page No : 3



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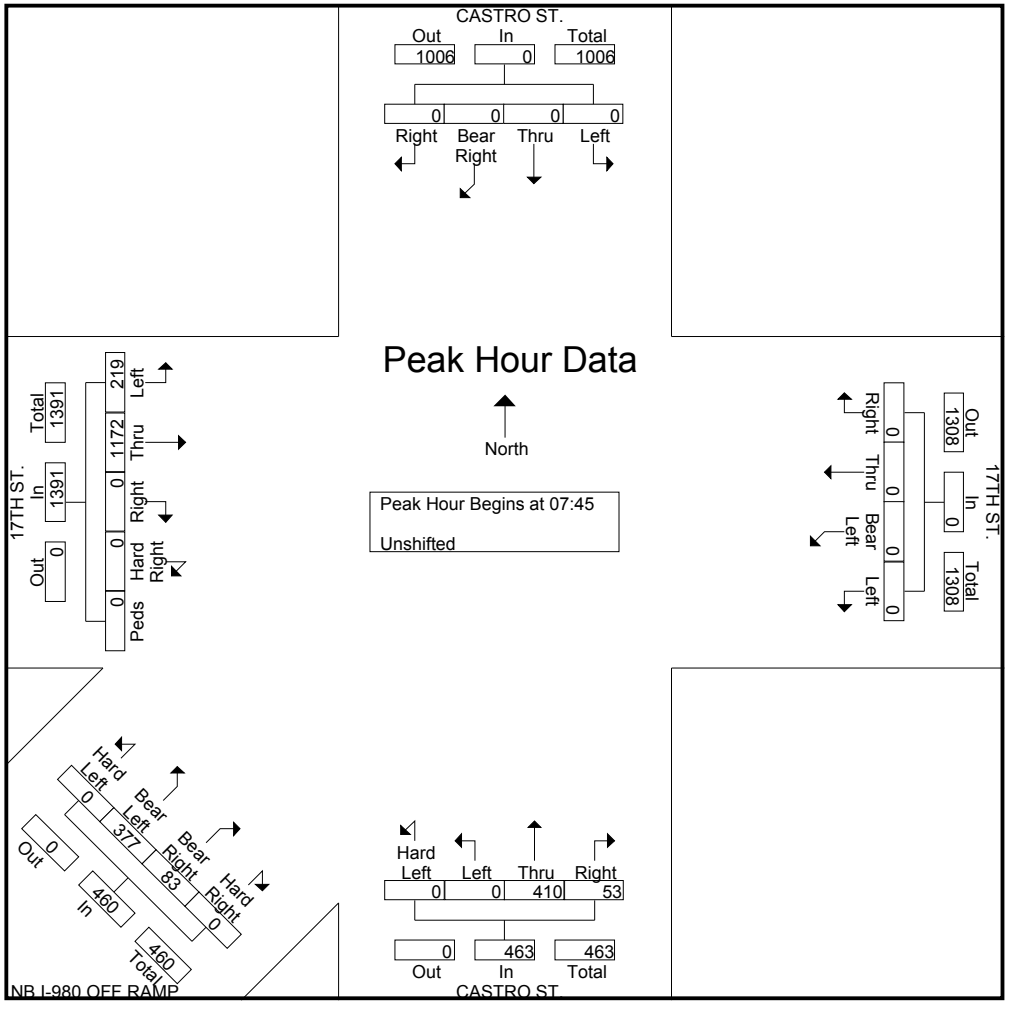
OAKLAND

File Name : 08-7065-006 CASTRO-17TH-F
Site Code : 00000000
Start Date : 06/02/2008
Page No : 1

Groups Printed- Unshifted

	CASTRO ST. Southbound						17TH ST. Westbound						CASTRO ST. Northbound						NB I-980 OFF RAMP Northeastbound						17TH ST. Eastbound								
Start Time	Left	Thru	Bear Right	Right	Peds	App. Total	Left	Bear Left	Thru	Right	Peds	App. Total	Hard Left	Left	Thru	Right	Peds	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	Peds	App. Total	Left	Thru	Right	Hard Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	74	11	4	85	0	61	10	0	0	71	26	117	0	0	0	143	5	299	304
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	11	4	81	0	86	20	0	0	106	28	177	0	0	0	205	4	392	396
07:30	0	0	0	0	0	0	0	0	0	0	3	0	0	0	118	14	8	132	0	100	25	0	0	125	41	221	0	0	0	262	11	519	530
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	108	18	9	126	0	92	16	0	0	108	50	290	0	0	0	340	9	574	583
Total	0	0	0	0	0	0	0	0	0	0	4	0	0	0	370	54	25	424	0	339	71	0	0	410	145	805	0	0	0	950	29	1784	1813
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	105	13	8	118	0	91	24	0	0	115	64	280	0	0	0	344	8	577	585
08:15	0	0	0	0	0	0	0	0	0	0	2	0	0	0	101	12	14	113	0	100	24	0	0	124	56	306	0	0	0	362	16	599	615
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	96	10	14	106	0	94	19	0	0	113	49	296	0	0	0	345	14	564	578
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93	12	8	105	0	90	21	0	0	111	41	271	0	0	0	312	8	528	536
Total	0	0	0	0	0	0	0	0	0	0	2	0	0	0	395	47	44	442	0	375	88	0	0	463	210	1153	0	0	0	1363	46	2268	2314
*** BREAK ***																																	
16:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	190	7	3	197	0	70	15	0	0	85	42	95	0	0	0	137	4	419	423
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	203	11	3	214	0	78	8	0	0	86	59	97	0	0	0	156	3	456	459
16:30	0	0	0	0	0	0	0	0	0	0	1	0	0	0	229	16	3	245	0	58	9	0	0	67	61	89	0	0	0	150	4	462	466
16:45	0	0	0	0	0	0	0	0	0	0	1	0	0	0	231	14	14	245	0	64	8	0	0	72	58	102	0	0	0	160	15	477	492
Total	0	0	0	0	0	0	0	0	0	0	3	0	0	0	853	48	23	901	0	270	40	0	0	310	220	383	0	0	0	603	26	1814	1840
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	256	18	5	274	0	74	7	0	0	81	45	106	0	0	0	151	5	506	511
17:15	0	0	0	0	0	0	0	0	0	0	1	0	0	0	231	11	10	242	0	73	8	0	0	81	36	99	0	0	0	135	11	458	469
17:30	0	0	0	0	0	0	0	0	0	0	6	0	0	0	215	8	11	223	0	71	3	0	0	74	37	99	0	0	0	136	17	433	450
17:45	0	0	0	0	0	0	0	0	0	0	3	0	0	0	188	11	8	199	0	65	4	0	0	69	33	98	0	0	0	131	11	399	410
Total	0	0	0	0	0	0	0	0	0	0	10	0	0	0	890	48	34	938	0	283	22	0	0	305	151	402	0	0	0	553	44	1796	1840
Grand Total	0	0	0	0	0	0	0	0	0	0	19	0	0	0	2508	197	126	2705	0	1267	221	0	0	1488	726	2743	0	0	0	3469	145	7662	7807
Apprch %	0	0	0	0			0	0	0	0			0	0	92.7	7.3			0	85.1	14.9	0			20.9	79.1	0	0	0				
Total %	0	0	0	0		0	0	0	0	0		0	0	0	32.7	2.6		35.3	0	16.5	2.9	0		19.4	9.5	35.8	0	0	0	45.3	1.9	98.1	

	CASTRO ST. Southbound					17TH ST. Westbound					CASTRO ST. Northbound					NB I-980 OFF RAMP Northeastbound					17TH ST. Eastbound						
Start Time	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 07:45																										
07:45	0	0	0	0	0	0	0	0	0	0	0	0	**108**	**18**	**126**	0	92	16	0	108	50	290	0	0	0	340	574
08:00	0	0	0	0	0	0	0	0	0	0	0	0	105	13	118	0	91	**24**	0	115	**64**	280	0	0	0	344	577
08:15	0	0	0	0	0	0	0	0	0	0	0	0	101	12	113	0	**100**	24	0	**124**	56	**306**	0	0	0	**362**	**599**
08:30	0	0	0	0	0	0	0	0	0	0	0	0	96	10	106	0	94	19	0	113	49	296	0	0	0	345	564
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	410	53	463	0	377	83	0	460	219	1172	0	0	0	1391	2314
% App. Total	0	0	0	0		0	0	0	0		0	0	88.6	11.4		0	82	18	0		15.7	84.3	0	0	0		



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 16:30

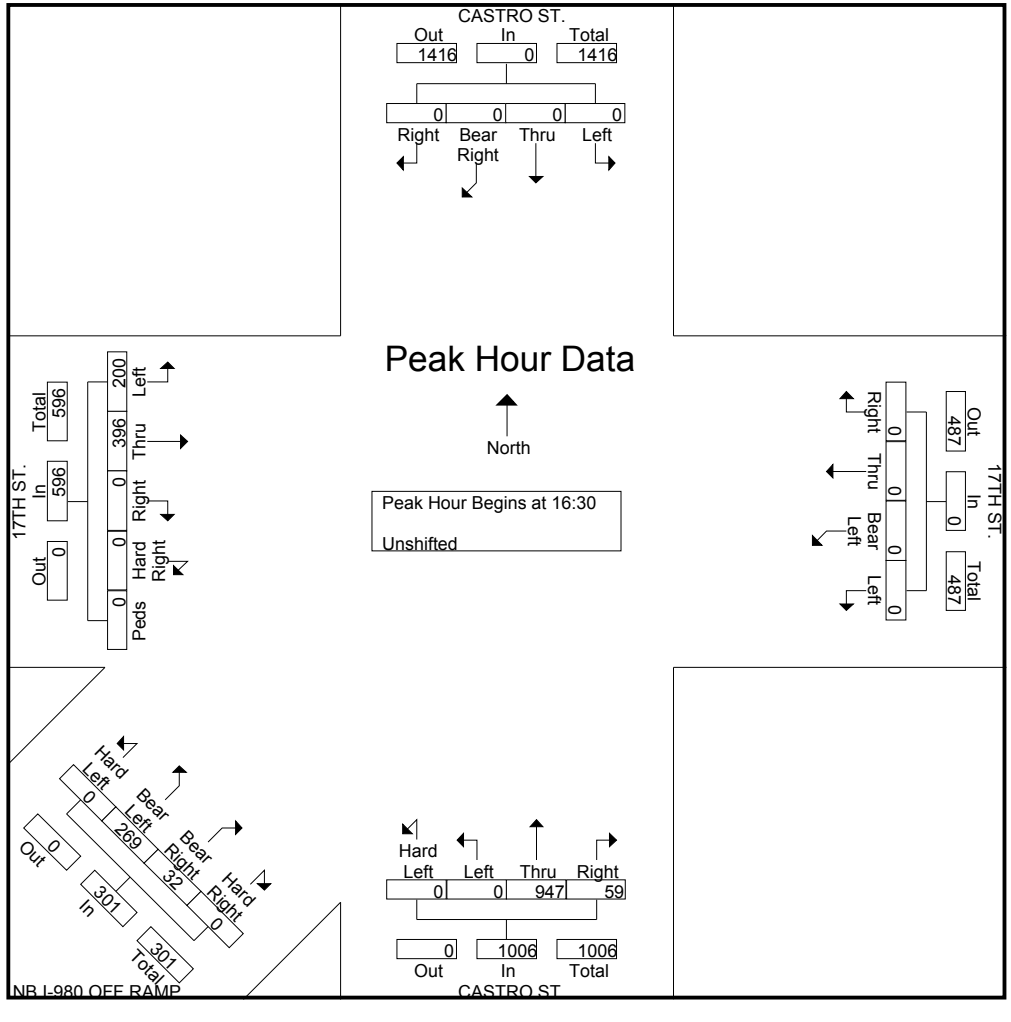
16:30	0	0	0	0	0	0	0	0	0	0	0	0	229	16	245	0	58	**9**	0	67	**61**	89	0	0	0	150	462
16:45	0	0	0	0	0	0	0	0	0	0	0	0	231	14	245	0	64	8	0	72	58	102	0	0	0	**160**	477
17:00	0	0	0	0	0	0	0	0	0	0	0	0	**256**	**18**	**274**	0	**74**	7	0	**81**	45	**106**	0	0	0	151	**506**
17:15	0	0	0	0	0	0	0	0	0	0	0	0	231	11	242	0	73	8	0	81	36	99	0	0	0	135	458
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	947	59	1006	0	269	32	0	301	200	396	0	0	0	596	1903
% App. Total	0	0	0	0		0	0	0	0		0	0	94.1	5.9		0	89.4	10.6	0		33.6	66.4	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.925	.819	.918	.000	.909	.889	.000	.929	.820	.934	.000	.000	.000	.931	.940

All Traffic Data

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OAKLAND

File Name : 08-7065-006 CASTRO-17TH-F
Site Code : 00000000
Start Date : 06/02/2008
Page No : 3



All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-019 CASTRO-12TH-F
Site Code : 00000000
Start Date : 08/05/2008
Page No : 1

Groups Printed- Unshifted

	CASTRO ST. Southbound						12TH ST. Westbound						CASTRO ST. Northbound						12TH ST. Eastbound						I-980 ON RAMP Southeastbound								
Start Time	Left	Thru	Right	Hard Right	Peds	App. Total	Left	Thru	Bear Right	Right	Peds	App. Total	Left	Bear Left	Thru	Right	Peds	App. Total	Hard Left	Left	Thru	Right	Peds	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	0	0	0	0	0	0	0	19	16	21	2	56	7	26	42	0	1	75	0	0	0	0	0	0	0	0	0	0	0	0	3	131	134
07:15	0	0	0	0	0	0	0	21	12	31	0	64	6	29	41	0	2	76	0	0	0	0	0	0	0	0	0	0	0	0	2	140	142
07:30	0	0	0	0	0	0	0	29	18	26	1	73	11	35	44	0	0	90	0	0	0	0	1	0	0	0	0	0	0	0	2	163	165
07:45	0	0	0	0	0	0	0	26	19	30	1	75	9	60	61	0	2	130	0	0	0	0	0	0	0	0	0	0	0	0	3	205	208
Total	0	0	0	0	0	0	0	95	65	108	4	268	33	150	188	0	5	371	0	0	0	0	1	0	0	0	0	0	0	0	10	639	649
08:00	0	0	0	0	0	0	0	31	16	36	0	83	6	51	61	0	4	118	0	0	0	0	0	0	0	0	0	0	0	0	4	201	205
08:15	0	0	0	0	0	0	0	34	17	40	1	91	10	68	76	0	2	154	0	0	0	0	0	0	0	0	0	0	0	0	3	245	248
08:30	0	0	0	0	0	0	0	29	14	32	0	75	7	62	65	0	1	134	0	0	0	0	0	0	0	0	0	0	0	0	1	209	210
08:45	0	0	0	0	0	0	0	34	21	26	0	81	12	56	71	0	3	139	0	0	0	0	0	0	0	0	0	0	0	0	3	220	223
Total	0	0	0	0	0	0	0	128	68	134	1	330	35	237	273	0	10	545	0	0	0	0	0	0	0	0	0	0	0	0	11	875	886
*** BREAK ***																																	
16:00	0	0	0	0	0	0	0	52	69	50	8	171	12	160	92	0	11	264	0	0	0	0	0	0	0	0	0	0	0	0	19	435	454
16:15	0	0	0	0	0	0	0	48	75	51	0	174	6	171	98	0	4	275	0	0	0	0	1	0	0	0	0	0	0	0	5	449	454
16:30	0	0	0	0	0	0	0	52	89	71	4	212	14	168	105	0	8	287	0	0	0	0	0	0	0	0	0	0	0	0	12	499	511
16:45	0	0	0	0	0	0	0	73	72	76	3	221	10	184	114	0	7	308	0	0	0	0	1	0	0	0	0	0	0	0	11	529	540
Total	0	0	0	0	0	0	0	225	305	248	15	778	42	683	409	0	30	1134	0	0	0	0	2	0	0	0	0	0	0	0	47	1912	1959
17:00	0	0	0	0	0	0	0	45	105	81	3	231	10	234	121	0	12	365	0	0	0	0	1	0	0	0	0	0	0	0	16	596	612
17:15	0	0	0	0	0	0	0	53	124	104	0	281	18	211	106	0	5	335	0	0	0	0	0	0	0	0	0	0	0	0	5	616	621
17:30	0	0	0	0	0	0	0	55	103	91	3	249	17	192	111	0	6	320	0	0	0	0	0	0	0	0	0	0	0	0	9	569	578
17:45	0	0	0	0	0	0	0	70	98	68	3	236	5	201	85	0	4	291	0	0	0	0	1	0	0	0	0	0	0	0	8	527	535
Total	0	0	0	0	0	0	0	223	430	344	9	997	50	838	423	0	27	1311	0	0	0	0	2	0	0	0	0	0	0	0	38	2308	2346
Grand Total	0	0	0	0	0	0	0	671	868	834	29	2373	160	1908	1293	0	72	3361	0	0	0	0	5	0	0	0	0	0	0	0	106	5734	5840
Apprch %	0	0	0	0			0	28.3	36.6	35.1			4.8	56.8	38.5	0			0	0	0	0			0	0	0	0					
Total %	0	0	0	0		0	0	11.7	15.1	14.5		41.4	2.8	33.3	22.5	0		58.6	0	0	0	0		0	0	0	0	0		0	1.8	98.2	

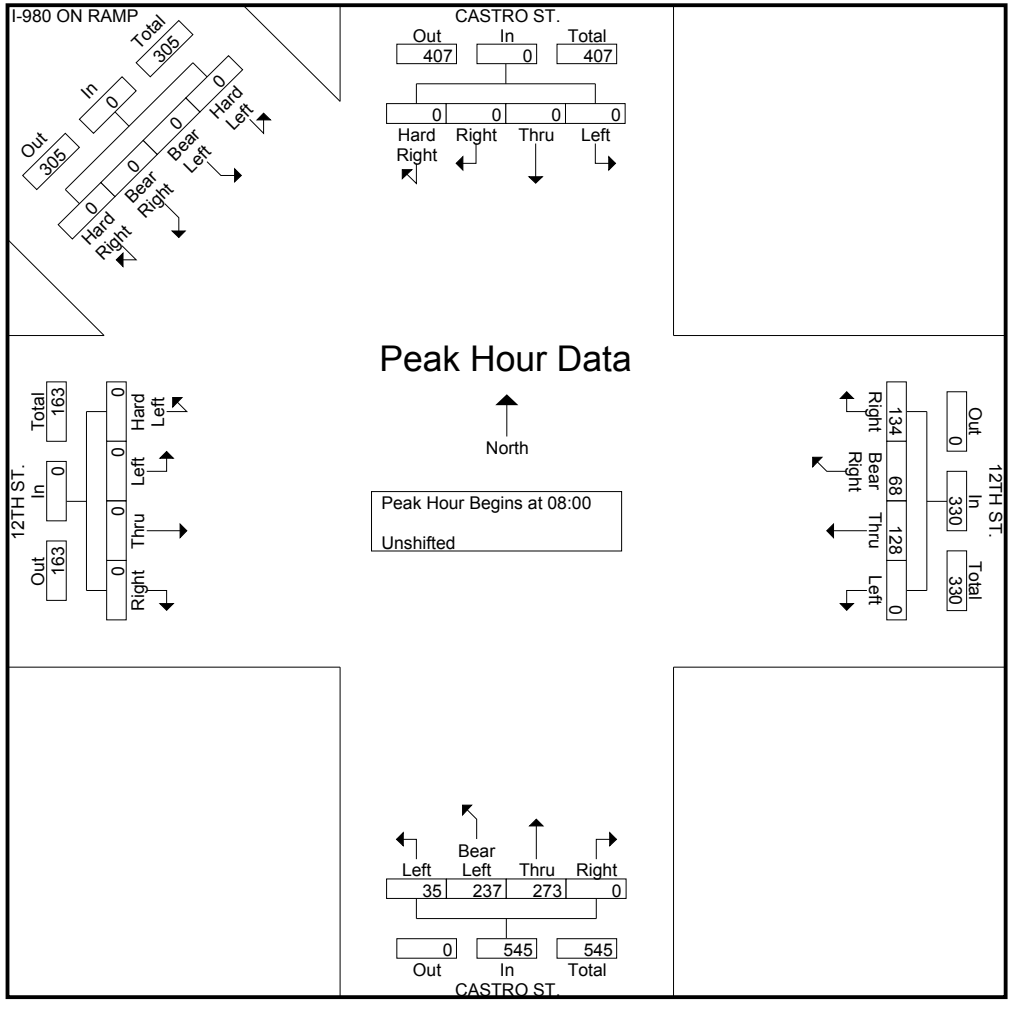
	CASTRO ST. Southbound					12TH ST. Westbound					CASTRO ST. Northbound					12TH ST. Eastbound					I-980 ON RAMP Southeastbound					
Start Time	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 08:00																										
08:00	0	0	0	0	0	0	31	16	36	83	6	51	61	0	118	0	0	0	0	0	0	0	0	0	0	201
08:15	0	0	0	0	0	0	**34**	17	**40**	**91**	10	**68**	**76**	0	**154**	0	0	0	0	0	0	0	0	0	0	**245**
08:30	0	0	0	0	0	0	29	14	32	75	7	62	65	0	134	0	0	0	0	0	0	0	0	0	0	209
08:45	0	0	0	0	0	0	34	**21**	26	81	**12**	56	71	0	139	0	0	0	0	0	0	0	0	0	0	220
Total Volume	0	0	0	0	0	0	128	68	134	330	35	237	273	0	545	0	0	0	0	0	0	0	0	0	0	875
% App. Total	0	0	0	0		0	38.8	20.6	40.6		6.4	43.5	50.1	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.941	.810	.838	.907	.729	.871	.898	.000	.885	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.893

All Traffic Data

(916) 771-8700
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OAKLAND

File Name : 08-7458-019 CASTRO-12TH-F
Site Code : 00000000
Start Date : 08/05/2008
Page No : 2



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 16:45

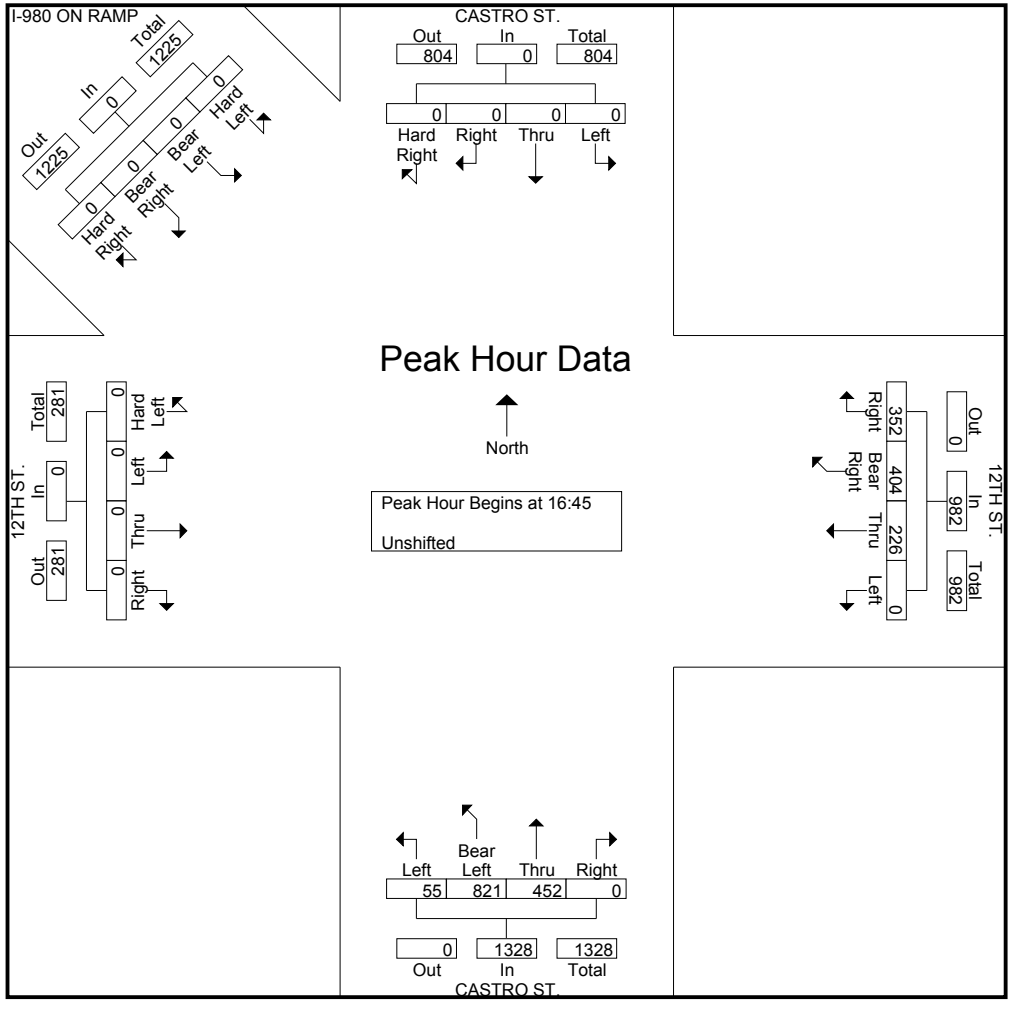
16:45	**0**	**0**	**0**	**0**	**0**	**0**	73	72	76	221	10	184	114	0	308	0	0	0	0	0	0	0	0	0	0	0	529
17:00	0	0	0	0	0	0	45	105	81	231	10	234	121	0	365	0	0	0	0	0	0	0	0	0	0	0	596
17:15	0	0	0	0	0	0	53	**124**	**104**	**281**	**18**	211	106	0	335	0	0	0	0	0	0	0	0	0	0	0	**616**
17:30	0	0	0	0	0	0	55	103	91	249	17	192	111	0	320	0	0	0	0	0	0	0	0	0	0	0	569
Total Volume	0	0	0	0	0	0	226	404	352	982	55	821	452	0	1328	0	0	0	0	0	0	0	0	0	0	0	2310
% App. Total	0	0	0	0		0	23	41.1	35.8		4.1	61.8	34	0		0	0	0	0		0	0	0	0			
PHF	.000	.000	.000	.000	.000	.000	.774	.815	.846	.874	.764	.877	.934	.000	.910	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.938	

All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-019 CASTRO-12TH-F
Site Code : 00000000
Start Date : 08/05/2008



All Traffic Data

(916) 771-8700
F (916) 786-2879

OAKLAND

File Name : 08-7458-018 BRUSH-11TH-F
Site Code : 00000000
Start Date : 08/05/2008
Page No : 1

Groups Printed- Unshifted

	BRUSH ST. Southbound						11TH ST. Westbound						I-980 ON RAMP Northwestbound						BRUSH ST. Northbound						11TH ST. Eastbound								
Start Time	Left	Bear Left	Thru	Right	Peds	App. Total	Hard Left	Left	Thru	Right	Peds	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	Peds	App. Total	Left	Thru	Right	Hard Right	Peds	App. Total	Left	Thru	Bear Right	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	113	9	181	3	1	306	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	13	5	1	0	19	2	325	327
07:15	144	15	223	7	3	389	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	8	0	0	28	3	417	420
07:30	154	18	281	9	2	462	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	5	2	2	30	4	492	496
07:45	219	14	286	10	1	529	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	11	1	2	50	3	579	582
Total	630	56	971	29	7	1686	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	94	29	4	4	127	12	1813	1825
08:00	249	28	296	7	10	580	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	4	0	2	37	12	617	629
08:15	221	15	228	7	5	471	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	6	0	4	44	9	515	524
08:30	196	12	261	6	6	475	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	9	0	4	41	10	516	526
08:45	188	12	271	7	2	478	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	7	4	2	62	4	540	544
Total	854	67	1056	27	23	2004	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154	26	4	12	184	35	2188	2223
*** BREAK ***																																	
16:00	86	34	145	6	7	271	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	12	1	4	63	11	334	345
16:15	95	29	173	14	5	311	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	45	10	3	4	58	10	369	379
16:30	96	39	184	14	1	333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	15	4	3	69	4	402	406
16:45	94	30	179	12	2	315	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57	9	3	3	69	5	384	389
Total	371	132	681	46	15	1230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	202	46	11	14	259	30	1489	1519
17:00	78	27	177	11	6	293	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	9	4	4	60	10	353	363
17:15	93	23	237	10	4	363	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	15	3	4	78	8	441	449
17:30	94	24	220	6	3	344	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	12	4	1	57	4	401	405
17:45	74	18	195	11	0	298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	4	0	1	45	1	343	344
Total	339	92	829	38	13	1298	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	189	40	11	10	240	23	1538	1561
Grand Total	2194	347	3537	140	58	6218	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	639	141	30	40	810	100	7028	7128
Apprch %	35.3	5.6	56.9	2.3			0	0	0	0			0	0	0	0			0	0	0	0			0	78.9	17.4	3.7					
Total %	31.2	4.9	50.3	2		88.5	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	9.1	2	0.4		11.5	1.4	98.6	

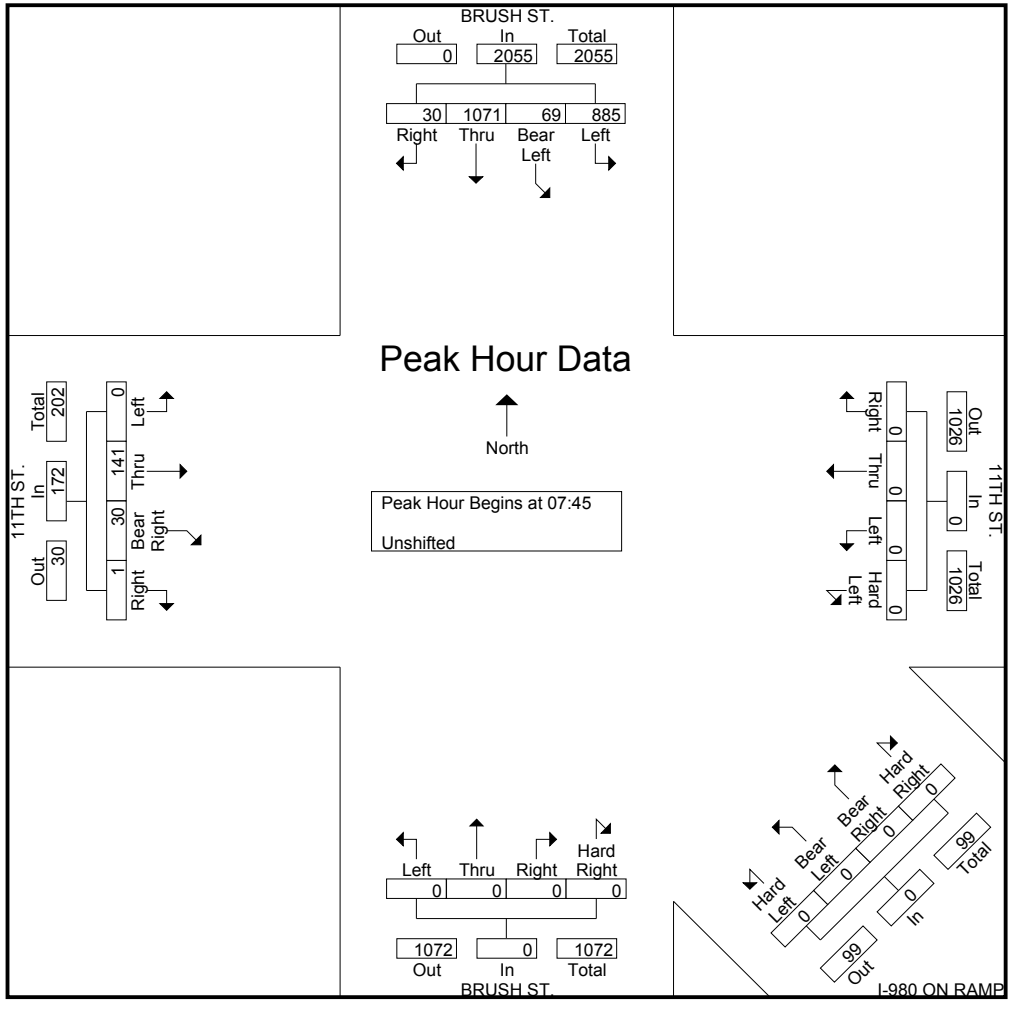
	BRUSH ST. Southbound					11TH ST. Westbound					I-980 ON RAMP Northwestbound					BRUSH ST. Northbound					11TH ST. Eastbound					
Start Time	Left	Bear Left	Thru	Right	App. Total	Hard Left	Left	Thru	Right	App. Total	Hard Left	Bear Left	Bear Right	Hard Right	App. Total	Left	Thru	Right	Hard Right	App. Total	Left	Thru	Bear Right	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 07:45																										
07:45	219	14	286	**10**	529	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**38**	**11**	**1**	**50**	579
08:00	**249**	**28**	**296**	7	**580**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33	4	0	37	**617**
08:15	221	15	228	7	471	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	6	0	44	515
08:30	196	12	261	6	475	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	9	0	41	516
Total Volume	885	69	1071	30	2055	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	141	30	1	172	2227
% App. Total	43.1	3.4	52.1	1.5		0	0	0	0		0	0	0	0		0	0	0	0		0	82	17.4	0.6		
PHF	.889	.616	.905	.750	.886	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.928	.682	.250	.860	.902

All Traffic Data

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File Name : 08-7458-018 BRUSH-11TH-F
Site Code : 00000000
Start Date : 08/05/2008
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Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 16:30

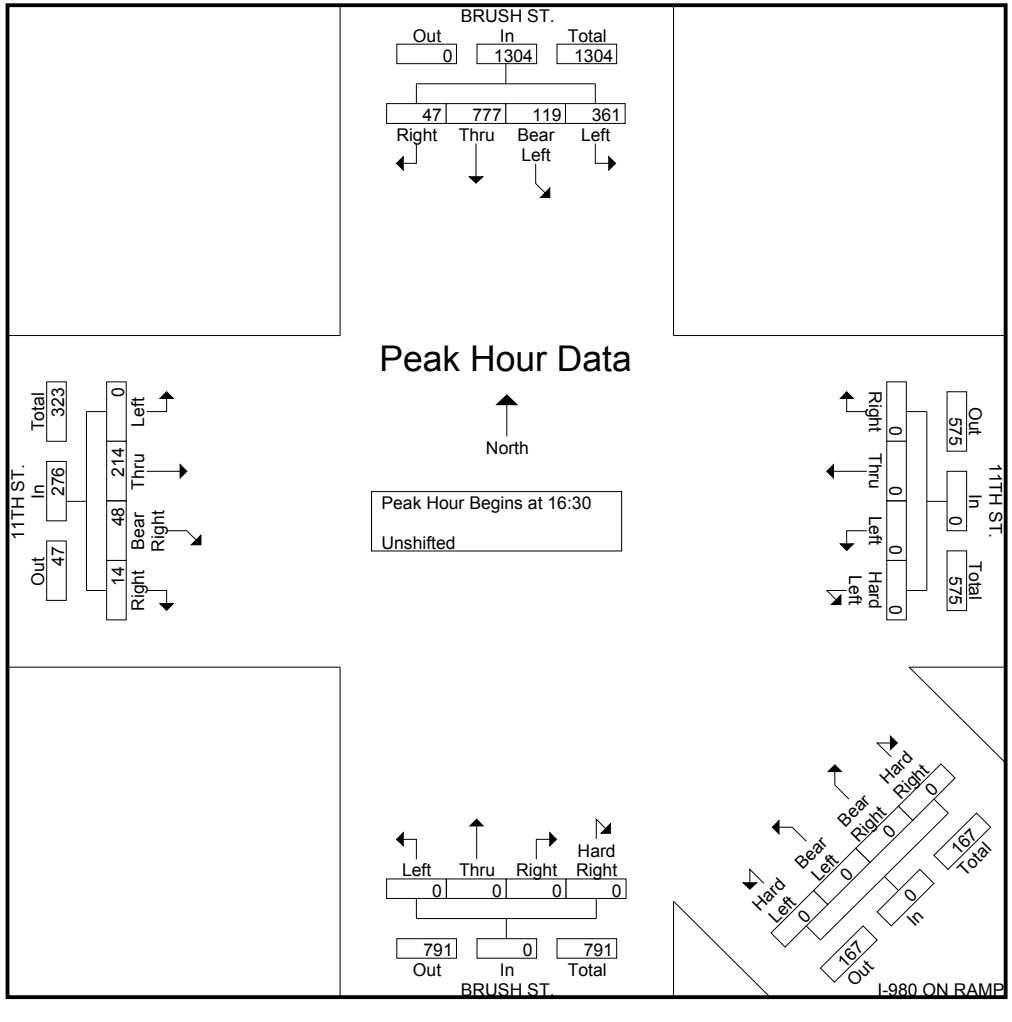
16:30	96	39	184	14	333	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	15	**4**	69	402
16:45	94	30	179	12	315	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57	9	3	69	384
17:00	78	27	177	11	293	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	9	4	60	353
17:15	93	23	**237**	10	**363**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**60**	15	3	**78**	**441**
Total Volume	361	119	777	47	1304	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	214	48	14	276	1580
% App. Total	27.7	9.1	59.6	3.6		0	0	0	0			0	0	0	0			0	0	0	0	77.5	17.4	5.1		
PHF	.940	.763	.820	.839	.898	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.892	.800	.875	.885	.896

All Traffic Data

(916) 771-8700
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File Name : 08-7458-018 BRUSH-11TH-F
Site Code : 00000000
Start Date : 08/05/2008
Page No : 3



ALL TRAFFIC DATA, INC
(916)771-8700
FAX 786-2879

City of Oakland Oak St & 14th St Date: 05/21/2008

	Oak St Southbound				14th St Westbound				Oak St Northbound				14th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	0	0	0	0	0	42	30	72	10	79	0	89	2	32	0	34	195
7:15	0	0	0	0	0	62	59	121	13	95	1	109	8	30	0	38	268
7:30	0	0	0	0	0	75	78	153	18	111	0	129	7	45	0	52	334
7:45	0	0	0	0	0	104	93	197	26	135	3	164	8	45	0	53	414
Total	0	0	0	0	0	283	260	543	67	420	4	491	25	152	0	177	1211
8:00	0	0	0	0	1	129	125	255	24	119	3	146	8	58	0	66	467
8:15	0	0	0	0	0	155	112	267	28	132	8	168	10	73	0	83	518
8:30	0	0	0	0	0	140	124	264	34	126	4	164	8	72	0	80	508
8:45	0	0	0	0	0	123	119	242	30	128	8	166	8	58	0	66	474
Total	0	0	0	0	1	547	480	1028	116	505	23	644	34	261	0	295	1967
16:00	0	0	0	0	0	85	51	136	43	104	8	155	25	106	0	131	422
16:15	0	0	0	0	0	80	54	134	25	95	7	127	21	119	0	140	401
16:30	0	0	0	0	0	90	46	136	35	119	7	161	21	126	0	147	444
16:45	0	0	0	0	0	92	52	144	32	120	12	164	12	165	0	177	485
Total	0	0	0	0	0	347	203	550	135	438	34	607	79	516	0	595	1752
17:00	0	0	0	0	0	92	48	140	44	144	7	195	7	174	0	181	516
17:15	0	0	0	0	0	87	57	144	51	133	8	192	13	224	0	237	573
17:30	0	0	0	0	0	84	61	145	44	131	8	183	21	204	0	225	553
17:45	0	0	0	0	0	71	40	111	40	132	3	175	23	173	0	196	482
Total	0	0	0	0	0	334	206	540	179	540	26	745	64	775	0	839	2124
Grand Total	0	0	0	0	1	1511	1149	2661	497	1903	87	2487	202	1704	0	1906	7054
Apprch%	0.0%	0.0%	0.0%		0.0%	56.8%	43.2%		20.0%	76.5%	3.5%		10.6%	89.4%	0.0%		
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	21.4%	16.3%	37.7%	7.0%	27.0%	1.2%	35.3%	2.9%	24.2%	0.0%	27.0%	

City of Oakland Oak St & 14th St Date: 05/21/2008

AM Peak Hr Begins at 800 AM

	Oak St Southbound				14th St Westbound				Oak St Northbound				14th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	0	0	0	0	1	129	125	255	24	119	3	146	8	58	0	66	467
815	0	0	0	0	0	155	112	267	28	132	8	168	10	73	0	83	518
830	0	0	0	0	0	140	124	264	34	126	4	164	8	72	0	80	508
845	0	0	0	0	0	123	119	242	30	128	8	166	8	58	0	66	474
Total Volume	0	0	0	0	1	547	480	1028	116	505	23	644	34	261	0	295	1967
% App Total.	0.0%	0.0%	0.0%		0.1%	53.2%	46.7%		18.0%	78.4%	3.6%		11.5%	88.5%	0.0%		
PHF	0.000				0.963				0.958				0.889				

PM Peak Hr Begins at 445 PM

	Oak St Southbound				14th St Westbound				Oak St Northbound				14th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
445	0	0	0	0	0	92	52	144	32	120	12	164	12	165	0	177	485
500	0	0	0	0	0	92	48	140	44	144	7	195	7	174	0	181	516
515	0	0	0	0	0	87	57	144	51	133	8	192	13	224	0	237	573
530	0	0	0	0	0	84	61	145	44	131	8	183	21	204	0	225	553
Total Volume	0	0	0	0	0	355	218	573	171	528	35	734	53	767	0	820	2127
% App Total.	0.0%	0.0%	0.0%		0.0%	62.0%	38.0%		23.3%	71.9%	4.8%		6.5%	93.5%	0.0%		
PHF	0.000				0.988				0.941				0.865				

ALL TRAFFIC DATA, INC

(916)771-8700

FAX 786-2879

City of Oakland — Madison St & 14th St — Date: 05/22/2008

	Madison St Southbound				14th St Westbound				Madison St Northbound				14th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	5	48	2	55	2	61	0	63	0	0	0	0	0	30	4	34	152
7:15	6	59	1	66	1	74	0	75	0	0	0	0	0	54	6	60	201
7:30	9	63	3	75	2	96	0	98	0	0	0	0	0	46	9	55	228
7:45	14	75	2	91	4	129	0	133	0	0	0	0	0	49	8	57	281
Total	34	245	8	287	9	360	0	369	0	0	0	0	0	179	27	206	862
8:00	10	79	6	95	2	142	0	144	0	0	0	0	0	52	10	62	301
8:15	17	80	5	102	6	161	0	167	0	0	0	0	0	78	14	92	361
8:30	14	74	2	90	8	160	0	168	0	0	0	0	0	52	9	61	319
8:45	9	75	4	88	5	158	0	163	0	0	0	0	0	51	6	57	308
Total	50	308	17	375	21	621	0	642	0	0	0	0	0	233	39	272	1289
16:00	42	107	2	151	3	127	0	130	0	0	0	0	0	103	16	119	400
16:15	42	128	4	174	6	130	0	136	0	0	0	0	0	104	21	125	435
16:30	52	112	4	168	8	124	0	132	0	0	0	0	0	110	15	125	425
16:45	61	115	6	182	6	116	0	122	0	0	0	0	0	115	15	130	434
Total	197	462	16	675	23	497	0	520	0	0	0	0	0	432	67	499	1694
17:00	69	131	3	203	7	129	0	136	0	0	0	0	0	123	15	138	477
17:15	74	123	1	198	2	109	0	111	0	0	0	0	0	143	20	163	472
17:30	76	125	6	207	6	112	0	118	0	0	0	0	0	148	14	162	487
17:45	68	122	6	196	7	118	0	125	0	0	0	0	0	124	12	136	457
Total	287	501	16	804	22	468	0	490	0	0	0	0	0	538	61	599	1893
Grand Total	568	1516	57	2141	75	1946	0	2021	0	0	0	0	0	1382	194	1576	5738
Apprch%	####	70.8%	2.7%		3.7%	96.3%	0.0%		0.0%	0.0%	0.0%		0.0%	87.7%	12.3%		
Total %	9.9%	26.4%	1.0%	37.3%	1.3%	33.9%	0.0%	35.2%	0.0%	0.0%	0.0%	0.0%	0.0%	24.1%	3.4%	27.5%	

City of Oakland — Madison St & 14th St — Date: 05/22/2008

AM Peak Hr Begins at 800 AM

	Madison St Southbound				14th St Westbound				Madison St Northbound				14th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	10	79	6	95	2	142	0	144	0	0	0	0	0	52	10	62	301
815	17	80	5	102	6	161	0	167	0	0	0	0	0	78	14	92	361
830	14	74	2	90	8	160	0	168	0	0	0	0	0	52	9	61	319
845	9	75	4	88	5	158	0	163	0	0	0	0	0	51	6	57	308
Total Volume	50	308	17	375	21	621	0	642	0	0	0	0	0	233	39	272	1289
% App Total.	####	82.1%	4.5%		3.3%	96.7%	0.0%		0.0%	0.0%	0.0%		0.0%	85.7%	14.3%		
PHF	0.919				0.955				0.000				0.739				

PM Peak Hr Begins at 500 PM

	Madison St Southbound				14th St Westbound				Madison St Northbound				14th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
500	69	131	3	203	7	129	0	136	0	0	0	0	0	123	15	138	477
515	74	123	1	198	2	109	0	111	0	0	0	0	0	143	20	163	472
530	76	125	6	207	6	112	0	118	0	0	0	0	0	148	14	162	487
545	68	122	6	196	7	118	0	125	0	0	0	0	0	124	12	136	457
Total Volume	287	501	16	804	22	468	0	490	0	0	0	0	0	538	61	599	1893
% App Total.	####	62.3%	2.0%		4.5%	95.5%	0.0%		0.0%	0.0%	0.0%		0.0%	89.8%	10.2%		
PHF	0.971				0.901				0.000				0.919				

All Traffic Data

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Groups Printed- Unshifted

	HARRISON ST. Southbound					14TH ST. Westbound					HARRISON ST. Northbound					14TH ST. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	3	11	3	7	17	1	33	12	15	46	5	49	1	9	55	3	23	1	2	27	33	145	178
07:15	5	10	3	5	18	3	37	9	11	49	7	49	2	5	58	1	17	1	3	19	24	144	168
07:30	5	11	1	14	17	2	64	18	18	84	9	51	5	6	65	2	22	0	7	24	45	190	235
07:45	5	10	1	25	16	2	88	16	23	106	16	84	4	13	104	6	29	1	19	36	80	262	342
Total	18	42	8	51	68	8	222	55	67	285	37	233	12	33	282	12	91	3	31	106	182	741	923
08:00	3	16	7	12	26	2	78	17	29	97	12	82	4	7	98	11	22	1	10	34	58	255	313
08:15	6	15	5	20	26	2	81	25	28	108	9	98	5	15	112	11	37	2	13	50	76	296	372
08:30	6	10	6	23	22	1	93	14	23	108	16	81	11	22	108	4	38	0	13	42	81	280	361
08:45	10	22	6	25	38	2	88	28	31	118	19	92	3	39	114	12	44	7	25	63	120	333	453
Total	25	63	24	80	112	7	340	84	111	431	56	353	23	83	432	38	141	10	61	189	335	1164	1499
*** BREAK ***																							
16:00	9	29	5	16	43	2	73	24	24	99	13	88	8	20	109	7	46	3	6	56	66	307	373
16:15	11	18	5	18	34	2	72	15	19	89	20	84	3	19	107	5	66	6	17	77	73	307	380
16:30	11	26	5	8	42	4	82	17	23	103	16	90	11	15	117	9	53	2	25	64	71	326	397
16:45	12	27	7	16	46	2	71	11	16	84	13	73	2	15	88	14	73	3	22	90	69	308	377
Total	43	100	22	58	165	10	298	67	82	375	62	335	24	69	421	35	238	14	70	287	279	1248	1527
17:00	29	41	13	20	83	3	78	7	27	88	17	87	4	13	108	14	91	3	34	108	94	387	481
17:15	24	43	9	15	76	4	101	8	14	113	14	108	2	30	124	19	93	0	25	112	84	425	509
17:30	21	35	13	16	69	4	76	9	40	89	17	89	6	14	112	13	77	1	52	91	122	361	483
17:45	21	30	7	31	58	5	80	13	35	98	10	88	9	31	107	15	98	3	50	116	147	379	526
Total	95	149	42	82	286	16	335	37	116	388	58	372	21	88	451	61	359	7	161	427	447	1552	1999
Grand Total	181	354	96	271	631	41	1195	243	376	1479	213	1293	80	273	1586	146	829	34	323	1009	1243	4705	5948
Apprch %	28.7	56.1	15.2			2.8	80.8	16.4			13.4	81.5	5			14.5	82.2	3.4					
Total %	3.8	7.5	2		13.4	0.9	25.4	5.2		31.4	4.5	27.5	1.7		33.7	3.1	17.6	0.7		21.4	20.9	79.1	

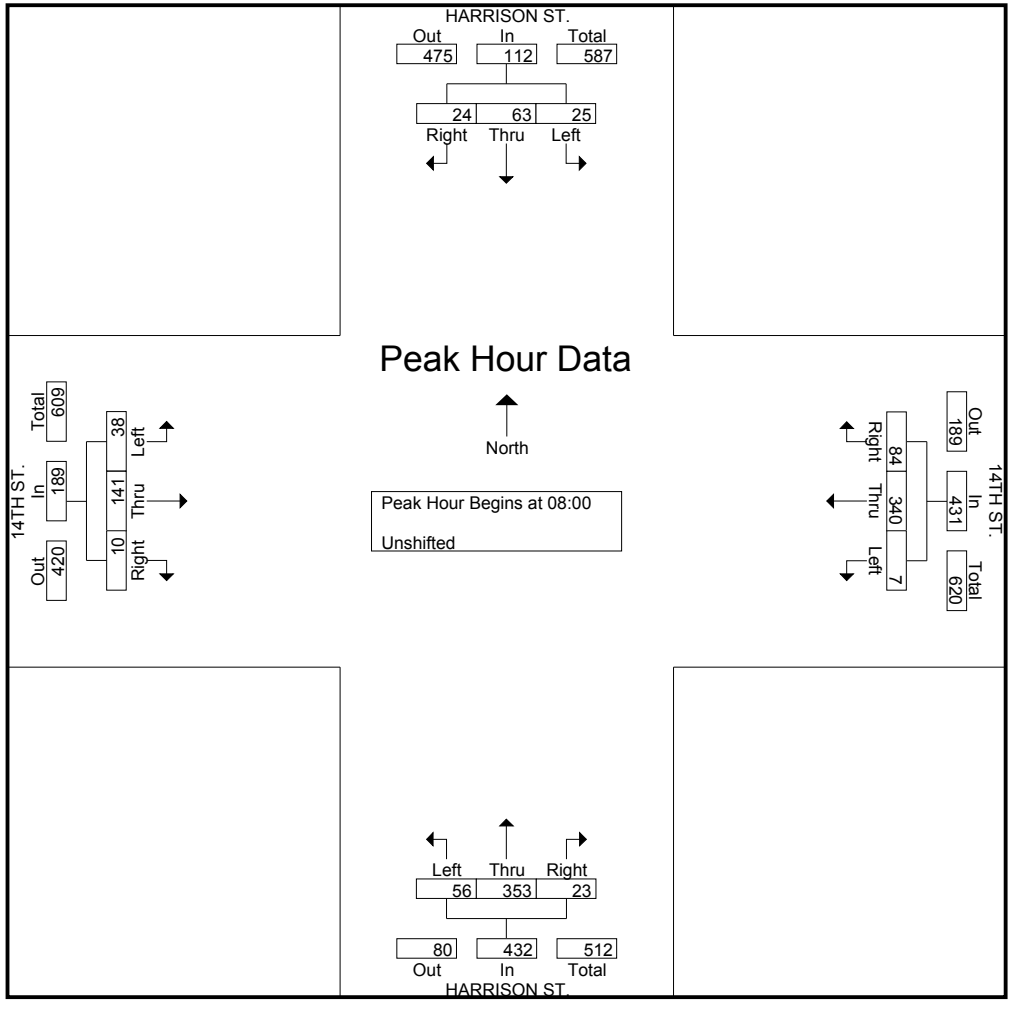
	HARRISON ST. Southbound				14TH ST. Westbound				HARRISON ST. Northbound				14TH ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	3	16	**7**	26	**2**	78	17	97	12	82	4	98	11	22	1	34	255
08:15	6	15	5	26	2	81	25	108	9	**98**	5	112	11	37	2	50	296
08:30	6	10	6	22	1	**93**	14	108	16	81	**11**	108	4	38	0	42	280
08:45	**10**	**22**	6	**38**	2	88	**28**	**118**	**19**	92	3	**114**	**12**	**44**	**7**	**63**	**333**
Total Volume	25	63	24	112	7	340	84	431	56	353	23	432	38	141	10	189	1164
% App. Total	22.3	56.2	21.4		1.6	78.9	19.5		13	81.7	5.3		20.1	74.6	5.3		
PHF	.625	.716	.857	.737	.875	.914	.750	.913	.737	.901	.523	.947	.792	.801	.357	.750	.874

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Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

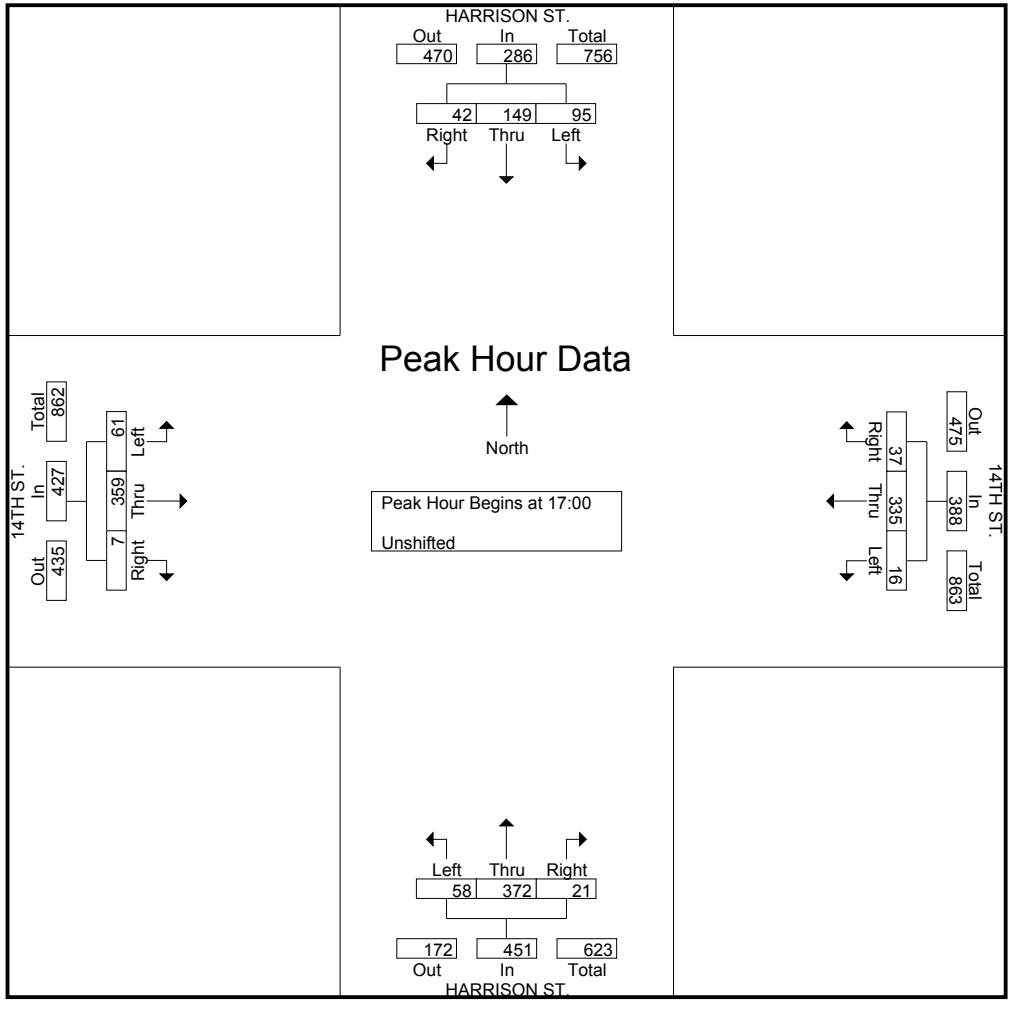
17:00	**29**	41	**13**	**83**	3	78	7	88	**17**	87	4	108	14	91	**3**	108	387
17:15	24	**43**	9	76	4	**101**	8	**113**	14	**108**	2	**124**	**19**	93	0	112	**425**
17:30	21	35	13	69	4	76	9	89	17	89	6	112	13	77	1	91	361
17:45	21	30	7	58	**5**	80	**13**	98	10	88	**9**	107	15	**98**	3	**116**	379
Total Volume	95	149	42	286	16	335	37	388	58	372	21	451	61	359	7	427	1552
% App. Total	33.2	52.1	14.7		4.1	86.3	9.5		12.9	82.5	4.7		14.3	84.1	1.6		
PHF	.819	.866	.808	.861	.800	.829	.712	.858	.853	.861	.583	.909	.803	.916	.583	.920	.913

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City of Oakland — Madison St & 12th St — Date: 05/21/2008

	Madison St Southbound				12th St Westbound				Madison St Northbound				12th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	0	43	9	52	33	120	0	153	0	0	0	0	0	0	0	0	205
7:15	0	57	10	67	64	163	0	227	0	0	0	0	0	0	0	0	294
7:30	0	52	17	69	65	230	0	295	0	0	0	0	0	0	0	0	364
7:45	0	69	9	78	78	273	0	351	0	0	0	0	0	0	0	0	429
Total	0	221	45	266	240	786	0	1026	0	0	0	0	0	0	0	0	1292
8:00	0	80	12	92	79	315	0	394	0	0	0	0	0	0	0	0	486
8:15	0	80	20	100	86	315	0	401	0	0	0	0	0	0	0	0	501
8:30	0	81	18	99	97	329	0	426	0	0	0	0	0	0	0	0	525
8:45	0	75	15	90	91	318	0	409	0	0	0	0	0	0	0	0	499
Total	0	316	65	381	353	1277	0	1630	0	0	0	0	0	0	0	0	2011
16:00	0	120	11	131	50	152	0	202	0	0	0	0	0	0	0	0	333
16:15	0	116	13	129	47	168	0	215	0	0	0	0	0	0	0	0	344
16:30	0	127	17	144	62	179	0	241	0	0	0	0	0	0	0	0	385
16:45	0	120	24	144	48	188	0	236	0	0	0	0	0	0	0	0	380
Total	0	483	65	548	207	687	0	894	0	0	0	0	0	0	0	0	1442
17:00	0	157	11	168	57	202	0	259	0	0	0	0	0	0	0	0	427
17:15	0	169	10	179	44	198	0	242	0	0	0	0	0	0	0	0	421
17:30	0	129	8	137	54	195	0	249	0	0	0	0	0	0	0	0	386
17:45	0	127	9	136	53	191	0	244	0	0	0	0	0	0	0	0	380
Total	0	582	38	620	208	786	0	994	0	0	0	0	0	0	0	0	1614
Grand Total	0	1602	213	1815	1008	3536	0	4544	0	0	0	0	0	0	0	0	6359
Apprch%	0.0%	88.3%	11.7%		22.2%	77.8%	0.0%		0.0%	0.0%	0.0%		0.0%	0.0%	0.0%		
Total %	0.0%	25.2%	3.3%	28.5%	15.9%	55.6%	0.0%	71.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

City of Oakland — Madison St & 12th St — Date: 05/21/2008

AM Peak Hr Begins at 800 AM

	Madison St Southbound				12th St Westbound				Madison St Northbound				12th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	0	80	12	92	79	315	0	394	0	0	0	0	0	0	0	0	486
815	0	80	20	100	86	315	0	401	0	0	0	0	0	0	0	0	501
830	0	81	18	99	97	329	0	426	0	0	0	0	0	0	0	0	525
845	0	75	15	90	91	318	0	409	0	0	0	0	0	0	0	0	499
Total Volume	0	316	65	381	353	1277	0	1630	0	0	0	0	0	0	0	0	2011
% App Total.	0.0%	82.9%	17.1%		21.7%	78.3%	0.0%		0.0%	0.0%	0.0%		0.0%	0.0%	0.0%		
PHF	0.953				0.957				0.000				0.000				

PM Peak Hr Begins at 500 PM

	Madison St Southbound				12th St Westbound				Madison St Northbound				12th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
500	0	157	11	168	57	202	0	259	0	0	0	0	0	0	0	0	427
515	0	169	10	179	44	198	0	242	0	0	0	0	0	0	0	0	421
530	0	129	8	137	54	195	0	249	0	0	0	0	0	0	0	0	386
545	0	127	9	136	53	191	0	244	0	0	0	0	0	0	0	0	380
Total Volume	0	582	38	620	208	786	0	994	0	0	0	0	0	0	0	0	1614
% App Total.	0.0%	93.9%	6.1%		20.9%	79.1%	0.0%		0.0%	0.0%	0.0%		0.0%	0.0%	0.0%		
PHF	0.866				0.959				0.000				0.000				

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City of Oakland — Oak St & 12th St — Date: 05/21/2008

	Oak St Southbound				12th St Westbound				Oak St Northbound				12th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	0	0	0	0	0	140	5	145	18	92	0	110	0	0	0	0	255
7:15	0	0	0	0	0	199	4	203	30	110	0	140	0	0	0	0	343
7:30	0	0	0	0	0	265	8	273	45	134	0	179	0	0	0	0	452
7:45	0	0	0	0	0	300	11	311	65	170	0	235	0	0	0	0	546
Total	0	0	0	0	0	904	28	932	158	506	0	664	0	0	0	0	1596
8:00	0	0	0	0	0	346	18	364	71	146	0	217	0	0	0	0	581
8:15	0	0	0	0	0	362	16	378	64	181	0	245	0	0	0	0	623
8:30	0	0	0	0	0	368	19	387	74	161	0	235	0	0	0	0	622
8:45	0	0	0	0	0	355	13	368	66	180	0	246	0	0	0	0	614
Total	0	0	0	0	0	1431	66	1497	275	668	0	943	0	0	0	0	2440
16:00	0	0	0	0	0	162	11	173	36	161	0	197	0	0	0	0	370
16:15	0	0	0	0	0	197	9	206	29	133	0	162	0	0	0	0	368
16:30	0	0	0	0	0	205	10	215	34	171	0	205	0	0	0	0	420
16:45	0	0	0	0	0	207	9	216	32	173	0	205	0	0	0	0	421
Total	0	0	0	0	0	771	39	810	131	638	0	769	0	0	0	0	1579
17:00	0	0	0	0	0	222	12	234	45	220	0	265	0	0	0	0	499
17:15	0	0	0	0	0	203	16	219	41	215	0	256	0	0	0	0	475
17:30	0	0	0	0	0	210	12	222	36	198	0	234	0	0	0	0	456
17:45	0	0	0	0	0	213	10	223	27	189	0	216	0	0	0	0	439
Total	0	0	0	0	0	848	50	898	149	822	0	971	0	0	0	0	1869
Grand Total	0	0	0	0	0	3954	183	4137	713	2634	0	3347	0	0	0	0	7484
Apprch%	0.0%	0.0%	0.0%		0.0%	95.6%	4.4%		21.3%	78.7%	0.0%		0.0%	0.0%	0.0%		
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	52.8%	2.4%	55.3%	9.5%	35.2%	0.0%	44.7%	0.0%	0.0%	0.0%	0.0%	

City of Oakland — Oak St & 12th St — Date: 05/21/2008

AM Peak Hr Begins at 800 AM

	Oak St Southbound				12th St Westbound				Oak St Northbound				12th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	0	0	0	0	0	346	18	364	71	146	0	217	0	0	0	0	581
815	0	0	0	0	0	362	16	378	64	181	0	245	0	0	0	0	623
830	0	0	0	0	0	368	19	387	74	161	0	235	0	0	0	0	622
845	0	0	0	0	0	355	13	368	66	180	0	246	0	0	0	0	614
Total Volume	0	0	0	0	0	1431	66	1497	275	668	0	943	0	0	0	0	2440
% App Total.	0.0%	0.0%	0.0%		0.0%	95.6%	4.4%		29.2%	70.8%	0.0%		0.0%	0.0%	0.0%		
PHF	0.000				0.967				0.958				0.000				

PM Peak Hr Begins at 500 PM

	Oak St Southbound				12th St Westbound				Oak St Northbound				12th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
500	0	0	0	0	0	222	12	234	45	220	0	265	0	0	0	0	499
515	0	0	0	0	0	203	16	219	41	215	0	256	0	0	0	0	475
530	0	0	0	0	0	210	12	222	36	198	0	234	0	0	0	0	456
545	0	0	0	0	0	213	10	223	27	189	0	216	0	0	0	0	439
Total Volume	0	0	0	0	0	848	50	898	149	822	0	971	0	0	0	0	1869
% App Total.	0.0%	0.0%	0.0%		0.0%	94.4%	5.6%		15.3%	84.7%	0.0%		0.0%	0.0%	0.0%		
PHF	0.000				0.959				0.916				0.000				

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City of Oakland Oak St & 11th St Date: 05/21/2008

	Oak St Southbound				11th St Westbound				Oak St Northbound				11th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	0	0	0	0	0	0	0	0	0	109	0	109	2	0	0	2	111
7:15	0	0	0	0	0	0	0	0	0	132	0	132	4	0	0	4	136
7:30	0	0	0	0	0	0	0	0	0	172	0	172	6	0	0	6	178
7:45	0	0	0	0	0	0	0	0	0	219	0	219	10	0	0	10	229
Total	0	0	0	0	0	0	0	0	0	632	0	632	22	0	0	22	654
8:00	0	0	0	0	0	0	0	0	0	220	0	220	11	0	0	11	231
8:15	0	0	0	0	0	0	0	0	0	229	0	229	14	0	0	14	243
8:30	0	0	0	0	0	0	0	0	0	225	0	225	16	0	0	16	241
8:45	0	0	0	0	0	0	0	0	0	229	0	229	15	0	0	15	244
Total	0	0	0	0	0	0	0	0	0	903	0	903	56	0	0	56	959
16:00	0	0	0	0	0	0	0	0	0	181	0	181	16	0	0	16	197
16:15	0	0	0	0	0	0	0	0	0	149	0	149	10	0	0	10	159
16:30	0	0	0	0	0	0	0	0	0	194	0	194	8	0	0	8	202
16:45	0	0	0	0	0	0	0	0	0	196	0	196	10	0	0	10	206
Total	0	0	0	0	0	0	0	0	0	720	0	720	44	0	0	44	764
17:00	0	0	0	0	0	0	0	0	0	244	0	244	20	0	0	20	264
17:15	0	0	0	0	0	0	0	0	0	235	0	235	17	0	0	17	252
17:30	0	0	0	0	0	0	0	0	0	221	0	221	11	0	0	11	232
17:45	0	0	0	0	0	0	0	0	0	201	0	201	9	0	0	9	210
Total	0	0	0	0	0	0	0	0	0	901	0	901	57	0	0	57	958
Grand Total	0	0	0	0	0	0	0	0	0	3156	0	3156	179	0	0	179	3335
Apprch%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%		0.0%	100.0%	0.0%		#####	0.0%	0.0%		
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	94.6%	0.0%	94.6%	5.4%	0.0%	0.0%	5.4%	

City of Oakland Oak St & 11th St Date: 05/21/2008

AM Peak Hr Begins at 800 AM

	Oak St Southbound				11th St Westbound				Oak St Northbound				11th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	0	0	0	0	0	0	0	0	0	220	0	220	11	0	0	11	231
815	0	0	0	0	0	0	0	0	0	229	0	229	14	0	0	14	243
830	0	0	0	0	0	0	0	0	0	225	0	225	16	0	0	16	241
845	0	0	0	0	0	0	0	0	0	229	0	229	15	0	0	15	244
Total Volume	0	0	0	0	0	0	0	0	0	903	0	903	56	0	0	56	959
% App Total.	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%		0.0%	100.0%	0.0%		#####	0.0%	0.0%		
PHF	0.000				0.000				0.986				0.875				

PM Peak Hr Begins at 500 PM

	Oak St Southbound				11th St Westbound				Oak St Northbound				11th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
500	0	0	0	0	0	0	0	0	0	244	0	244	20	0	0	20	264
515	0	0	0	0	0	0	0	0	0	235	0	235	17	0	0	17	252
530	0	0	0	0	0	0	0	0	0	221	0	221	11	0	0	11	232
545	0	0	0	0	0	0	0	0	0	201	0	201	9	0	0	9	210
Total Volume	0	0	0	0	0	0	0	0	0	901	0	901	57	0	0	57	958
% App Total.	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%		0.0%	100.0%	0.0%		#####	0.0%	0.0%		
PHF	0.000				0.000				0.923				0.713				

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City of Oakland — Madison St & 11th St — Date: 05/21/2008

	Madison St Southbound				11th St Westbound				Madison St Northbound				11th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	3	73	0	76	0	0	0	0	0	0	0	0	0	29	6	35	111
7:15	2	114	0	116	0	0	0	0	0	0	0	0	0	30	14	44	160
7:30	3	112	0	115	0	0	0	0	0	0	0	0	0	46	15	61	176
7:45	2	163	0	165	0	0	0	0	0	0	0	0	0	67	25	92	257
Total	10	462	0	472	0	0	0	0	0	0	0	0	0	172	60	232	704
8:00	1	160	0	161	0	0	0	0	0	0	0	0	0	82	30	112	273
8:15	9	161	0	170	0	0	0	0	0	0	0	0	0	91	30	121	291
8:30	10	172	0	182	0	0	0	0	0	0	0	0	0	98	36	134	316
8:45	9	159	0	168	0	0	0	0	0	0	0	0	0	61	26	87	255
Total	29	652	0	681	0	0	0	0	0	0	0	0	0	332	122	454	1135
16:00	12	160	0	172	0	0	0	0	0	0	0	0	0	140	32	172	344
16:15	9	144	0	153	0	0	0	0	0	0	0	0	0	125	27	152	305
16:30	17	188	0	205	0	0	0	0	0	0	0	0	0	158	43	201	406
16:45	11	153	0	164	0	0	0	0	0	0	0	0	0	151	32	183	347
Total	49	645	0	694	0	0	0	0	0	0	0	0	0	574	134	708	1402
17:00	13	198	0	211	0	0	0	0	0	0	0	0	0	181	35	216	427
17:15	15	195	0	210	0	0	0	0	0	0	0	0	0	194	41	235	445
17:30	7	162	0	169	0	0	0	0	0	0	0	0	0	198	39	237	406
17:45	8	174	0	182	0	0	0	0	0	0	0	0	0	187	47	234	416
Total	43	729	0	772	0	0	0	0	0	0	0	0	0	760	162	922	1694
Grand Total	131	2488	0	2619	0	0	0	0	0	0	0	0	0	1838	478	2316	4935
Apprch%	5.0%	95.0%	0.0%		0.0%	0.0%	0.0%		0.0%	0.0%	0.0%		0.0%	79.4%	20.6%		
Total %	2.7%	50.4%	0.0%	53.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	37.2%	9.7%	46.9%	

City of Oakland — Madison St & 11th St — Date: 05/21/2008

AM Peak Hr Begins at 745 AM

	Madison St Southbound				11th St Westbound				Madison St Northbound				11th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
745	2	163	0	165	0	0	0	0	0	0	0	0	0	67	25	92	257
800	1	160	0	161	0	0	0	0	0	0	0	0	0	82	30	112	273
815	9	161	0	170	0	0	0	0	0	0	0	0	0	91	30	121	291
830	10	172	0	182	0	0	0	0	0	0	0	0	0	98	36	134	316
Total Volume	22	656	0	678	0	0	0	0	0	0	0	0	0	338	121	459	1137
% App Total.	3.2%	96.8%	0.0%		0.0%	0.0%	0.0%		0.0%	0.0%	0.0%		0.0%	73.6%	26.4%		
PHF	0.931				0.000				0.000				0.856				

PM Peak Hr Begins at 500 PM

	Madison St Southbound				11th St Westbound				Madison St Northbound				11th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
500	13	198	0	211	0	0	0	0	0	0	0	0	0	181	35	216	427
515	15	195	0	210	0	0	0	0	0	0	0	0	0	194	41	235	445
530	7	162	0	169	0	0	0	0	0	0	0	0	0	198	39	237	406
545	8	174	0	182	0	0	0	0	0	0	0	0	0	187	47	234	416
Total Volume	43	729	0	772	0	0	0	0	0	0	0	0	0	760	162	922	1694
% App Total.	5.6%	94.4%	0.0%		0.0%	0.0%	0.0%		0.0%	0.0%	0.0%		0.0%	82.4%	17.6%		
PHF	0.915				0.000				0.000				0.973				

All Traffic Data

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File Name : 08-7458-020 FRANKLIN-11TH-F
Site Code : 00000000
Start Date : 08/05/2008
Page No : 1

Groups Printed- Unshifted

	FRANKLIN ST. Southbound					11TH ST. Westbound					FRANKLIN ST. Northbound					11TH ST. Eastbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
07:00	0	0	0	10	0	0	0	0	23	0	0	25	9	13	34	20	41	0	14	61	60	95	155
07:15	0	0	0	24	0	0	0	0	13	0	0	42	14	20	56	19	61	0	18	80	75	136	211
07:30	0	0	0	29	0	0	0	0	28	0	0	56	11	27	67	18	58	0	22	76	106	143	249
07:45	0	0	0	21	0	0	0	0	31	0	0	61	14	17	75	20	64	0	24	84	93	159	252
Total	0	0	0	84	0	0	0	0	95	0	0	184	48	77	232	77	224	0	78	301	334	533	867
08:00	0	0	0	35	0	0	0	0	44	0	0	63	12	21	75	20	83	0	37	103	137	178	315
08:15	0	0	0	22	0	0	0	0	32	0	0	94	11	2	105	23	82	0	21	105	77	210	287
08:30	0	0	0	22	0	0	0	0	15	0	0	59	15	12	74	13	92	0	14	105	63	179	242
08:45	0	0	0	26	0	0	0	0	22	0	0	63	12	8	75	17	85	0	20	102	76	177	253
Total	0	0	0	105	0	0	0	0	113	0	0	279	50	43	329	73	342	0	92	415	353	744	1097
*** BREAK ***																							
16:00	0	0	0	19	0	0	0	0	2	0	6	75	14	8	95	1	131	0	17	132	46	227	273
16:15	0	0	0	39	0	0	0	0	8	0	0	52	29	35	81	2	121	0	37	123	119	204	323
16:30	0	0	0	51	0	0	0	0	5	0	0	47	27	51	74	2	120	0	47	122	154	196	350
16:45	0	0	0	50	0	0	0	0	19	0	0	53	21	69	74	4	129	0	40	133	178	207	385
Total	0	0	0	159	0	0	0	0	34	0	6	227	91	163	324	9	501	0	141	510	497	834	1331
17:00	0	0	0	55	0	0	0	0	4	0	0	63	28	42	91	4	152	0	24	156	125	247	372
17:15	0	0	0	24	0	0	0	0	12	0	0	61	29	16	90	8	173	0	21	181	73	271	344
17:30	0	0	0	26	0	0	0	0	10	0	0	65	27	21	92	5	157	0	22	162	79	254	333
17:45	0	0	0	32	0	0	0	0	8	0	0	77	28	27	105	3	123	0	25	126	92	231	323
Total	0	0	0	137	0	0	0	0	34	0	0	266	112	106	378	20	605	0	92	625	369	1003	1372
Grand Total	0	0	0	485	0	0	0	0	276	0	6	956	301	389	1263	179	1672	0	403	1851	1553	3114	4667
Apprch %	0	0	0			0	0	0			0.5	75.7	23.8			9.7	90.3	0					
Total %	0	0	0		0	0	0	0		0	0.2	30.7	9.7		40.6	5.7	53.7	0		59.4	33.3	66.7	

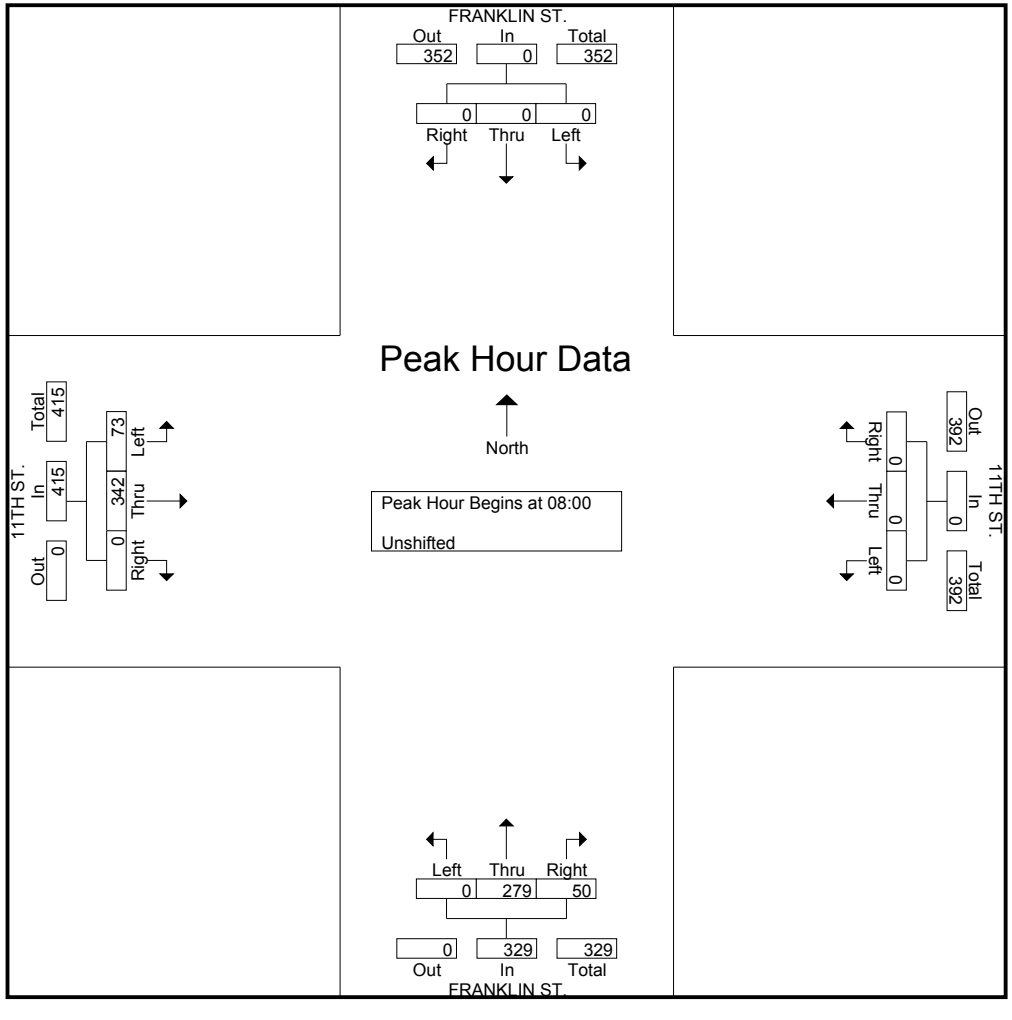
	FRANKLIN ST. Southbound				11TH ST. Westbound				FRANKLIN ST. Northbound				11TH ST. Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	0	0	0	0	0	0	0	0	0	63	12	75	20	83	0	103	178
08:15	0	0	0	0	0	0	0	0	0	**94**	11	**105**	**23**	82	0	**105**	**210**
08:30	0	0	0	0	0	0	0	0	0	59	**15**	74	13	**92**	0	105	179
08:45	0	0	0	0	0	0	0	0	0	63	12	75	17	85	0	102	177
Total Volume	0	0	0	0	0	0	0	0	0	279	50	329	73	342	0	415	744
% App. Total	0	0	0		0	0	0		0	84.8	15.2		17.6	82.4	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.742	.833	.783	.793	.929	.000	.988	.886

All Traffic Data

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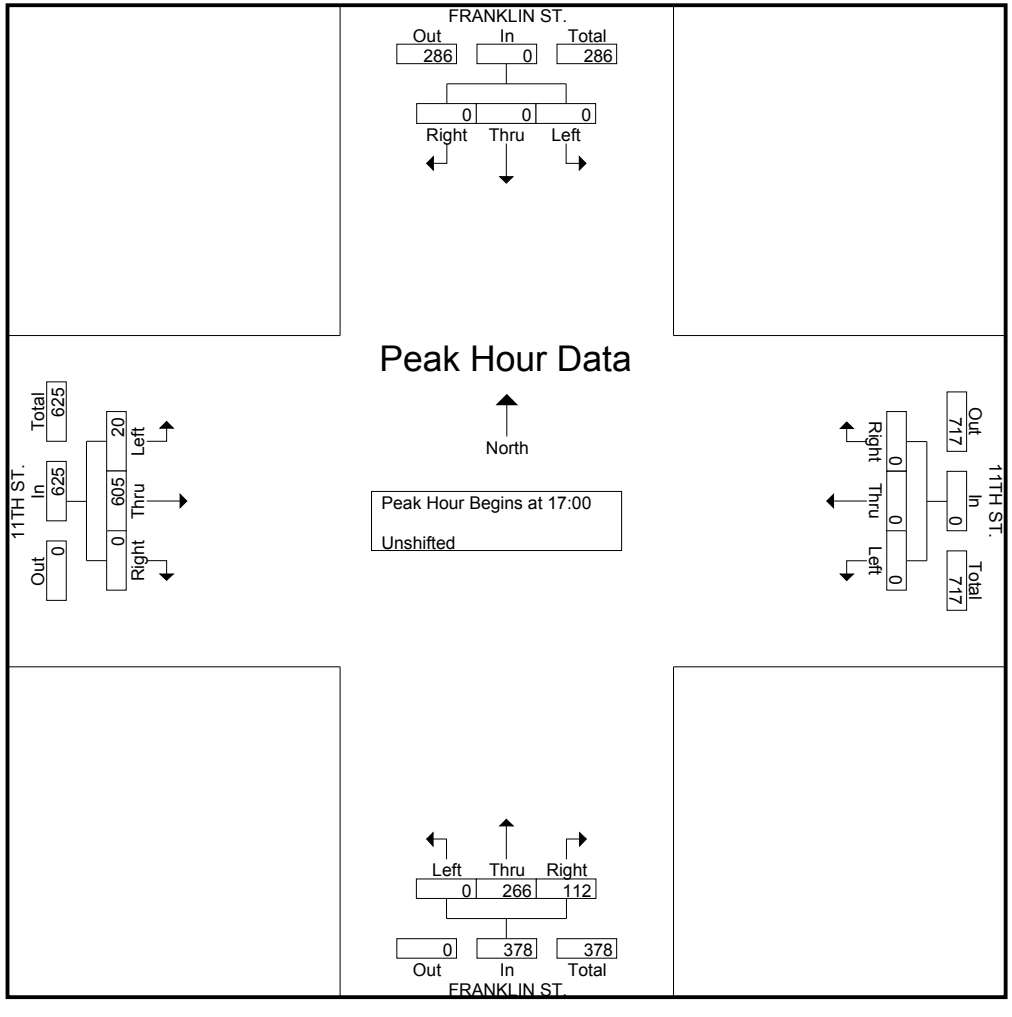
OAKLAND

File Name : 08-7458-020 FRANKLIN-11TH-F
Site Code : 00000000
Start Date : 08/05/2008
Page No : 2



Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1
Peak Hour for Entire Intersection Begins at 17:00

17:00	0	0	0	0	0	0	0	0	0	63	28	91	4	152	0	156	247
17:15	0	0	0	0	0	0	0	0	0	61	**29**	90	**8**	**173**	0	**181**	**271**
17:30	0	0	0	0	0	0	0	0	0	65	27	92	5	157	0	162	254
17:45	0	0	0	0	0	0	0	0	0	**77**	28	**105**	3	123	0	126	231
Total Volume	0	0	0	0	0	0	0	0	0	266	112	378	20	605	0	625	1003
% App. Total	0	0	0		0	0	0		0	70.4	29.6		3.2	96.8	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.864	.966	.900	.625	.874	.000	.863	.925


FRANKLIN ST.
Out 286
In 0
Total 286
0 Right
0 Thru
0 Left
Peak Hour Data
North
Peak Hour Begins at 17:00
Unshifted
11TH ST.
Total 625
In 625
Out 0
20 Left
605 Thru
0 Right
11TH ST.
Out 717
In 0
Total 717
0 Right
0 Thru
0 Left
Left Thru Right
0 266 112
0 Out
378 In
378 Total
FRANKLIN ST.

ALL TRAFFIC DATA, INC

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City of Oakland Oak St & 7th St Date: 05/21/2008

	Oak St Southbound				7th St Westbound				Oak St Northbound				7th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	0	0	0	0	0	0	0	0	0	125	18	143	13	55	0	68	211
7:15	0	0	0	0	0	0	0	0	0	137	25	162	14	55	0	69	231
7:30	0	0	0	0	0	0	0	0	0	192	36	228	23	84	0	107	335
7:45	0	0	0	0	0	0	0	0	0	201	49	250	22	131	0	153	403
Total	0	0	0	0	0	0	0	0	0	655	128	783	72	325	0	397	1180
8:00	0	0	0	0	0	0	0	0	0	218	53	271	28	98	0	126	397
8:15	0	0	0	0	0	0	0	0	0	277	44	321	31	133	0	164	485
8:30	0	0	0	0	0	0	0	0	0	220	63	283	30	127	0	157	440
8:45	0	0	0	0	0	0	0	0	0	223	87	310	26	125	0	151	461
Total	0	0	0	0	0	0	0	0	0	938	247	1185	115	483	0	598	1783
16:00	0	0	0	0	0	0	0	0	0	158	45	203	34	139	0	173	376
16:15	0	0	0	0	0	0	0	0	0	140	40	180	15	151	0	166	346
16:30	0	0	0	0	0	0	0	0	0	162	43	205	39	183	0	222	427
16:45	0	0	0	0	0	0	0	0	0	162	59	221	34	170	0	204	425
Total	0	0	0	0	0	0	0	0	0	622	187	809	122	643	0	765	1574
17:00	0	0	0	0	0	0	0	0	0	202	85	287	44	230	0	274	561
17:15	0	0	0	0	0	0	0	0	0	208	85	293	36	229	0	265	558
17:30	0	0	0	0	0	0	0	0	0	191	86	277	41	219	0	260	537
17:45	0	0	0	0	0	0	0	0	0	184	73	257	28	219	0	247	504
Total	0	0	0	0	0	0	0	0	0	785	329	1114	149	897	0	1046	2160
Grand Total	0	0	0	0	0	0	0	0	0	3000	891	3891	458	2348	0	2806	6697
Apprch%	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%		0.0%	77.1%	22.9%		16.3%	83.7%	0.0%		
Total %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	44.8%	13.3%	58.1%	6.8%	35.1%	0.0%	41.9%	

City of Oakland Oak St & 7th St Date: 05/21/2008

AM Peak Hr Begins at 800 AM

	Oak St Southbound				7th St Westbound				Oak St Northbound				7th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	0	0	0	0	0	0	0	0	0	218	53	271	28	98	0	126	397
815	0	0	0	0	0	0	0	0	0	277	44	321	31	133	0	164	485
830	0	0	0	0	0	0	0	0	0	220	63	283	30	127	0	157	440
845	0	0	0	0	0	0	0	0	0	223	87	310	26	125	0	151	461
Total Volume	0	0	0	0	0	0	0	0	0	938	247	1185	115	483	0	598	1783
% App Total.	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%		0.0%	79.2%	20.8%		19.2%	80.8%	0.0%		
PHF	0.000				0.000				0.923				0.912				

PM Peak Hr Begins at 500 PM

	Oak St Southbound				7th St Westbound				Oak St Northbound				7th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
500	0	0	0	0	0	0	0	0	0	202	85	287	44	230	0	274	561
515	0	0	0	0	0	0	0	0	0	208	85	293	36	229	0	265	558
530	0	0	0	0	0	0	0	0	0	191	86	277	41	219	0	260	537
545	0	0	0	0	0	0	0	0	0	184	73	257	28	219	0	247	504
Total Volume	0	0	0	0	0	0	0	0	0	785	329	1114	149	897	0	1046	2160
% App Total.	0.0%	0.0%	0.0%		0.0%	0.0%	0.0%		0.0%	70.5%	29.5%		14.2%	85.8%	0.0%		
PHF	0.000				0.000				0.951				0.954				

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City of Oakland Madison St & 7th St Date: 05/21/2008

	Madison St Southbound				7th St Westbound				Madison St Northbound				7th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	13	100	0	113	0	0	0	0	0	0	0	0	0	54	68	122	235
7:15	12	113	0	125	0	0	0	0	0	0	0	0	0	56	99	155	280
7:30	21	125	0	146	0	0	0	0	0	0	0	0	0	90	78	168	314
7:45	39	134	0	173	0	0	0	0	0	0	0	0	0	102	70	172	345
Total	85	472	0	557	0	0	0	0	0	0	0	0	0	302	315	617	1174
8:00	29	134	0	163	0	0	0	0	0	0	0	0	0	94	61	155	318
8:15	35	130	0	165	0	0	0	0	0	0	0	0	0	122	50	172	337
8:30	30	131	0	161	0	0	0	0	0	0	0	0	0	127	59	186	347
8:45	31	129	0	160	0	0	0	0	0	0	0	0	0	126	70	196	356
Total	125	524	0	649	0	0	0	0	0	0	0	0	0	469	240	709	1358
16:00	26	166	0	192	0	0	0	0	0	0	0	0	0	138	75	213	405
16:15	24	134	0	158	0	0	0	0	0	0	0	0	0	140	72	212	370
16:30	36	170	0	206	0	0	0	0	0	0	0	0	0	177	64	241	447
16:45	42	131	0	173	0	0	0	0	0	0	0	0	0	162	57	219	392
Total	128	601	0	729	0	0	0	0	0	0	0	0	0	617	268	885	1614
17:00	68	185	0	253	0	0	0	0	0	0	0	0	0	201	65	266	519
17:15	64	175	0	239	0	0	0	0	0	0	0	0	0	206	58	264	503
17:30	57	170	0	227	0	0	0	0	0	0	0	0	0	201	57	258	485
17:45	48	174	0	222	0	0	0	0	0	0	0	0	0	204	58	262	484
Total	237	704	0	941	0	0	0	0	0	0	0	0	0	812	238	1050	1991
Grand Total	575	2301	0	2876	0	0	0	0	0	0	0	0	0	2200	1061	3261	6137
Apprch%	####	80.0%	0.0%		0.0%	0.0%	0.0%		0.0%	0.0%	0.0%		0.0%	67.5%	32.5%		
Total %	9.4%	37.5%	0.0%	46.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	35.8%	17.3%	53.1%	

City of Oakland Madison St & 7th St Date: 05/21/2008

AM Peak Hr Begins at 800 AM

	Madison St Southbound				7th St Westbound				Madison St Northbound				7th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	29	134	0	163	0	0	0	0	0	0	0	0	0	94	61	155	318
815	35	130	0	165	0	0	0	0	0	0	0	0	0	122	50	172	337
830	30	131	0	161	0	0	0	0	0	0	0	0	0	127	59	186	347
845	31	129	0	160	0	0	0	0	0	0	0	0	0	126	70	196	356
Total Volume	125	524	0	649	0	0	0	0	0	0	0	0	0	469	240	709	1358
% App Total.	####	80.7%	0.0%		0.0%	0.0%	0.0%		0.0%	0.0%	0.0%		0.0%	66.1%	33.9%		
PHF	0.983				0.000				0.000				0.904				

PM Peak Hr Begins at 500 PM

	Madison St Southbound				7th St Westbound				Madison St Northbound				7th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
500	68	185	0	253	0	0	0	0	0	0	0	0	0	201	65	266	519
515	64	175	0	239	0	0	0	0	0	0	0	0	0	206	58	264	503
530	57	170	0	227	0	0	0	0	0	0	0	0	0	201	57	258	485
545	48	174	0	222	0	0	0	0	0	0	0	0	0	204	58	262	484
Total Volume	237	704	0	941	0	0	0	0	0	0	0	0	0	812	238	1050	1991
% App Total.	####	74.8%	0.0%		0.0%	0.0%	0.0%		0.0%	0.0%	0.0%		0.0%	77.3%	22.7%		
PHF	0.930				0.000				0.000				0.987				

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

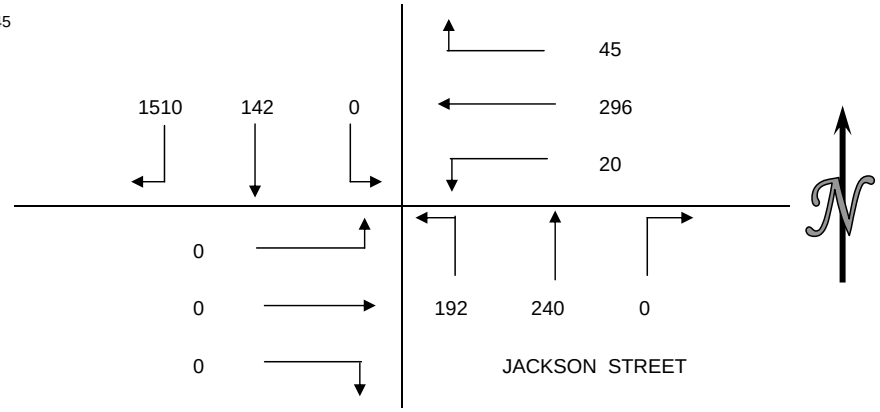
CLIENT:		DOWLING ASSOCIATES
PROJECT:		1938 BROADWAY TRAFFIC COUNTS
DATE:		THURSDAY OCTOBER 23, 2008
PERIOD"		7:00 AM TO 9:00 AM
INTERSECTION:	N/S	JACKSON STREET
	E/W	6TH STREET
CITY:		OAKLAND

VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
700-715	277	19	0	7	65	3	0	33	38	0	0	0	442
715-730	373	36	0	10	71	6	0	33	43	0	0	0	572
730-745	336	19	0	9	81	2	0	42	61	0	0	0	550
745-800	392	33	0	9	77	5	0	69	57	0	0	0	642
800-815	368	26	0	11	73	5	0	54	47	0	0	0	584
815-830	399	39	0	13	77	3	0	65	41	0	0	0	637
830-845	351	44	0	12	69	7	0	52	47	0	0	0	582
845-900	320	42	0	7	96	5	0	66	50	0	0	0	586
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
700-800	1378	107	0	35	294	16	0	177	199	0	0	0	2206
715-815	1469	114	0	39	302	18	0	198	208	0	0	0	2348
730-830	1495	117	0	42	308	15	0	230	206	0	0	0	2413
745-845	1510	142	0	45	296	20	0	240	192	0	0	0	2445
800-900	1438	151	0	43	315	20	0	237	185	0	0	0	2389

PHF	0.946115	0.806818		0.865385	0.961039	0.714286		0.869565	0.842105

AM PEAK HOUR: 745-845



PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-715	0	1	0	2	3
715-730	0	8	0	1	9
730-745	0	8	0	0	8
745-800	0	15	1	1	17
800-815	1	19	0	0	20
815-830	1	11	1	0	13
830-845	0	12	0	1	13
845-900	0	14	0	1	15
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-800	0	32	1	4	37
715-815	1	50	1	2	54
730-830	2	53	2	1	58
745-845	2	57	2	2	63
800-900	2	56	1	2	61

BICYCLE COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-715	0	0	0	1	1
715-730	0	0	0	0	0
730-745	0	0	0	0	0
745-800	0	0	0	0	0
800-815	0	0	0	0	0
815-830	0	0	0	0	0
830-845	0	0	0	0	0
845-900	0	0	0	0	0
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-800	0	0	0	1	1
715-815	0	0	0	0	0
730-830	0	0	0	0	0
745-845	0	0	0	0	0
800-900	0	0	0	0	0

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

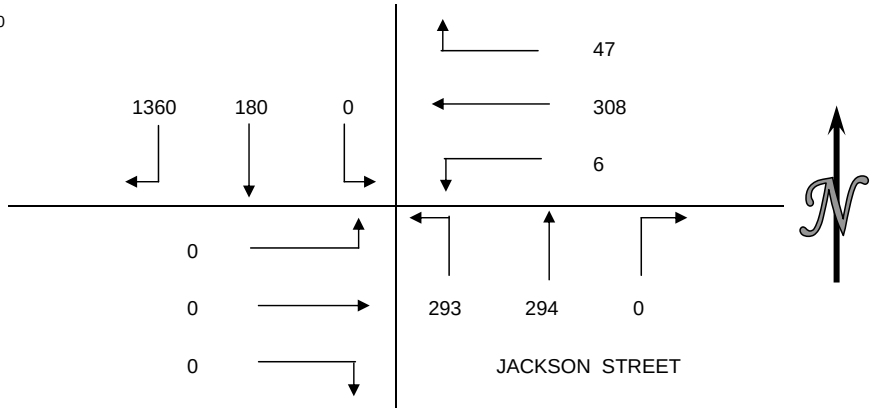
CLIENT:		DOWLING ASSOCIATES
PROJECT:		1938 BROADWAY TRAFFIC COUNTS
DATE:		THURSDAY OCTOBER 23, 2008
PERIOD"		4:00 PM TO 6:00 PM
INTERSECTION:	N/S	JACKSON STREET
	E/W	6TH STREET
CITY:		OAKLAND

VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
400-415	335	42	0	7	101	1	0	60	73	0	0	0	619
415-430	307	29	0	9	67	1	0	52	70	0	0	0	535
430-445	345	45	0	11	97	2	0	79	87	0	0	0	666
445-500	329	43	0	11	53	1	0	82	74	0	0	0	593
500-515	348	49	0	11	99	0	0	76	72	0	0	0	655
515-530	338	43	0	14	59	3	0	57	60	0	0	0	574
530-545	336	48	0	9	83	1	0	56	52	0	0	0	585
545-600	304	52	0	19	83	4	0	59	69	0	0	0	590
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
400-500	1316	159	0	38	318	5	0	273	304	0	0	0	2413
415-515	1329	166	0	42	316	4	0	289	303	0	0	0	2449
430-530	1360	180	0	47	308	6	0	294	293	0	0	0	2488
445-545	1351	183	0	45	294	5	0	271	258	0	0	0	2407
500-600	1326	192	0	53	324	8	0	248	253	0	0	0	2404

PHF	0.977011	0.918367		0.839286	0.777778	0.5		0.896341	0.841954

AM PEAK HOUR: 430-530



PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-415	0	11	0	0	11
415-430	0	3	0	0	3
430-445	0	7	0	0	7
445-500	0	3	0	0	3
500-515	0	9	0	0	9
515-530	0	4	0	0	4
530-545	0	6	0	0	6
545-600	0	8	0	0	8
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-500	0	24	0	0	24
415-515	0	22	0	0	22
430-530	0	23	0	0	23
445-545	0	22	0	0	22
500-600	0	27	0	0	27

BICYCLE COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-415	0	0	0	0	0
415-430	0	0	0	1	1
430-445	0	0	0	0	0
445-500	0	0	0	0	0
500-515	0	2	0	0	2
515-530	0	0	0	0	0
530-545	0	2	0	0	2
545-600	0	0	0	0	0
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-500	0	0	0	1	1
415-515	0	2	0	1	3
430-530	0	2	0	0	2
445-545	0	4	0	0	4
500-600	0	4	0	0	4

ALL TRAFFIC DATA, INC
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FAX 786-2879

City of Oakland — Oak St & 6th St — Date: 05/21/2008

	Oak St Southbound				6th St Westbound				Oak St Northbound				6th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	0	0	0	0	21	19	95	135	23	38	0	61	0	0	0	0	196
7:15	0	0	0	0	23	16	131	170	18	43	0	61	0	0	0	0	231
7:30	0	0	0	0	27	17	164	208	34	60	0	94	0	0	0	0	302
7:45	0	0	0	0	35	15	150	200	20	100	0	120	0	0	0	0	320
Total	0	0	0	0	106	67	540	713	95	241	0	336	0	0	0	0	1049
8:00	0	0	0	0	39	10	162	211	25	97	0	122	0	0	0	0	333
8:15	0	0	0	0	30	11	206	247	31	109	0	140	0	0	0	0	387
8:30	0	0	0	0	33	14	165	212	26	112	0	138	0	0	0	0	350
8:45	0	0	0	0	18	13	204	235	41	111	0	152	0	0	0	0	387
Total	0	0	0	0	120	48	737	905	123	429	0	552	0	0	0	0	1457
16:00	0	0	0	0	17	16	132	165	29	59	0	88	0	0	0	0	253
16:15	0	0	0	0	14	15	108	137	31	65	0	96	0	0	0	0	233
16:30	0	0	0	0	24	11	114	149	39	83	0	122	0	0	0	0	271
16:45	0	0	0	0	12	10	117	139	42	105	0	147	0	0	0	0	286
Total	0	0	0	0	67	52	471	590	141	312	0	453	0	0	0	0	1043
17:00	0	0	0	0	23	14	162	199	41	123	0	164	0	0	0	0	363
17:15	0	0	0	0	13	12	159	184	43	137	0	180	0	0	0	0	364
17:30	0	0	0	0	7	13	144	164	38	152	0	190	0	0	0	0	354
17:45	0	0	0	0	12	8	143	163	32	112	0	144	0	0	0	0	307
Total	0	0	0	0	55	47	608	710	154	524	0	678	0	0	0	0	1388
Grand Total	0	0	0	0	348	214	2356	2918	513	1506	0	2019	0	0	0	0	4937
Apprch%	0.0%	0.0%	0.0%		11.9%	7.3%	80.7%		25.4%	74.6%	0.0%		0.0%	0.0%	0.0%		
Total %	0.0%	0.0%	0.0%	0.0%	7.0%	4.3%	47.7%	59.1%	10.4%	30.5%	0.0%	40.9%	0.0%	0.0%	0.0%	0.0%	

City of Oakland — Oak St & 6th St — Date: 05/21/2008

AM Peak Hr Begins at 800 AM

	Oak St Southbound				6th St Westbound				Oak St Northbound				6th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	0	0	0	0	39	10	162	211	25	97	0	122	0	0	0	0	333
815	0	0	0	0	30	11	206	247	31	109	0	140	0	0	0	0	387
830	0	0	0	0	33	14	165	212	26	112	0	138	0	0	0	0	350
845	0	0	0	0	18	13	204	235	41	111	0	152	0	0	0	0	387
Total Volume	0	0	0	0	120	48	737	905	123	429	0	552	0	0	0	0	1457
% App Total.	0.0%	0.0%	0.0%		13.3%	5.3%	81.4%		22.3%	77.7%	0.0%		0.0%	0.0%	0.0%		
PHF	0.000				0.916				0.908				0.000				

PM Peak Hr Begins at 500 PM

	Oak St Southbound				6th St Westbound				Oak St Northbound				6th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
500	0	0	0	0	23	14	162	199	41	123	0	164	0	0	0	0	363
515	0	0	0	0	13	12	159	184	43	137	0	180	0	0	0	0	364
530	0	0	0	0	7	13	144	164	38	152	0	190	0	0	0	0	354
545	0	0	0	0	12	8	143	163	32	112	0	144	0	0	0	0	307
Total Volume	0	0	0	0	55	47	608	710	154	524	0	678	0	0	0	0	1388
% App Total.	0.0%	0.0%	0.0%		7.7%	6.6%	85.6%		22.7%	77.3%	0.0%		0.0%	0.0%	0.0%		
PHF	0.000				0.892				0.892				0.000				

ALL TRAFFIC DATA, INC
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City of Oakland — Oak St & 5th St — Date: 05/21/2008

	Oak St Southbound				5th St Westbound				Oak St Northbound				5th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
7:00	0	18	0	18	0	0	0	0	0	45	19	64	16	93	25	134	216
7:15	0	23	0	23	0	0	0	0	0	27	13	40	29	141	31	201	264
7:30	0	23	0	23	0	0	0	0	0	46	25	71	42	104	21	167	261
7:45	1	37	0	38	0	0	0	0	0	47	16	63	59	144	23	226	327
Total	1	101	0	102	0	0	0	0	0	165	73	238	146	482	100	728	1068
8:00	0	38	0	38	0	0	0	0	0	47	18	65	70	155	41	266	369
8:15	1	30	0	31	0	0	0	0	0	60	10	70	77	115	47	239	340
8:30	0	32	0	32	0	0	0	0	0	53	23	76	76	147	45	268	376
8:45	2	17	0	19	0	0	0	0	0	70	17	87	80	134	19	233	339
Total	3	117	0	120	0	0	0	0	0	230	68	298	303	551	152	1006	1424
16:00	2	10	0	12	0	0	0	0	0	58	15	73	30	91	18	139	224
16:15	1	18	0	19	0	0	0	0	0	43	13	56	42	129	19	190	265
16:30	0	24	0	24	0	0	0	0	0	59	20	79	58	123	14	195	298
16:45	0	14	0	14	0	0	0	0	0	78	13	91	66	128	24	218	323
Total	3	66	0	69	0	0	0	0	0	238	61	299	196	471	75	742	1110
17:00	1	19	0	20	0	0	0	0	0	97	22	119	71	124	20	215	354
17:15	0	16	0	16	0	0	0	0	0	123	14	137	57	122	16	195	348
17:30	0	9	0	9	0	0	0	0	0	148	13	161	49	102	9	160	330
17:45	0	9	0	9	0	0	0	0	0	106	14	120	39	104	6	149	278
Total	1	53	0	54	0	0	0	0	0	474	63	537	216	452	51	719	1310
Grand Total	8	337	0	345	0	0	0	0	0	1107	265	1372	861	1956	378	3195	4912
Apprch%	2.3%	97.7%	0.0%		0.0%	0.0%	0.0%		0.0%	80.7%	19.3%		26.9%	61.2%	11.8%		
Total %	0.2%	6.9%	0.0%	7.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.5%	5.4%	27.9%	17.5%	39.8%	7.7%	65.0%	

City of Oakland — Oak St & 5th St — Date: 05/21/2008

AM Peak Hr Begins at 800 AM

	Oak St Southbound				5th St Westbound				Oak St Northbound				5th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
800	0	38	0	38	0	0	0	0	0	47	18	65	70	155	41	266	369
815	1	30	0	31	0	0	0	0	0	60	10	70	77	115	47	239	340
830	0	32	0	32	0	0	0	0	0	53	23	76	76	147	45	268	376
845	2	17	0	19	0	0	0	0	0	70	17	87	80	134	19	233	339
Total Volume	3	117	0	120	0	0	0	0	0	230	68	298	303	551	152	1006	1424
% App Total.	2.5%	97.5%	0.0%		0.0%	0.0%	0.0%		0.0%	77.2%	22.8%		30.1%	54.8%	15.1%		
PHF	0.789				0.000				0.856				0.938				

PM Peak Hr Begins at 445 PM

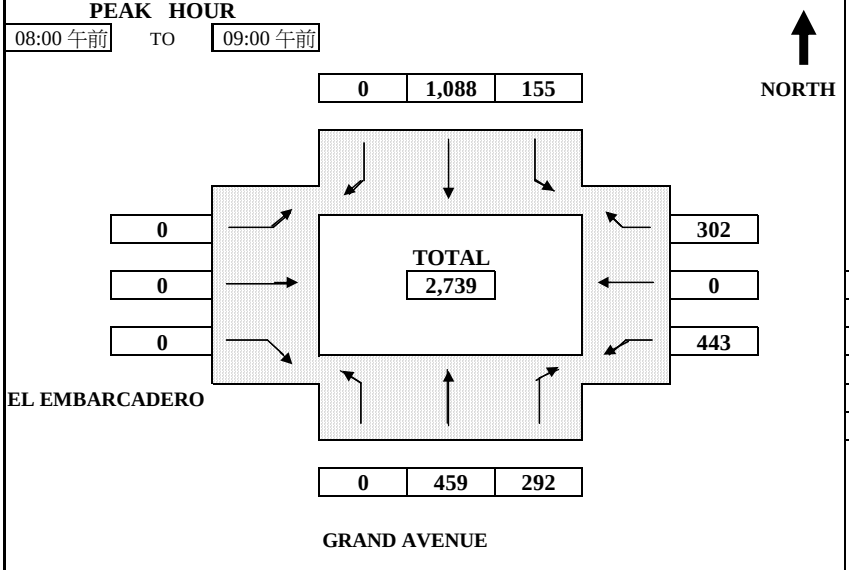
	Oak St Southbound				5th St Westbound				Oak St Northbound				5th St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int Total
445	0	14	0	14	0	0	0	0	0	78	13	91	66	128	24	218	323
500	1	19	0	20	0	0	0	0	0	97	22	119	71	124	20	215	354
515	0	16	0	16	0	0	0	0	0	123	14	137	57	122	16	195	348
530	0	9	0	9	0	0	0	0	0	148	13	161	49	102	9	160	330
Total Volume	1	58	0	59	0	0	0	0	0	446	62	508	243	476	69	788	1355
% App Total.	1.7%	98.3%	0.0%		0.0%	0.0%	0.0%		0.0%	87.8%	12.2%		30.8%	60.4%	8.8%		
PHF	0.738				0.000				0.789				0.904				

B.A.Y.M.E.T.R.I.C.S.

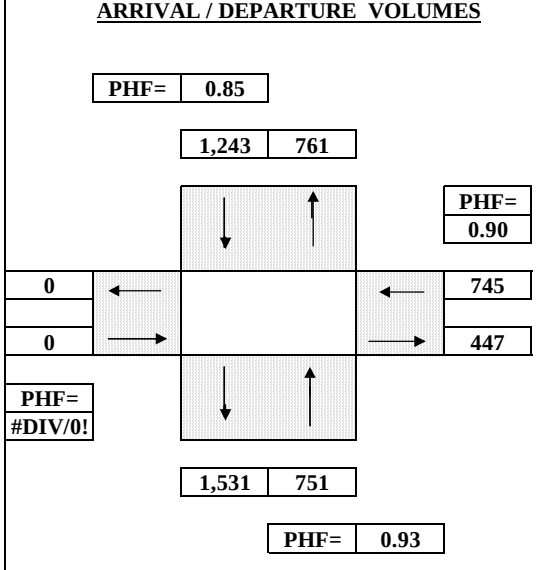
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**OAKLAND TRAFFIC STUDY**	**SURVEY DATE:**	**2008/11/12**	**DAY:**	**WEDNESDAY**
N-S Approach:	**GRAND AVENUE**	**SURVEY TIME:**	**7:00 午前**	**TO**	**9:00 午前**
E-W Approach:	**EL EMBARCADERO**	**CITY:**	**OAKLAND**	**FILE:**	**2811065-1AM**

PEAK HOUR
08:00 午前 TO 09:00 午前



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
From		**To**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**TOTAL**
SURVEY DATA															
7:00 AM	---	7:15 午前	0	73	58	19	91	0	0	0	0	37	0	47	***325***
7:15 午前	---	7:30 午前	0	144	90	35	191	0	0	0	0	73	0	103	***636***
7:30 午前	---	7:45 午前	0	233	132	76	375	0	0	0	0	128	0	175	***1,119***
7:45 午前	---	8:00 午前	0	326	193	121	558	0	0	0	0	215	0	251	***1,664***
8:00 午前	---	8:15 午前	0	436	267	150	779	0	0	0	0	318	0	330	***2,280***
8:15 午前	---	8:30 午前	0	550	350	192	1,041	0	0	0	0	443	0	412	***2,988***
8:30 午前	---	8:45 午前	0	646	423	235	1,321	0	0	0	0	534	0	491	***3,650***
8:45 午前	---	9:00 午前	0	785	485	276	1,646	0	0	0	0	658	0	553	***4,403***
TOTAL BY PERIOD															
7:00 AM	---	7:15 午前	0	73	58	19	91	0	0	0	0	37	0	47	***325***
7:15 午前	---	7:30 午前	0	71	32	16	100	0	0	0	0	36	0	56	***311***
7:30 午前	---	7:45 午前	0	89	42	41	184	0	0	0	0	55	0	72	***483***
7:45 午前	---	8:00 午前	0	93	61	45	183	0	0	0	0	87	0	76	***545***
8:00 午前	---	8:15 午前	0	110	74	29	221	0	0	0	0	103	0	79	***616***
8:15 午前	---	8:30 午前	0	114	83	42	262	0	0	0	0	125	0	82	***708***
8:30 午前	---	8:45 午前	0	96	73	43	280	0	0	0	0	91	0	79	***662***
8:45 午前	---	9:00 午前	0	139	62	41	325	0	0	0	0	124	0	62	***753***
HOURLY TOTALS															
7:00 AM	---	8:00 午前	0	326	193	121	558	0	0	0	0	215	0	251	***1,664***
7:15 午前	---	8:15 午前	0	363	209	131	688	0	0	0	0	281	0	283	***1,955***
7:30 午前	---	8:30 午前	0	406	260	157	850	0	0	0	0	370	0	309	***2,352***
7:45 午前	---	8:45 午前	0	413	291	159	946	0	0	0	0	406	0	316	***2,531***
8:00 午前	---	9:00 午前	0	459	292	155	1,088	0	0	0	0	443	0	302	***2,739***

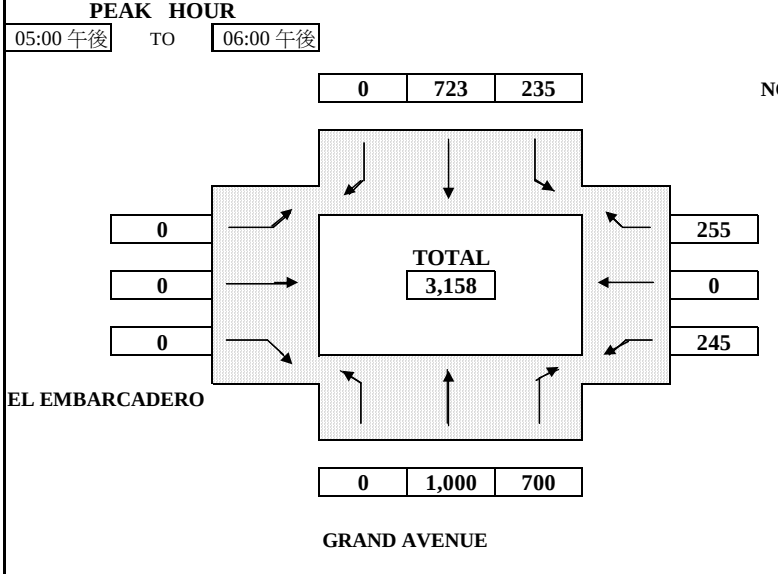
Telephone: (510)232-1271 **Fax: (510)232-1272**

B.A.Y.M.E.T.R.I.C.S.

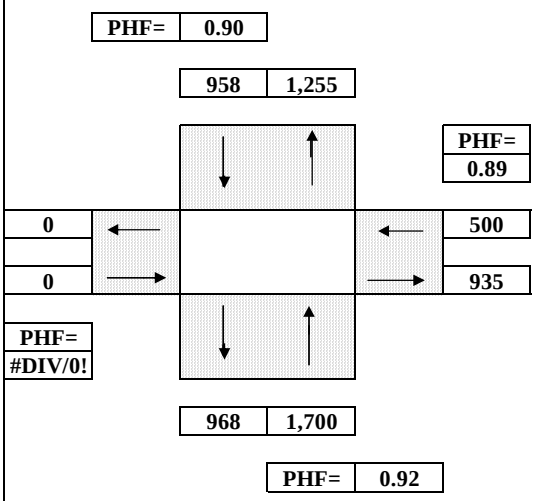
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**OAKLAND TRAFFIC STUDY**	**SURVEY DATE:**	**2008/11/06**	**DAY:**	**THURSDAY**
N-S Approach:	**GRAND AVENUE**	**SURVEY TIME:**	**4:00 午後**	**TO**	**6:00 午後**
E-W Approach:	**EL EMBARCADERO**	**CITY:**	**OAKLAND**	**FILE:**	**2811065-1PM**

PEAK HOUR
05:00 午後 TO 06:00 午後



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
From		To	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
SURVEY DATA															
4:00 PM	---	4:15 午後	0	142	114	47	143	0	0	0	0	48	0	47	***541***
4:15 午後	---	4:30 午後	0	285	219	95	275	0	0	0	0	99	0	92	***1,065***
4:30 午後	---	4:45 午後	0	498	392	164	429	0	0	0	0	154	0	129	***1,766***
4:45 午後	---	5:00 午後	0	681	541	206	565	0	0	0	0	197	0	189	***2,379***
5:00 午後	---	5:15 午後	0	891	665	270	738	0	0	0	0	255	0	271	***3,090***
5:15 午後	---	5:30 午後	0	1,145	874	328	915	0	0	0	0	316	0	350	***3,928***
5:30 午後	---	5:45 午後	0	1,412	1,070	381	1,083	0	0	0	0	375	0	407	***4,728***
5:45 午後	---	6:00 午後	0	1,681	1,241	441	1,288	0	0	0	0	442	0	444	***5,537***
TOTAL BY PERIOD															
4:00 PM	---	4:15 午後	0	142	114	47	143	0	0	0	0	48	0	47	***541***
4:15 午後	---	4:30 午後	0	143	105	48	132	0	0	0	0	51	0	45	***524***
4:30 午後	---	4:45 午後	0	213	173	69	154	0	0	0	0	55	0	37	***701***
4:45 午後	---	5:00 午後	0	183	149	42	136	0	0	0	0	43	0	60	***613***
5:00 午後	---	5:15 午後	0	210	124	64	173	0	0	0	0	58	0	82	***711***
5:15 午後	---	5:30 午後	0	254	209	58	177	0	0	0	0	61	0	79	***838***
5:30 午後	---	5:45 午後	0	267	196	53	168	0	0	0	0	59	0	57	***800***
5:45 午後	---	6:00 午後	0	269	171	60	205	0	0	0	0	67	0	37	***809***
HOURLY TOTALS															
4:00 PM	---	5:00 午後	0	681	541	206	565	0	0	0	0	197	0	189	***2,379***
4:15 午後	---	5:15 午後	0	749	551	223	595	0	0	0	0	207	0	224	***2,549***
4:30 午後	---	5:30 午後	0	860	655	233	640	0	0	0	0	217	0	258	***2,863***
4:45 午後	---	5:45 午後	0	914	678	217	654	0	0	0	0	221	0	278	***2,962***
5:00 午後	---	6:00 午後	0	1,000	700	235	723	0	0	0	0	245	0	255	***3,158***

Telephone: (510)232-1271 **Fax: (510)232-1272**

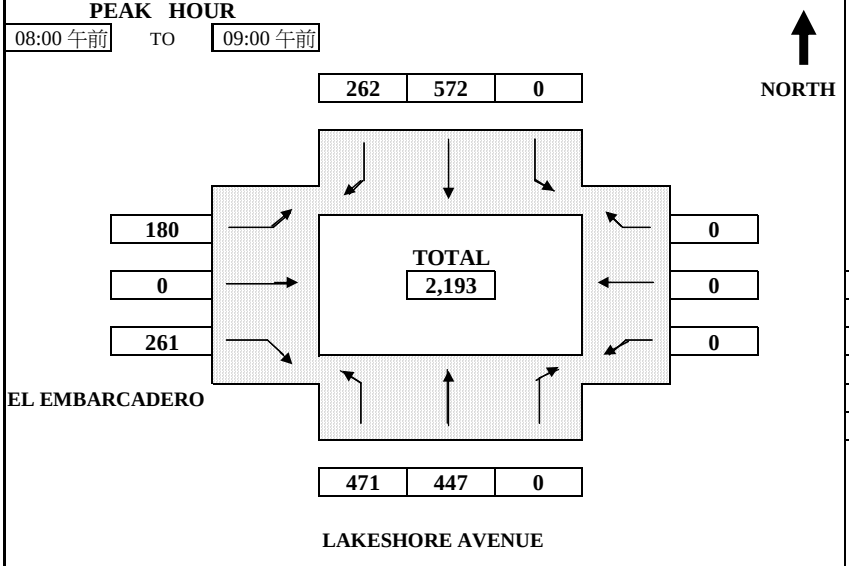
B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

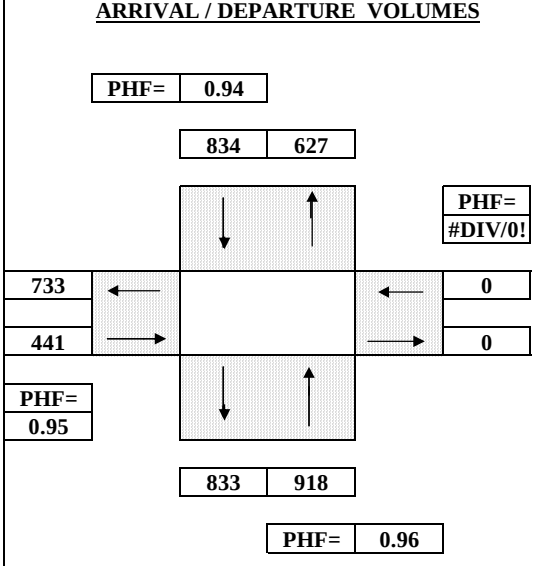
PROJECT:	**OAKLAND TRAFFIC STUDY**	**SURVEY DATE:**	**2008/11/12**	**DAY:**	**WEDNESDAY**
N-S Approach:	**LAKESHORE AVENUE**	**SURVEY TIME:**	**7:00 午前**	**TO**	**9:00 午前**
E-W Approach:	**EL EMBARCADERO**	**CITY:**	**OAKLAND**	**FILE:**	**2811065-2AM**

PEAK HOUR

08:00 午前 TO 09:00 午前



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
From		**To**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**TOTAL**
SURVEY DATA															
7:00 AM	---	7:15 午前	62	60	0	0	67	25	35	0	32	0	0	0	***281***
7:15 午前	---	7:30 午前	127	150	0	0	186	47	59	0	57	0	0	0	***626***
7:30 午前	---	7:45 午前	218	250	0	0	343	85	87	0	108	0	0	0	***1,091***
7:45 午前	---	8:00 午前	336	372	0	0	494	128	123	0	175	0	0	0	***1,628***
8:00 午前	---	8:15 午前	461	479	0	0	627	184	176	0	238	0	0	0	***2,165***
8:15 午前	---	8:30 午前	586	587	0	0	759	258	224	0	302	0	0	0	***2,716***
8:30 午前	---	8:45 午前	693	702	0	0	908	331	273	0	365	0	0	0	***3,272***
8:45 午前	---	9:00 午前	807	819	0	0	1,066	390	303	0	436	0	0	0	***3,821***
TOTAL BY PERIOD															
7:00 AM	---	7:15 午前	62	60	0	0	67	25	35	0	32	0	0	0	***281***
7:15 午前	---	7:30 午前	65	90	0	0	119	22	24	0	25	0	0	0	***345***
7:30 午前	---	7:45 午前	91	100	0	0	157	38	28	0	51	0	0	0	***465***
7:45 午前	---	8:00 午前	118	122	0	0	151	43	36	0	67	0	0	0	***537***
8:00 午前	---	8:15 午前	125	107	0	0	133	56	**53**	0	63	0	0	0	***537***
8:15 午前	---	8:30 午前	**125**	108	0	0	132	**74**	48	0	64	0	0	0	***551***
8:30 午前	---	8:45 午前	107	115	0	0	149	73	49	0	63	0	0	0	***556***
8:45 午前	---	9:00 午前	114	**117**	0	0	**158**	59	30	0	**71**	0	0	0	***549***
HOURLY TOTALS															
7:00 AM	---	8:00 午前	336	372	0	0	494	128	123	0	175	0	0	0	***1,628***
7:15 午前	---	8:15 午前	399	419	0	0	560	159	141	0	206	0	0	0	***1,884***
7:30 午前	---	8:30 午前	459	437	0	0	573	211	165	0	245	0	0	0	***2,090***
7:45 午前	---	8:45 午前	475	452	0	0	565	246	186	0	257	0	0	0	***2,181***
8:00 午前	---	9:00 午前	471	447	0	0	572	262	180	0	261	0	0	0	***2,193***

Telephone: (510)232-1271 **Fax: (510)232-1272**

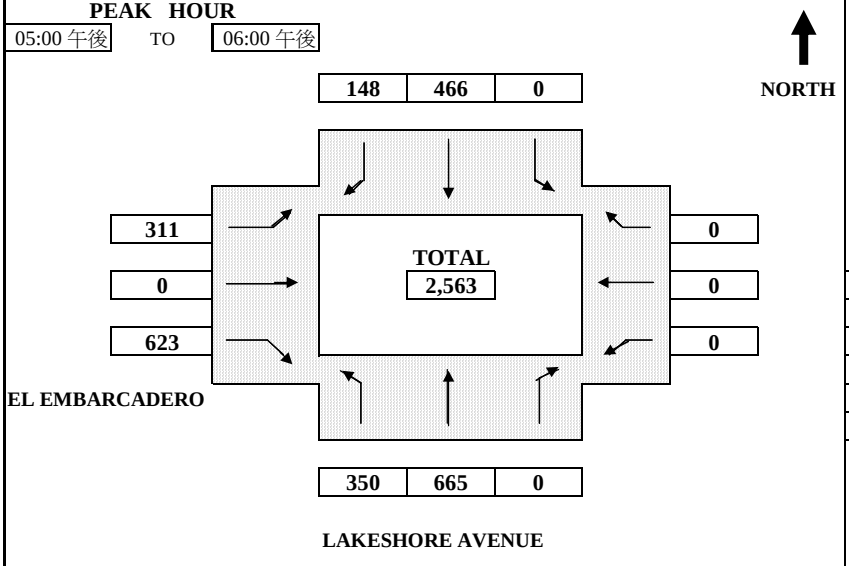
B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

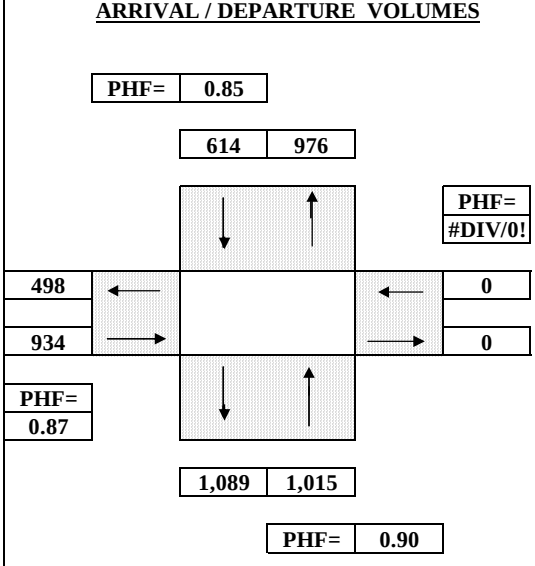
PROJECT:	**OAKLAND TRAFFIC STUDY**	**SURVEY DATE:**	**2008/11/06**	**DAY:**	**THURSDAY**
N-S Approach:	**LAKESHORE AVENUE**	**SURVEY TIME:**	**4:00 午後**	**TO**	**6:00 午後**
E-W Approach:	**EL EMBARCADERO**	**CITY:**	**OAKLAND**	**FILE:**	**2811065-2PM**

PEAK HOUR

05:00 午後 TO 06:00 午後



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
From		To	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
SURVEY DATA															
4:00 PM	---	4:15 午後	61	136	0	0	120	35	67	0	95	0	0	0	***514***
4:15 午後	---	4:30 午後	127	258	0	0	221	65	124	0	191	0	0	0	***986***
4:30 午後	---	4:45 午後	194	396	0	0	325	91	185	0	376	0	0	0	***1,567***
4:45 午後	---	5:00 午後	261	525	0	0	448	127	274	0	475	0	0	0	***2,110***
5:00 午後	---	5:15 午後	355	713	0	0	582	173	359	0	578	0	0	0	***2,760***
5:15 午後	---	5:30 午後	459	866	0	0	692	207	443	0	761	0	0	0	***3,428***
5:30 午後	---	5:45 午後	541	1,059	0	0	798	241	526	0	926	0	0	0	***4,091***
5:45 午後	---	6:00 午後	611	1,190	0	0	914	275	585	0	1,098	0	0	0	***4,673***
TOTAL BY PERIOD															
4:00 PM	---	4:15 午後	61	136	0	0	120	35	67	0	95	0	0	0	***514***
4:15 午後	---	4:30 午後	66	122	0	0	101	30	57	0	96	0	0	0	***472***
4:30 午後	---	4:45 午後	67	138	0	0	104	26	61	0	185	0	0	0	***581***
4:45 午後	---	5:00 午後	67	129	0	0	123	36	89	0	99	0	0	0	***543***
5:00 午後	---	5:15 午後	94	188	0	0	**134**	**46**	**85**	0	103	0	0	0	***650***
5:15 午後	---	5:30 午後	**104**	153	0	0	110	34	84	0	**183**	0	0	0	***668***
5:30 午後	---	5:45 午後	82	**193**	0	0	106	34	83	0	165	0	0	0	***663***
5:45 午後	---	6:00 午後	70	131	0	0	116	34	59	0	172	0	0	0	***582***
HOURLY TOTALS															
4:00 PM	---	5:00 午後	261	525	0	0	448	127	274	0	475	0	0	0	***2,110***
4:15 午後	---	5:15 午後	294	577	0	0	462	138	292	0	483	0	0	0	***2,246***
4:30 午後	---	5:30 午後	332	608	0	0	471	142	319	0	570	0	0	0	***2,442***
4:45 午後	---	5:45 午後	347	663	0	0	473	150	341	0	550	0	0	0	***2,524***
5:00 午後	---	6:00 午後	350	665	0	0	466	148	311	0	623	0	0	0	***2,563***

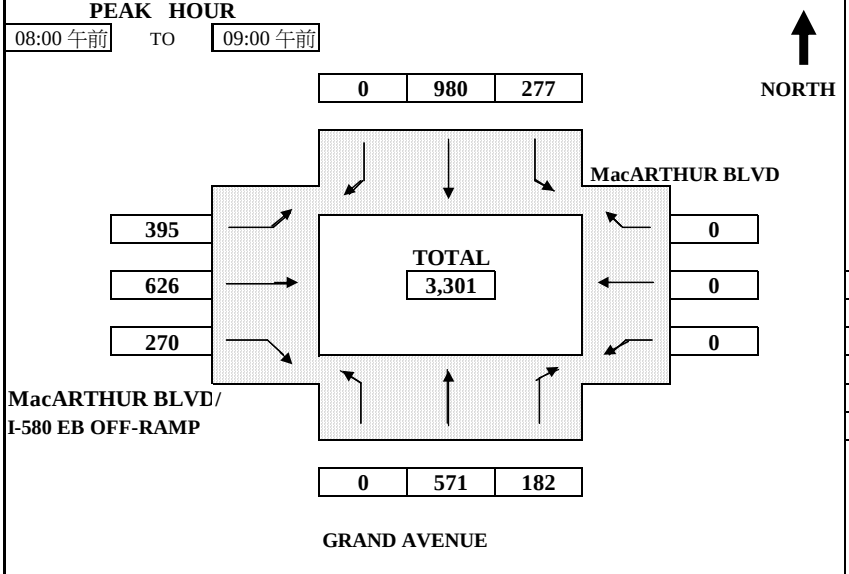
Telephone: (510)232-1271 **Fax: (510)232-1272**

B.A.Y.M.E.T.R.I.C.S.

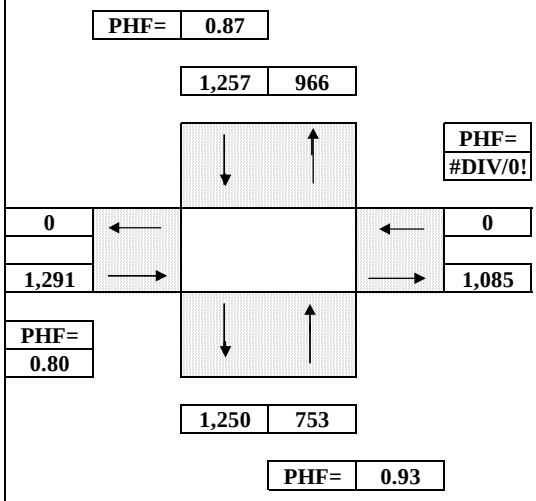
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**OAKLAND TRAFFIC STUDY**	**SURVEY DATE:**	**2008/11/12**	**DAY:**	**WEDNESDAY**
N-S Approach:	**GRAND AVENUE**	**SURVEY TIME:**	**7:00 午前**	**TO**	**9:00 午前**
E-W Approach:	**MacARTHUR BLVD / I-580 EB OFF-RAMP**	**CITY:**	**OAKLAND**	**FILE:**	**2811065-3AM**

PEAK HOUR
08:00 午前 TO 09:00 午前



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
From		To	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
SURVEY DATA															
7:00 AM	---	7:15 午前	0	91	27	32	87	0	43	67	21	0	0	0	***368***
7:15 午前	---	7:30 午前	0	193	48	53	179	0	87	164	47	0	0	0	***771***
7:30 午前	---	7:45 午前	0	314	90	95	351	0	143	275	100	0	0	0	***1,368***
7:45 午前	---	8:00 午前	0	440	133	162	534	0	210	411	144	0	0	0	***2,034***
8:00 午前	---	8:15 午前	0	588	174	212	715	0	319	577	209	0	0	0	***2,794***
8:15 午前	---	8:30 午前	0	744	216	284	972	0	401	731	260	0	0	0	***3,608***
8:30 午前	---	8:45 午前	0	868	255	371	1,221	0	479	859	316	0	0	0	***4,369***
8:45 午前	---	9:00 午前	0	1,011	315	439	1,514	0	605	1,037	414	0	0	0	***5,335***
TOTAL BY PERIOD															
7:00 AM	---	7:15 午前	0	91	27	32	87	0	43	67	21	0	0	0	***368***
7:15 午前	---	7:30 午前	0	102	21	21	92	0	44	97	26	0	0	0	***403***
7:30 午前	---	7:45 午前	0	121	42	42	172	0	56	111	53	0	0	0	***597***
7:45 午前	---	8:00 午前	0	126	43	67	183	0	67	136	44	0	0	0	***666***
8:00 午前	---	8:15 午前	0	148	41	50	181	0	109	166	65	0	0	0	***760***
8:15 午前	---	8:30 午前	0	**156**	42	72	257	0	82	154	51	0	0	0	***814***
8:30 午前	---	8:45 午前	0	124	39	**87**	249	0	78	128	56	0	0	0	***761***
8:45 午前	---	9:00 午前	0	143	**60**	68	**293**	0	**126**	**178**	**98**	0	0	0	***966***
HOURLY TOTALS															
7:00 AM	---	8:00 午前	0	440	133	162	534	0	210	411	144	0	0	0	***2,034***
7:15 午前	---	8:15 午前	0	497	147	180	628	0	276	510	188	0	0	0	***2,426***
7:30 午前	---	8:30 午前	0	551	168	231	793	0	314	567	213	0	0	0	***2,837***
7:45 午前	---	8:45 午前	0	554	165	276	870	0	336	584	216	0	0	0	***3,001***
8:00 午前	---	9:00 午前	0	571	182	277	980	0	395	626	270	0	0	0	***3,301***

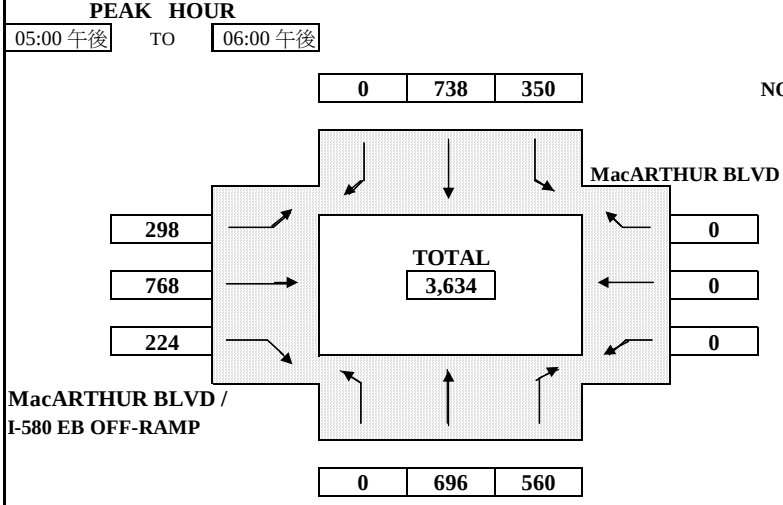
Telephone: (510)232-1271 **Fax: (510)232-1272**

B.A.Y.M.E.T.R.I.C.S.

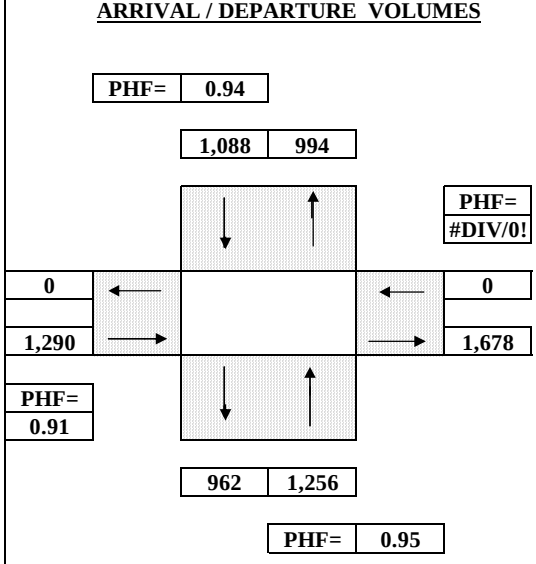
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**OAKLAND TRAFFIC STUDY**	**SURVEY DATE:**	**2008/11/06**	**DAY:**	**THURSDAY**
N-S Approach:	**GRAND AVENUE**	**SURVEY TIME:**	**4:00 午後**	**TO**	**6:00 午後**
E-W Approach:	**MacARTHUR BLVD / I-580 EB OFF-RAMP**	**CITY:**	**OAKLAND**	**FILE:**	**2811065-3PM**

PEAK HOUR
05:00 午後 TO 06:00 午後



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
From		To	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
SURVEY DATA															
4:00 PM	---	4:15 午後	0	115	72	80	134	0	85	158	62	0	0	0	***706***
4:15 午後	---	4:30 午後	0	232	140	145	263	0	176	286	110	0	0	0	***1,352***
4:30 午後	---	4:45 午後	0	351	260	219	420	0	267	479	181	0	0	0	***2,177***
4:45 午後	---	5:00 午後	0	497	365	302	568	0	339	687	214	0	0	0	***2,972***
5:00 午後	---	5:15 午後	0	656	492	379	740	0	415	898	277	0	0	0	***3,857***
5:15 午後	---	5:30 午後	0	843	633	476	925	0	493	1,105	325	0	0	0	***4,800***
5:30 午後	---	5:45 午後	0	1,007	799	565	1,104	0	563	1,272	371	0	0	0	***5,681***
5:45 午後	---	6:00 午後	0	1,193	925	652	1,306	0	637	1,455	438	0	0	0	***6,606***
TOTAL BY PERIOD															
4:00 PM	---	4:15 午後	0	115	72	80	134	0	85	158	62	0	0	0	***706***
4:15 午後	---	4:30 午後	0	117	68	65	129	0	91	128	48	0	0	0	***646***
4:30 午後	---	4:45 午後	0	119	120	74	157	0	91	193	71	0	0	0	***825***
4:45 午後	---	5:00 午後	0	146	105	83	148	0	72	208	33	0	0	0	***795***
5:00 午後	---	5:15 午後	0	159	127	77	172	0	76	**211**	63	0	0	0	***885***
5:15 午後	---	5:30 午後	0	**187**	141	**97**	185	0	**78**	207	48	0	0	0	***943***
5:30 午後	---	5:45 午後	0	164	**166**	89	179	0	70	167	46	0	0	0	***881***
5:45 午後	---	6:00 午後	0	186	126	87	**202**	0	74	183	**67**	0	0	0	***925***
HOURLY TOTALS															
4:00 PM	---	5:00 午後	0	497	365	302	568	0	339	687	214	0	0	0	***2,972***
4:15 午後	---	5:15 午後	0	541	420	299	606	0	330	740	215	0	0	0	***3,151***
4:30 午後	---	5:30 午後	0	611	493	331	662	0	317	819	215	0	0	0	***3,448***
4:45 午後	---	5:45 午後	0	656	539	346	684	0	296	793	190	0	0	0	***3,504***
5:00 午後	---	6:00 午後	0	696	560	350	738	0	298	768	224	0	0	0	***3,634***

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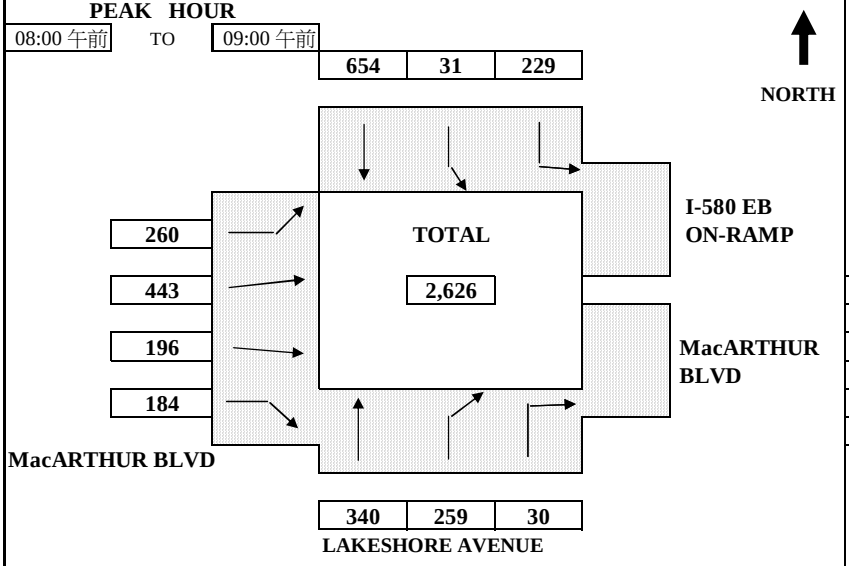
B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

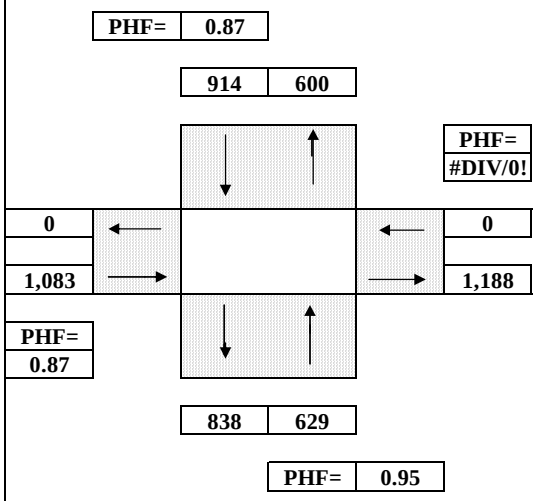
PROJECT:	**OAKLAND TRAFFIC STUDY**	**SURVEY DATE:**	**2008/11/12**	**DAY:**	**WEDNESDAY**
N-S Approach:	**LAKESHORE AVENUE**	**SURVEY TIME:**	**7:00 午前**	**TO**	**9:00 午前**
E-W Approach:	**MacARTHUR BLVD / I-580 EB ON-RAMP**	**CITY:**	**OAKLAND**	**FILE:**	**2811065-4AM**

PEAK HOUR

08:00 午前 TO 09:00 午前



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND				WESTBOUND		
From		To	Thur	To 580	To Mac	Thru	To Mac	To 580	Left	To 580	To Mac	Right			TOTAL
SURVEY DATA															
7:00 AM	---	7:15 午前	28	58	7	71	5	57	30	57	20	18	0	0	***351***
7:15 午前	---	7:30 午前	84	112	10	191	8	133	55	132	45	40	0	0	***810***
7:30 午前	---	7:45 午前	151	165	15	365	17	213	85	233	81	68	0	0	***1,393***
7:45 午前	---	8:00 午前	230	237	25	511	21	307	118	365	122	110	0	0	***2,046***
8:00 午前	---	8:15 午前	320	298	34	666	29	357	178	474	171	150	0	0	***2,677***
8:15 午前	---	8:30 午前	405	360	43	817	33	427	228	582	222	202	0	0	***3,319***
8:30 午前	---	8:45 午前	489	436	49	996	43	494	298	682	263	244	0	0	***3,994***
8:45 午前	---	9:00 午前	570	496	55	1,165	52	536	378	808	318	294	0	0	***4,672***
TOTAL BY PERIOD															
7:00 AM	---	7:15 午前	28	58	7	71	5	57	30	57	20	18	0	0	***351***
7:15 午前	---	7:30 午前	56	54	3	120	3	76	25	75	25	22	0	0	***459***
7:30 午前	---	7:45 午前	67	53	5	174	9	80	30	101	36	28	0	0	***583***
7:45 午前	---	8:00 午前	79	72	10	146	4	94	33	132	41	42	0	0	***653***
8:00 午前	---	8:15 午前	**90**	61	**9**	155	8	50	60	109	49	40	0	0	***631***
8:15 午前	---	8:30 午前	85	62	9	151	4	**70**	50	108	51	**52**	0	0	***642***
8:30 午前	---	8:45 午前	84	**76**	6	**179**	**10**	67	70	100	41	42	0	0	***675***
8:45 午前	---	9:00 午前	81	60	6	169	9	42	**80**	**126**	**55**	50	0	0	***678***
HOURLY TOTALS															
7:00 AM	---	8:00 午前	230	237	25	511	21	307	118	365	122	110	0	0	***2,046***
7:15 午前	---	8:15 午前	292	240	27	595	24	300	148	417	151	132	0	0	***2,326***
7:30 午前	---	8:30 午前	321	248	33	626	25	294	173	450	177	162	0	0	***2,509***
7:45 午前	---	8:45 午前	338	271	34	631	26	281	213	449	182	176	0	0	***2,601***
8:00 午前	---	9:00 午前	340	259	30	654	31	229	260	443	196	184	0	0	***2,626***

Telephone: (510)232-1271 **Fax: (510)232-1272**

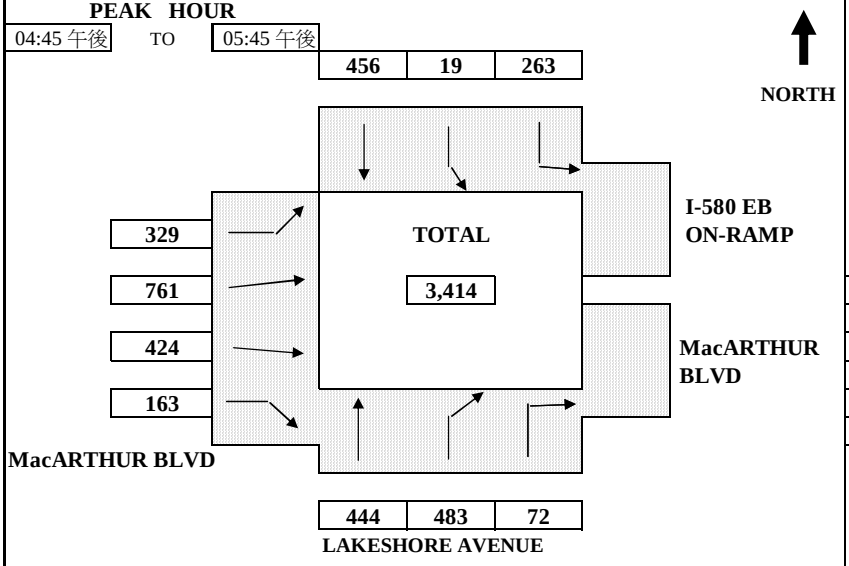
B.A.Y.M.E.T.R.I.C.S.

INTERSECTION TURNING MOVEMENT SUMMARY

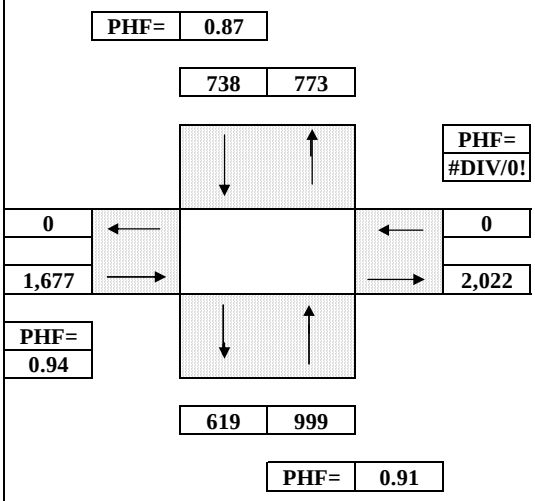
PROJECT:	**OAKLAND TRAFFIC STUDY**	**SURVEY DATE:**	**2008/11/06**	**DAY:**	**THURSDAY**
N-S Approach:	**LAKESHORE AVENUE**	**SURVEY TIME:**	**4:00 午後**	**TO**	**6:00 午後**
E-W Approach:	**MacARTHUR BLVD / I-580 EB ON-RAMP**	**CITY:**	**OAKLAND**	**FILE:**	**2811065-4PM**

PEAK HOUR

04:45 午後 TO 05:45 午後



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND				WESTBOUND		
From		**To**	**Thur**	**To 580**	**To Mac**	**Thru**	**To Mac**	**To 580**	**Left**	**To 580**	**To Mac**	**Right**			**TOTAL**
SURVEY DATA															
4:00 PM	---	4:15 午後	84	121	0	104	0	76	8	176	86	42	0	0	***697***
4:15 午後	---	4:30 午後	166	206	7	191	6	138	50	311	129	83	0	0	***1,287***
4:30 午後	---	4:45 午後	253	309	11	279	11	206	191	447	194	128	0	0	***2,029***
4:45 午後	---	5:00 午後	351	424	27	385	18	272	264	629	280	183	0	0	***2,833***
5:00 午後	---	5:15 午後	461	567	40	522	20	344	318	832	395	224	0	0	***3,723***
5:15 午後	---	5:30 午後	560	675	63	619	24	405	435	1,017	496	267	0	0	***4,561***
5:30 午後	---	5:45 午後	697	792	83	735	30	469	520	1,208	618	291	0	0	***5,443***
5:45 午後	---	6:00 午後	790	879	100	848	36	537	591	1,362	750	329	0	0	***6,222***
TOTAL BY PERIOD															
4:00 PM	---	4:15 午後	84	121	0	104	0	76	8	176	86	42	0	0	***697***
4:15 午後	---	4:30 午後	82	85	7	87	6	62	42	135	43	41	0	0	***590***
4:30 午後	---	4:45 午後	87	103	4	88	5	68	141	136	65	45	0	0	***742***
4:45 午後	---	5:00 午後	98	115	16	106	**7**	66	73	182	86	**55**	0	0	***804***
5:00 午後	---	5:15 午後	110	**143**	13	**137**	2	**72**	54	**203**	115	41	0	0	***890***
5:15 午後	---	5:30 午後	99	108	23	97	4	61	**117**	185	101	43	0	0	***838***
5:30 午後	---	5:45 午後	**137**	117	**20**	116	6	64	85	191	**122**	24	0	0	***882***
5:45 午後	---	6:00 午後	93	87	17	113	6	68	71	154	132	38	0	0	***779***
HOURLY TOTALS															
4:00 PM	---	5:00 午後	351	424	27	385	18	272	264	629	280	183	0	0	***2,833***
4:15 午後	---	5:15 午後	377	446	40	418	20	268	310	656	309	182	0	0	***3,026***
4:30 午後	---	5:30 午後	394	469	56	428	18	267	385	706	367	184	0	0	***3,274***
4:45 午後	---	5:45 午後	444	483	72	456	19	263	329	761	424	163	0	0	***3,414***
5:00 午後	---	6:00 午後	439	455	73	463	18	265	327	733	470	146	0	0	***3,389***

Telephone: (510)232-1271 **Fax: (510)232-1272**

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

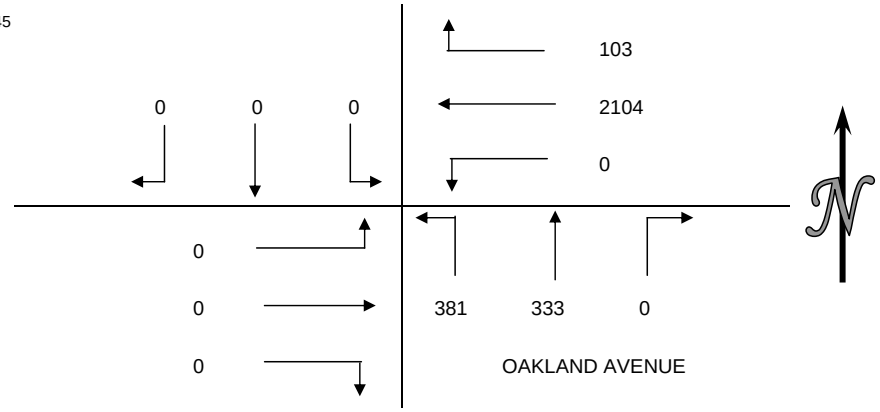
CLIENT:		DOWLING ASSOCIATES
PROJECT:		1938 BROADWAY TRAFFIC COUNTS
DATE:		WEDNESDAY OCTOBER 29, 2008
PERIOD"		7:00 AM TO 9:00 AM
INTERSECTION:	N/S	OAKLAND AVENUE
	E/W	SANTA CLARA AVENUE
CITY:		OAKLAND

VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
700-715	0	0	0	10	336	0	0	50	55	0	0	0	451
715-730	0	0	0	14	402	0	0	52	75	0	0	0	543
730-745	0	0	0	20	442	0	0	79	80	0	0	0	621
745-800	0	0	0	21	505	0	0	88	87	0	0	0	701
800-815	0	0	0	22	509	0	0	88	91	0	0	0	710
815-830	0	0	0	27	544	0	0	72	101	0	0	0	744
830-845	0	0	0	33	546	0	0	85	102	0	0	0	766
845-900	0	0	0	28	514	0	0	65	90	0	0	0	697
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
700-800	0	0	0	65	1685	0	0	269	297	0	0	0	2316
715-815	0	0	0	77	1858	0	0	307	333	0	0	0	2575
730-830	0	0	0	90	2000	0	0	327	359	0	0	0	2776
745-845	0	0	0	103	2104	0	0	333	381	0	0	0	2921
800-900	0	0	0	110	2113	0	0	310	384	0	0	0	2917

PHF 0.780303 0.96337 0.946023 0.933824

AM PEAK HOUR: 745-845



PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-715	3	4	0	0	7
715-730	8	8	0	0	16
730-745	9	7	0	0	16
745-800	3	3	0	0	6
800-815	10	9	0	0	19
815-830	8	1	0	0	9
830-845	9	4	0	0	13
845-900	7	7	0	0	14
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-800	23	22	0	0	45
715-815	30	27	0	0	57
730-830	30	20	0	0	50
745-845	30	17	0	0	47
800-900	34	21	0	0	55

BICYCLE COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-715	1	0	0	0	1
715-730	1	1	0	0	2
730-745	1	2	0	0	3
745-800	1	0	0	0	1
800-815	0	0	0	0	0
815-830	2	0	0	0	2
830-845	9	2	0	2	13
845-900	2	0	0	0	2
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-800	4	3	0	0	7
715-815	3	3	0	0	6
730-830	4	2	0	0	6
745-845	12	2	0	2	16
800-900	13	2	0	2	17

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

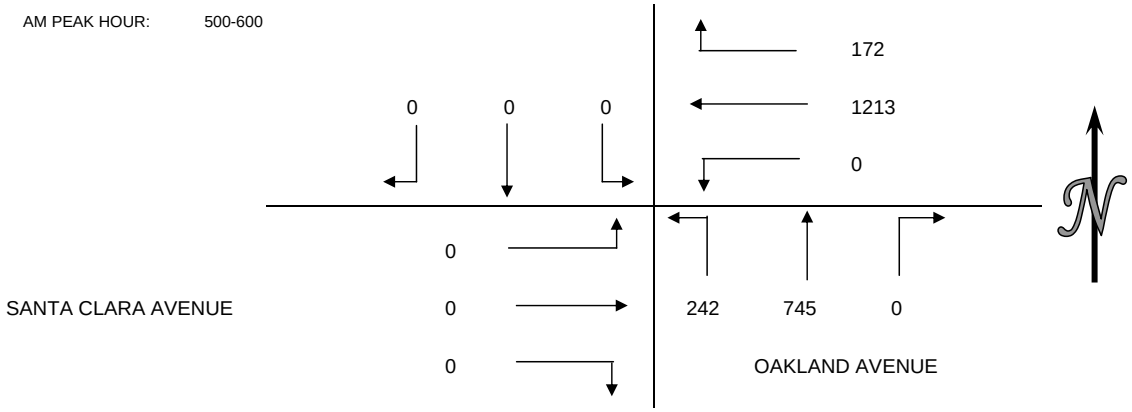
CLIENT:		DOWLING ASSOCIATES
PROJECT:		1938 BROADWAY TRAFFIC COUNTS
DATE:		WEDNESDAY OCTOBER 29, 2008
PERIOD"		4:00 PM TO 6:00 PM
INTERSECTION:	N/S	OAKLAND AVENUE
	E/W	SANTA CLARA AVENUE
CITY:		OAKLAND

VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
400-415	0	0	0	34	344	0	0	134	73	0	0	0	585
415-430	0	0	0	33	292	0	0	135	48	0	0	0	508
430-445	0	0	0	42	270	0	0	149	62	0	0	0	523
445-500	0	0	0	35	254	0	0	160	50	0	0	0	499
500-515	0	0	0	46	280	0	0	182	65	0	0	0	573
515-530	0	0	0	46	312	0	0	198	61	0	0	0	617
530-545	0	0	0	47	316	0	0	193	69	0	0	0	625
545-600	0	0	0	33	305	0	0	172	47	0	0	0	557
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
400-500	0	0	0	144	1160	0	0	578	233	0	0	0	2115
415-515	0	0	0	156	1096	0	0	626	225	0	0	0	2103
430-530	0	0	0	169	1116	0	0	689	238	0	0	0	2212
445-545	0	0	0	174	1162	0	0	733	245	0	0	0	2314
500-600	0	0	0	172	1213	0	0	745	242	0	0	0	2372

PHF 0.914894 0.959652 0.940657 0.876812

AM PEAK HOUR: 500-600



PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-415	12	10	0	0	22
415-430	6	7	0	0	13
430-445	2	2	0	0	4
445-500	7	7	0	0	14
500-515	2	4	0	0	6
515-530	7	6	0	0	13
530-545	2	7	0	0	9
545-600	2	6	0	0	8
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-500	27	26	0	0	53
415-515	17	20	0	0	37
430-530	18	19	0	0	37
445-545	18	24	0	0	42
500-600	13	23	0	0	36

BICYCLE COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-415	3	1	0	0	4
415-430	2	1	0	0	3
430-445	2	1	0	0	3
445-500	2	0	0	0	2
500-515	3	1	0	0	4
515-530	3	0	0	0	3
530-545	1	0	0	0	1
545-600	3	0	0	0	3
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-500	9	3	0	0	12
415-515	9	3	0	0	12
430-530	10	2	0	0	12
445-545	9	1	0	0	10
500-600	10	1	0	0	11

File Name: C:\Documents and Settings\Administrator\Desktop\09-7021 OAKLAND-F\09-7021-002 HARRISON-SANTA CLARA-F.ppd
Start Date: 13/01/2009
Start Time: 7:15:00 AM
Site Code: 00000000
Comment 1: OAKLAND
Comment 2:
Comment 3:
Comment 4:

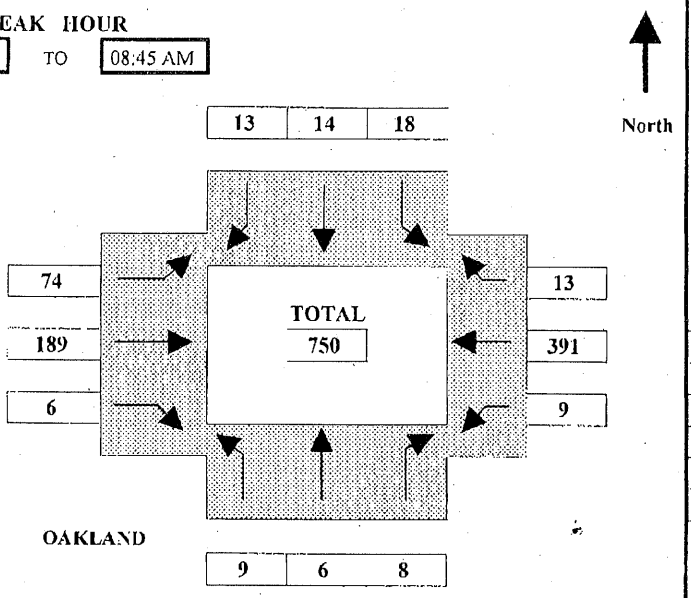
	HARRISON ST. Southbound					SANTA CLARA AVE. Westbound					HARRISON ST. Northbound					SANTA CLARA AVE. Northeastbound					MACARTHUR BLVD. Eastbound				
Start Time	Left	Thru	Bear Right	Right	Peds	Left	Bear Left	Thru	Right	Peds	Hard Left	Left	Thru	Right	Peds	Hard Left	Bear Left	Bear Right	Hard Right	Peds	Left	Thru	Right	Hard Right	Peds
07:15	0	153	3	13	4	202	1	283	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	7
07:30	0	213	1	7	9	241	2	323	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	5
07:45	0	241	2	7	8	226	3	355	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	9
08:00	0	263	2	4	1	240	4	358	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	5
08:15	0	232	1	9	2	244	3	383	0	0	0	0	0	0	0	0	0	0	19	0	0	0	0	0	6
08:30	0	241	0	6	4	252	2	336	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0	6
08:45	0	254	0	8	6	237	5	327	0	0	0	0	0	0	0	0	0	0	26	0	0	0	0	0	10
09:00	0	191	0	7	3	221	7	312	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0	0	4
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	121	0	4	3	109	6	240	0	1	0	0	0	0	0	0	0	0	22	0	0	0	0	0	2
16:30	0	156	1	9	6	101	7	241	0	0	0	0	0	0	0	0	0	0	19	0	0	0	0	0	3
16:45	0	144	3	6	7	82	4	258	0	0	0	0	0	0	0	0	0	0	27	0	0	0	0	0	6
17:00	0	144	0	11	4	94	3	243	0	0	0	0	0	0	0	0	0	0	19	0	0	0	0	0	10
17:15	0	118	2	12	5	132	4	250	0	0	0	0	0	0	0	0	0	0	32	0	0	0	0	0	11
17:30	0	146	2	12	3	128	5	255	0	0	0	0	0	0	0	0	0	0	30	0	0	0	0	0	10
17:45	0	118	1	8	4	121	6	242	0	0	0	0	0	0	0	0	0	0	17	0	0	0	0	0	8
18:00	0	126	0	6	2	108	9	232	0	0	0	0	0	0	0	0	0	0	25	0	0	0	0	0	12

BAYMETRICS TRAFFIC RESOURCES

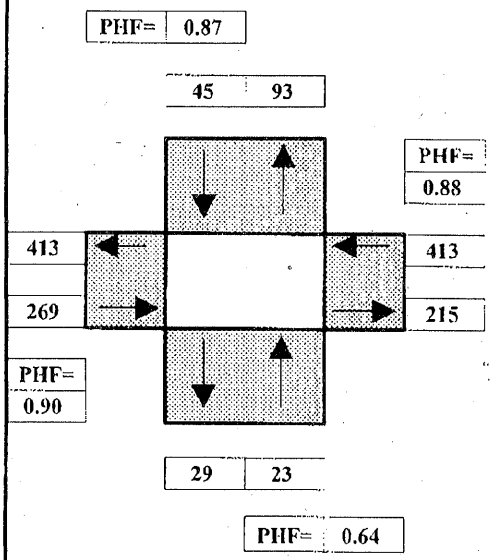
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	412 COURT ST. TS	SURVEY DATE: 7/31/2007	DAY: TUESDAY
N-S Approach:	MONTE VISTA	SURVEY TIME: 7:00 AM TO	9:00 AM
E-W Approach:	OAKLAND	CITY: OAKLAND	FILE: OLMVOLAM

PEAK HOUR
07:45 AM TO 08:45 AM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
07:00 AM	---	07:15 AM	1	2	1	4	4	1	11	21	1	0	43	1	*90*
07:15 AM	---	07:30 AM	2	5	2	5	6	3	28	52	2	3	98	3	*209*
07:30 AM	---	07:45 AM	3	9	3	7	9	5	43	85	2	4	183	4	*357*
07:45 AM	---	08:00 AM	6	12	6	10	12	10	63	125	3	7	279	8	*541*
08:00 AM	---	08:15 AM	7	14	7	15	16	12	81	175	5	10	391	10	*743*
08:15 AM	---	08:30 AM	10	15	10	19	18	16	96	221	7	12	489	13	*926*
08:30 AM	---	08:45 AM	12	15	11	25	23	18	117	274	8	13	574	17	*1,107*
08:45 AM	---	09:00 AM	14	17	13	28	25	21	134	313	8	15	646	20	*1,254*
TOTAL BY PERIOD															
07:00 AM	---	07:15 AM	1	2	1	4	4	1	11	21	1	0	43	1	*90*
07:15 AM	---	07:30 AM	1	3	1	1	2	2	17	31	1	3	55	2	*119*
07:30 AM	---	07:45 AM	1	4	1	2	3	2	15	33	0	1	85	1	*148*
07:45 AM	---	08:00 AM	3	3	3	3	3	5	20	40	1	3	96	4	*184*
08:00 AM	---	08:15 AM	1	2	1	5	4	2	18	50	2	3	112	2	*202*
08:15 AM	---	08:30 AM	3	1	3	4	2	4	15	46	2	2	98	3	*183*
08:30 AM	---	08:45 AM	2	0	1	6	5	2	21	53	1	1	85	4	*181*
08:45 AM	---	09:00 AM	2	2	2	3	2	3	17	39	0	2	72	3	*147*
HOURLY TOTALS															
07:00 AM	---	08:00 AM	6	12	6	10	12	10	63	125	3	7	279	8	*541*
07:15 AM	---	08:15 AM	6	12	6	11	12	11	70	154	4	10	348	9	*653*
07:30 AM	---	08:30 AM	8	10	8	14	12	13	68	169	5	9	391	10	*717*
07:45 AM	---	08:45 AM	9	6	8	18	14	13	74	189	6	9	391	13	*750*
08:00 AM	---	09:00 AM	8	5	7	18	13	11	71	188	5	8	367	12	*713*

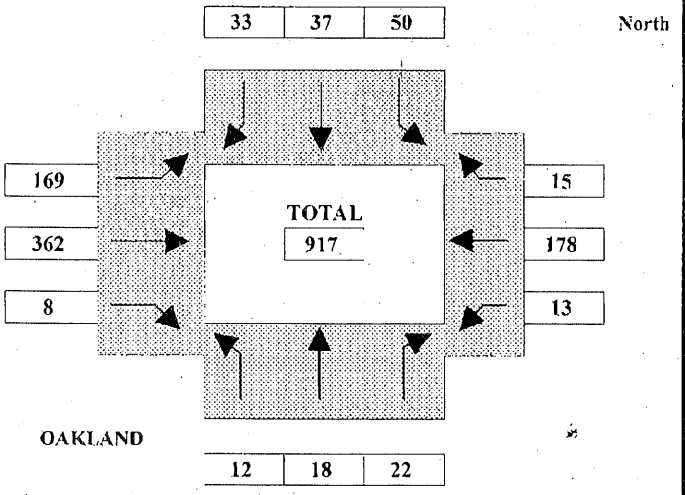
Tel : (510) 232-1271 *Fax: (510) 232-1272*

BAYMETRICS TRAFFIC RESOURCES

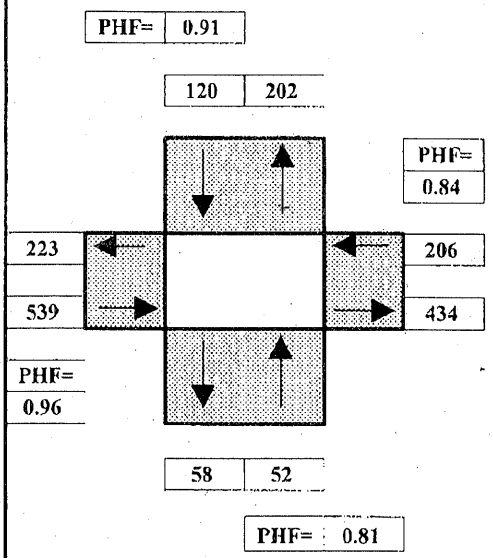
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	412 COURT ST. TS	SURVEY DATE: 7/31/2007	DAY: TUESDAY
N-S Approach:	MONTE VISTA	SURVEY TIME: 4:00 PM TO	6:00 PM
E-W Approach:	OAKLAND	CITY: OAKLAND	FILE: OLMVOLPM

PEAK HOUR
05:00 PM TO 06:00 PM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
04:00 PM	---	04:15 PM	0	1	3	7	5	4	25	59	2	2	56	3	*167*
04:15 PM	---	04:30 PM	2	1	10	17	13	10	55	127	3	5	107	5	*355*
04:30 PM	---	04:45 PM	3	2	15	29	24	15	79	199	3	9	155	10	*543*
04:45 PM	---	05:00 PM	3	4	23	39	33	22	114	284	7	11	207	14	*761*
05:00 PM	---	05:15 PM	7	10	29	53	45	25	156	380	10	15	247	20	*997*
05:15 PM	---	05:30 PM	10	13	36	70	53	33	203	468	13	17	300	22	*1,238*
05:30 PM	---	05:45 PM	13	18	40	81	60	43	241	553	13	20	344	25	*1,451*
05:45 PM	---	06:00 PM	15	22	45	89	70	55	283	646	15	24	385	29	*1,678*
TOTAL BY PERIOD															
04:00 PM	---	04:15 PM	0	1	3	7	5	4	25	59	2	2	56	3	*167*
04:15 PM	---	04:30 PM	2	0	7	10	8	6	30	68	1	3	51	2	*188*
04:30 PM	---	04:45 PM	1	1	5	12	11	5	24	72	0	4	48	5	*188*
04:45 PM	---	05:00 PM	0	2	8	10	9	7	35	85	4	2	52	4	*218*
05:00 PM	---	05:15 PM	4	6	6	14	12	3	42	96	3	4	40	6	*236*
05:15 PM	---	05:30 PM	3	3	7	17	8	8	47	88	3	2	53	2	*241*
05:30 PM	---	05:45 PM	3	5	4	11	7	10	38	85	0	3	44	3	*213*
05:45 PM	---	06:00 PM	2	4	5	8	10	12	42	93	2	4	41	4	*227*
HOURLY TOTALS															
04:00 PM	---	05:00 PM	3	4	23	39	33	22	114	284	7	11	207	14	*761*
04:15 PM	---	05:15 PM	7	9	26	46	40	21	131	321	8	13	191	17	*830*
04:30 PM	---	05:30 PM	8	12	26	53	40	23	148	341	10	12	193	17	*883*
04:45 PM	---	05:45 PM	10	16	25	52	36	28	162	354	10	11	189	15	*908*
05:00 PM	---	06:00 PM	12	18	22	50	37	33	169	362	8	13	178	15	*917*

Tel : (510) 232-1271 *Fax: (510) 232-1272*

APPENDIX G.2
Intersection LOS Calculation Worksheets

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp

Average Delay (sec/veh): 5.3 Worst Case Level Of Service: C[16.9]

Street Name:	Harrison Street						Stanley Place / I-580 EB Off-Ramp					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Yield Sign			Yield Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 3 0 0			0 0 0 0 1			0 0 0 0 0		
Volume Module:												
Base Vol:	0	0	0	0	867	0	0	0	402	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	867	0	0	0	402	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	867	0	0	0	402	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	0.93	1.00	1.00	1.00
PHF Volume:	0	0	0	0	953	0	0	0	432	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	953	0	0	0	432	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	318	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	728	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	728	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.59	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	4.0	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	16.9	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	C	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			16.9			xxxxxx		
ApproachLOS:	*			*			C			*		

Note: Queue reported is the number of cars per lane.



Movement	SEL2	SET	NET	NER	NER2
Lane Configurations					
Volume (vph)	383	135	821	345	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	3.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	
Flt Protected	0.95	0.98	1.00	1.00	
Satd. Flow (prot)	1681	1733	3539	1583	
Flt Permitted	0.95	0.98	1.00	1.00	
Satd. Flow (perm)	1681	1733	3539	1583	
Peak-hour factor, PHF	0.97	0.83	0.89	0.91	0.58
Adj. Flow (vph)	395	163	922	379	40
RTOR Reduction (vph)	119	48	0	0	0
Lane Group Flow (vph)	157	234	922	419	0
Confl. Peds. (#/hr)					2
Confl. Bikes (#/hr)					
Turn Type	Perm			custom	
Protected Phases		4	5	1	
Permitted Phases	4			1	
Actuated Green, G (s)	11.8	11.8	40.7	17.7	
Effective Green, g (s)	11.8	11.8	40.7	17.7	
Actuated g/C Ratio	0.20	0.20	0.68	0.30	
Clearance Time (s)	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	331	341	2401	467	
v/s Ratio Prot			c0.26	c0.26	
v/s Ratio Perm	0.09	0.13			
v/c Ratio	0.47	0.69	0.38	0.90	
Uniform Delay, d1	21.4	22.4	4.2	20.3	
Progression Factor	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	4.5	0.5	19.1	
Delay (s)	21.7	26.9	4.7	39.4	
Level of Service	C	C	A	D	
Approach Delay (s)		24.3	15.5		
Approach LOS		C	B		

Intersection Summary			
HCM Average Control Delay	18.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

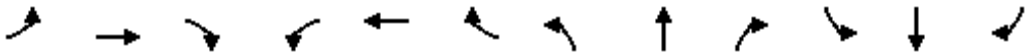
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	32	94	63	17	38	13	128	114	12	200	261	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00			1.00	1.00	1.00		0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.94			1.00	1.00	0.91		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85			1.00	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1480			1770	1863	1448		3433	3495	
Flt Permitted	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1480			1770	1863	1448		3433	3495	
Peak-hour factor, PHF	0.67	0.65	0.88	0.53	0.56	0.65	0.70	0.95	0.60	0.81	0.75	0.79
Adj. Flow (vph)	48	145	72	32	68	20	183	120	20	247	348	28
RTOR Reduction (vph)	0	0	20	0	0	0	0	99	0	0	5	0
Lane Group Flow (vph)	48	145	84	0	0	88	183	21	0	267	371	0
Confl. Peds. (#/hr)	21		21					27		9		8
Confl. Bikes (#/hr)			8					24				1
Turn Type	Prot		Perm		Prot	Prot		Perm	Prot	Prot		
Protected Phases	3	8			7	7	4		1	1	6	
Permitted Phases			8					4				
Actuated Green, G (s)	5.5	13.3	13.3			8.0	15.8	15.8		12.2	43.3	
Effective Green, g (s)	5.5	13.3	13.3			8.0	15.8	15.8		12.2	43.3	
Actuated g/C Ratio	0.06	0.15	0.15			0.09	0.18	0.18		0.14	0.48	
Clearance Time (s)	4.0	4.0	4.0			4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	108	523	219			157	327	254		465	1681	
v/s Ratio Prot	0.03	0.04				0.05	c0.10			c0.08	c0.11	
v/s Ratio Perm			c0.06					0.01				
v/c Ratio	0.44	0.28	0.38			0.56	0.56	0.08		0.57	0.22	
Uniform Delay, d1	40.8	34.1	34.6			39.3	33.9	31.0		36.5	13.6	
Progression Factor	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.9	0.3	1.1			4.5	2.1	0.1		1.7	0.3	
Delay (s)	43.7	34.4	35.7			43.8	36.0	31.2		38.2	13.9	
Level of Service	D	C	D			D	D	C		D	B	
Approach Delay (s)		36.4					36.3				24.0	
Approach LOS		D					D				C	

Intersection Summary			
HCM Average Control Delay	27.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Volume (vph)	82	798	81	80
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.97		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3441		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3441		
Peak-hour factor, PHF	0.76	0.89	0.84	0.74
Adj. Flow (vph)	108	897	96	108
RTOR Reduction (vph)	0	7	0	0
Lane Group Flow (vph)	108	1094	0	0
Confl. Peds. (#/hr)	18			
Confl. Bikes (#/hr)				
Turn Type	Prot			
Protected Phases	5	2		
Permitted Phases				
Actuated Green, G (s)	9.4	40.5		
Effective Green, g (s)	9.4	40.5		
Actuated g/C Ratio	0.10	0.45		
Clearance Time (s)	4.0	4.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	185	1548		
v/s Ratio Prot	0.06	c0.32		
v/s Ratio Perm				
v/c Ratio	0.58	0.71		
Uniform Delay, d1	38.4	20.0		
Progression Factor	1.00	1.00		
Incremental Delay, d2	4.6	2.7		
Delay (s)	43.1	22.7		
Level of Service	D	C		
Approach Delay (s)		24.5		
Approach LOS		C		

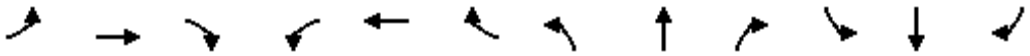
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	137	66	28	239	247	41	387	31	80	433	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.91			0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt		0.96			1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected		0.99			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		4773			3506	1543	1758	3481		1765	3472	
Flt Permitted		0.79			0.85	1.00	0.41	1.00		0.48	1.00	
Satd. Flow (perm)		3835			3020	1543	766	3481		895	3472	
Peak-hour factor, PHF	0.60	0.93	0.92	0.58	0.95	0.85	0.68	0.97	0.86	0.71	0.91	0.60
Adj. Flow (vph)	80	147	72	48	252	291	60	399	36	113	476	60
RTOR Reduction (vph)	0	42	0	0	0	168	0	8	0	0	12	0
Lane Group Flow (vph)	0	257	0	0	300	123	60	427	0	113	524	0
Confl. Peds. (#/hr)	25		25	18		13	19		13	6		6
Confl. Bikes (#/hr)		16	16	59		5		5	59			6
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			2	
Permitted Phases	4			8		8	2			2		
Actuated Green, G (s)		36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Effective Green, g (s)		36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Actuated g/C Ratio		0.42			0.42	0.42	0.45	0.45		0.45	0.45	
Clearance Time (s)		5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)		1624			1279	654	342	1556		400	1552	
v/s Ratio Prot								0.12			c0.15	
v/s Ratio Perm		0.07			c0.10	0.08	0.08			0.13		
v/c Ratio		0.16			0.23	0.19	0.18	0.27		0.28	0.34	
Uniform Delay, d1		15.1			15.7	15.3	14.1	14.8		14.9	15.3	
Progression Factor		0.80			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			0.4	0.6	1.1	0.4		1.8	0.6	
Delay (s)		12.3			16.1	16.0	15.2	15.2		16.6	15.9	
Level of Service		B			B	B	B	B		B	B	
Approach Delay (s)		12.3			16.1			15.2			16.0	
Approach LOS		B			B			B			B	

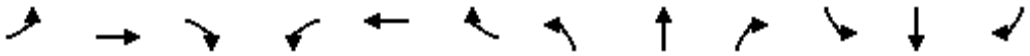
Intersection Summary			
HCM Average Control Delay	15.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	293	302	114	37	208	91	69	305	19	39	277	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5		4.5	3.5		5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.99	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	3388		1766	3368		1760	3483		1764	3343	
Flt Permitted	0.47	1.00		0.48	1.00		0.30	1.00		0.43	1.00	
Satd. Flow (perm)	880	3388		892	3368		547	3483		797	3343	
Peak-hour factor, PHF	0.81	0.86	0.92	0.84	0.79	0.88	0.96	0.91	0.68	0.70	0.87	0.76
Adj. Flow (vph)	362	351	124	44	263	103	72	335	28	56	318	149
RTOR Reduction (vph)	0	23	0	0	33	0	0	10	0	0	88	0
Lane Group Flow (vph)	362	452	0	44	333	0	72	353	0	56	379	0
Confl. Peds. (#/hr)	1		1	8		8	12		12	6		6
Confl. Bikes (#/hr)			2			5			27			6
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	61.5	53.6		48.9	45.5		14.5	14.5		14.5	14.5	
Effective Green, g (s)	61.5	53.6		48.9	45.5		14.5	14.5		14.5	14.5	
Actuated g/C Ratio	0.72	0.63		0.58	0.54		0.17	0.17		0.17	0.17	
Clearance Time (s)	4.5	3.5		4.5	3.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	757	2136		548	1803		93	594		136	570	
v/s Ratio Prot	c0.06	0.13		0.00	0.10			0.10			0.11	
v/s Ratio Perm	c0.28			0.04			c0.13			0.07		
v/c Ratio	0.48	0.21		0.08	0.18		0.77	0.59		0.41	0.67	
Uniform Delay, d1	4.4	6.7		7.9	10.2		33.7	32.5		31.4	33.0	
Progression Factor	1.00	1.00		0.63	0.72		0.91	0.90		1.00	1.00	
Incremental Delay, d2	0.2	0.2		0.0	0.2		28.8	1.0		0.7	2.3	
Delay (s)	4.6	6.9		5.0	7.5		59.3	30.3		32.2	35.3	
Level of Service	A	A		A	A		E	C		C	D	
Approach Delay (s)		5.9			7.2			35.1			34.9	
Approach LOS		A			A			D			C	

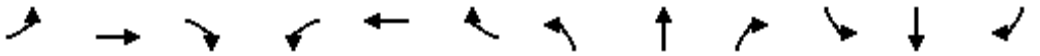
Intersection Summary			
HCM Average Control Delay	18.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	132	702	0	0	127	244	4	219	21	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	0.86	0.86			0.86	0.86		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			0.92	0.85		0.98				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1520	4801			4426	1362		4973				
Flt Permitted	0.54	0.93			1.00	1.00		1.00				
Satd. Flow (perm)	871	4478			4426	1362		4973				
Peak-hour factor, PHF	0.89	0.89	0.92	0.92	0.86	0.74	0.50	0.88	0.58	0.92	0.92	0.92
Adj. Flow (vph)	148	789	0	0	148	330	8	249	36	0	0	0
RTOR Reduction (vph)	0	0	0	0	99	99	0	22	0	0	0	0
Lane Group Flow (vph)	133	804	0	0	214	66	0	271	0	0	0	0
Confl. Peds. (#/hr)	2		2				6		6	4		4
Confl. Bikes (#/hr)									4			3
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	16.0	16.0			16.0	16.0		16.0				
Effective Green, g (s)	16.0	16.0			16.0	16.0		16.0				
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.40				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)	348	1791			1770	545		1989				
v/s Ratio Prot					0.05							
v/s Ratio Perm	0.15	c0.18				0.05		0.05				
v/c Ratio	0.38	0.45			0.12	0.12		0.14				
Uniform Delay, d1	8.5	8.8			7.6	7.6		7.6				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	3.2	0.8			0.1	0.5		0.1				
Delay (s)	11.7	9.6			7.7	8.0		7.8				
Level of Service	B	A			A	A		A				
Approach Delay (s)		9.9			7.8			7.8			0.0	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

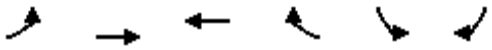
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	239	23	9	135	0	0	0	0	577	838	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0	4.0	4.0
Lane Util. Factor		0.91			0.91					0.91	0.91	1.00
Frpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.98			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.99	1.00
Satd. Flow (prot)		4984			5060					1610	3366	1583
Flt Permitted		1.00			0.91					0.95	0.99	1.00
Satd. Flow (perm)		4984			4613					1610	3366	1583
Peak-hour factor, PHF	0.92	0.91	0.64	0.56	0.82	0.92	0.92	0.92	0.92	0.88	0.93	0.77
Adj. Flow (vph)	0	263	36	16	165	0	0	0	0	656	901	386
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	0	0	0	187
Lane Group Flow (vph)	0	276	0	0	181	0	0	0	0	505	1052	199
Confl. Peds. (#/hr)	2		2	10		10	6		6			
Confl. Bikes (#/hr)			3			4			1			
Turn Type				Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases				8						6		6
Actuated Green, G (s)		21.0			21.0					31.0	31.0	31.0
Effective Green, g (s)		21.0			21.0					31.0	31.0	31.0
Actuated g/C Ratio		0.35			0.35					0.52	0.52	0.52
Clearance Time (s)		4.0			4.0					4.0	4.0	4.0
Lane Grp Cap (vph)		1744			1615					832	1739	818
v/s Ratio Prot		c0.06										
v/s Ratio Perm					0.04					c0.31	0.31	0.13
v/c Ratio		0.16			0.11					0.61	0.60	0.24
Uniform Delay, d1		13.4			13.2					10.2	10.2	8.0
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		0.2			0.1					3.3	1.6	0.7
Delay (s)		13.6			13.3					13.5	11.8	8.7
Level of Service		B			B					B	B	A
Approach Delay (s)		13.6			13.3			0.0			11.6	
Approach LOS		B			B			A			B	

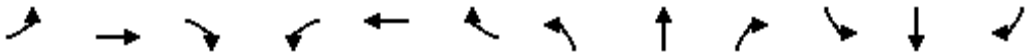
Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



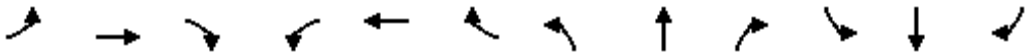
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	166	483	568	104	648	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.91
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3419		3431	1414
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3419		3431	1414
Peak-hour factor, PHF	0.91	0.86	0.89	0.70	0.90	0.89
Adj. Flow (vph)	182	562	638	149	720	188
RTOR Reduction (vph)	0	0	21	0	3	123
Lane Group Flow (vph)	182	562	766	0	736	46
Confl. Peds. (#/hr)	14			11	6	6
Confl. Bikes (#/hr)				10		1
Turn Type	Prot					Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	12.0	50.3	34.3		21.7	21.7
Effective Green, g (s)	12.0	50.3	34.3		21.7	21.7
Actuated g/C Ratio	0.15	0.63	0.43		0.27	0.27
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	266	2225	1466		931	384
v/s Ratio Prot	c0.10	0.16	c0.22		c0.21	
v/s Ratio Perm						0.03
v/c Ratio	0.68	0.25	0.52		0.79	0.12
Uniform Delay, d1	32.2	6.6	16.8		27.0	22.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.7	0.3	1.3		4.3	0.1
Delay (s)	37.9	6.8	18.2		31.4	22.0
Level of Service	D	A	B		C	C
Approach Delay (s)		14.4	18.2		29.6	
Approach LOS		B	B		C	

Intersection Summary			
HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



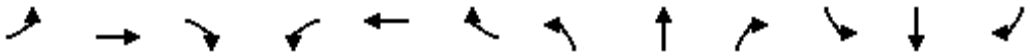
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	659	303	58	356	55	170	217	26	73	300	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1766	3427	1553	1767	3339		1768	3448		1756	3414	
Flt Permitted	0.33	1.00	1.00	0.19	1.00		0.45	1.00		0.59	1.00	
Satd. Flow (perm)	615	3427	1553	361	3339		839	3448		1084	3414	
Peak-hour factor, PHF	0.77	0.96	0.85	0.85	0.83	0.72	0.82	0.95	0.65	0.87	0.92	0.77
Adj. Flow (vph)	119	686	356	68	429	76	207	228	40	84	326	84
RTOR Reduction (vph)	0	0	258	0	17	0	0	16	0	0	24	0
Lane Group Flow (vph)	119	686	98	68	488	0	207	252	0	84	386	0
Confl. Peds. (#/hr)	4		4	4		4	4		4	11		11
Confl. Bikes (#/hr)			3			7			21			1
Turn Type	Perm		Perm	Perm			pm+pt			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	23.5	23.5	23.5	23.5	23.5		51.0	51.0		37.5	37.5	
Effective Green, g (s)	23.5	23.5	23.5	23.5	23.5		51.0	51.0		37.5	37.5	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28		0.60	0.60		0.44	0.44	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	170	947	429	100	923		602	2069		478	1506	
v/s Ratio Prot		c0.20			0.15		c0.04	0.07			0.11	
v/s Ratio Perm	0.19		0.06	0.19			c0.17			0.08		
v/c Ratio	0.70	0.72	0.23	0.68	0.53		0.34	0.12		0.18	0.26	
Uniform Delay, d1	27.6	27.8	23.8	27.4	26.1		7.9	7.3		14.4	15.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.08	1.10	
Incremental Delay, d2	21.3	4.8	1.2	31.4	2.2		0.1	0.1		0.8	0.4	
Delay (s)	48.9	32.6	25.0	58.8	28.2		8.0	7.5		16.4	16.9	
Level of Service	D	C	C	E	C		A	A		B	B	
Approach Delay (s)		32.0			31.9			7.7			16.8	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	24.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



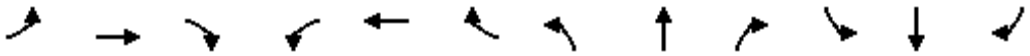
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	555	53	80	411	61	85	352	76	51	305	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	*0.92			*0.92		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	0.99			0.99		1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00	1.00	0.99	1.00	
Frt	1.00	0.98			0.98		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1750	3355			3321		1762	3539	1532	1760	3424	
Flt Permitted	0.27	1.00			0.64		0.49	1.00	1.00	0.52	1.00	
Satd. Flow (perm)	501	3355			2152		917	3539	1532	968	3424	
Peak-hour factor, PHF	0.71	0.92	0.74	0.83	0.90	0.90	0.63	0.92	0.66	0.55	0.88	0.83
Adj. Flow (vph)	104	603	72	96	457	68	135	383	115	93	347	80
RTOR Reduction (vph)	0	14	0	0	14	0	0	0	48	0	18	0
Lane Group Flow (vph)	104	661	0	0	607	0	135	383	67	93	409	0
Confl. Peds. (#/hr)	34		34	37		37	8		8	10		10
Confl. Bikes (#/hr)			11			8			35			7
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	25.6	25.6			25.6		46.4	46.4	46.4	46.4	46.4	
Effective Green, g (s)	25.6	25.6			25.6		46.4	46.4	46.4	46.4	46.4	
Actuated g/C Ratio	0.32	0.32			0.32		0.58	0.58	0.58	0.58	0.58	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	160	1074			689		532	2053	889	561	1986	
v/s Ratio Prot		0.20						0.11			0.12	
v/s Ratio Perm	0.21				c0.28		c0.15		0.04	0.10		
v/c Ratio	0.65	0.62			0.88		0.25	0.19	0.08	0.17	0.21	
Uniform Delay, d1	23.4	23.0			25.8		8.3	7.9	7.4	7.8	8.0	
Progression Factor	1.00	1.00			1.07		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	7.0	0.7			12.2		1.1	0.2	0.2	0.6	0.2	
Delay (s)	30.4	23.8			39.7		9.4	8.1	7.5	8.4	8.2	
Level of Service	C	C			D		A	A	A	A	A	
Approach Delay (s)		24.7			39.7			8.3			8.3	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



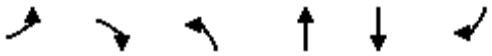
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	328	265	101	373	0	0	0	0	8	127	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						3.0	
Lane Util. Factor		*0.92		1.00	*0.92						0.95	
Frpb, ped/bikes		0.97		1.00	1.00						0.98	
Flpb, ped/bikes		1.00		1.00	1.00						0.99	
Frt		0.93		1.00	1.00						0.98	
Flt Protected		1.00		0.95	1.00						1.00	
Satd. Flow (prot)		3114		1765	3427						3370	
Flt Permitted		1.00		0.27	1.00						1.00	
Satd. Flow (perm)		3114		510	3427						3370	
Peak-hour factor, PHF	0.25	0.93	0.92	0.84	0.91	0.25	0.92	0.92	0.92	0.50	0.91	0.63
Adj. Flow (vph)	0	353	288	120	410	0	0	0	0	16	140	24
RTOR Reduction (vph)	0	172	0	0	0	0	0	0	0	0	15	0
Lane Group Flow (vph)	0	469	0	120	410	0	0	0	0	0	165	0
Confl. Peds. (#/hr)	26		26	28		28	21		21	101		101
Confl. Bikes (#/hr)			4			4			3			6
Turn Type	Perm			pm+pt						Perm		
Protected Phases		2		1	6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)		31.8		43.0	43.0						29.0	
Effective Green, g (s)		31.8		43.0	43.0						29.0	
Actuated g/C Ratio		0.40		0.54	0.54						0.36	
Clearance Time (s)		5.0		5.0	5.0						3.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		1238		371	1842						1222	
v/s Ratio Prot		c0.15		c0.03	0.12							
v/s Ratio Perm				0.15							0.05	
v/c Ratio		0.38		0.32	0.22						0.13	
Uniform Delay, d1		17.1		10.2	9.7						17.1	
Progression Factor		2.78		1.00	1.00						1.00	
Incremental Delay, d2		0.8		0.2	0.3						0.2	
Delay (s)		48.4		10.4	10.0						17.3	
Level of Service		D		B	A						B	
Approach Delay (s)		48.4			10.1			0.0			17.3	
Approach LOS		D			B			A			B	

Intersection Summary			
HCM Average Control Delay	29.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	126	65	345	465	101	103	630	290	28	583	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	
Frpb, ped/bikes	1.00	1.00	0.93	1.00	1.00	0.94		1.00	0.90		0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	
Satd. Flow (prot)	3433	3539	1479	3433	3539	1485		5032	1419		4940	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.69	1.00		0.80	
Satd. Flow (perm)	3433	3539	1479	3433	3539	1485		3506	1419		3947	
Peak-hour factor, PHF	0.74	0.81	0.65	0.89	0.80	0.52	0.83	0.88	0.82	0.50	0.93	0.79
Adj. Flow (vph)	72	156	100	388	581	194	124	716	354	56	627	96
RTOR Reduction (vph)	0	0	48	0	0	108	0	0	227	0	19	0
Lane Group Flow (vph)	72	156	52	388	581	86	0	840	127	0	760	0
Confl. Peds. (#/hr)	38		38	34		34	60		60	28		28
Confl. Bikes (#/hr)			12			18			39			9
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		
Protected Phases	1	6		5	2			4			4	
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	5.6	34.5	34.5	14.5	44.4	44.4		36.0	36.0		36.0	
Effective Green, g (s)	5.6	34.5	34.5	14.5	44.4	44.4		36.0	36.0		36.0	
Actuated g/C Ratio	0.06	0.34	0.34	0.14	0.44	0.44		0.36	0.36		0.36	
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	192	1221	510	498	1571	659		1262	511		1421	
v/s Ratio Prot	0.02	0.04		c0.11	c0.16							
v/s Ratio Perm			0.04			0.06		c0.24	0.09		0.19	
v/c Ratio	0.38	0.13	0.10	0.78	0.37	0.13		0.67	0.25		0.54	
Uniform Delay, d1	45.5	22.4	22.2	41.2	18.5	16.4		26.9	22.5		25.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.2	0.4	6.9	0.7	0.4		2.8	1.2		1.4	
Delay (s)	46.0	22.7	22.6	48.1	19.2	16.8		29.7	23.7		26.8	
Level of Service	D	C	C	D	B	B		C	C		C	
Approach Delay (s)		27.8			28.4			27.9			26.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	50	32	84	805	925	266
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.5	4.5	
Lane Util. Factor	0.97		1.00	*0.50	0.86	
Frpb, ped/bikes	0.97		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.94		1.00	1.00	0.97	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	3208		1762	3725	6190	
Flt Permitted	0.97		0.18	1.00	1.00	
Satd. Flow (perm)	3208		334	3725	6190	
Peak-hour factor, PHF	0.83	0.89	0.84	0.96	0.93	0.91
Adj. Flow (vph)	60	36	100	839	995	292
RTOR Reduction (vph)	33	0	0	0	29	0
Lane Group Flow (vph)	63	0	100	839	1258	0
Confl. Peds. (#/hr)	36	36	109			
Confl. Bikes (#/hr)		14				
Turn Type			pm+pt			
Protected Phases	4		1	2	2	
Permitted Phases			2			
Actuated Green, G (s)	6.0		60.5	54.7	54.7	
Effective Green, g (s)	6.0		60.5	54.7	54.7	
Actuated g/C Ratio	0.08		0.76	0.68	0.68	
Clearance Time (s)	5.0		4.0	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	241		356	2547	4232	
v/s Ratio Prot	c0.02		c0.02	c0.23	0.20	
v/s Ratio Perm			0.19			
v/c Ratio	0.26		0.28	0.33	0.30	
Uniform Delay, d1	34.9		2.6	5.2	5.0	
Progression Factor	1.00		1.97	1.18	1.00	
Incremental Delay, d2	0.6		0.4	0.3	0.2	
Delay (s)	35.5		5.5	6.4	5.2	
Level of Service	D		A	A	A	
Approach Delay (s)	35.5			6.3	5.2	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	6.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	81	29	85	263	1	1
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.66	0.82	0.83	0.25	0.25
Hourly flow rate (vph)	96	44	104	317	4	4
Pedestrians	7			7	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	533			360		
pX, platoon unblocked						
vC, conflicting volume			142		652	127
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			142		652	127
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		99	100
cM capacity (veh/h)			1438		399	916

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	140	421	8
Volume Left	0	104	4
Volume Right	44	0	4
cSH	1700	1438	555
Volume to Capacity	0.08	0.07	0.01
Queue Length 95th (ft)	0	6	1
Control Delay (s)	0.0	2.4	11.6
Lane LOS		A	B
Approach Delay (s)	0.0	2.4	11.6
Approach LOS			B

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	108	100	124	140	2	2
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.83	0.88	0.76	0.50	0.50
Hourly flow rate (vph)	144	120	141	184	4	4
Pedestrians	24			24	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	2			2	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	470			423		
pX, platoon unblocked						
vC, conflicting volume			266		696	230
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			266		696	230
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			89		99	99
cM capacity (veh/h)			1295		355	791

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	264	325	8
Volume Left	0	141	4
Volume Right	120	0	4
cSH	1700	1295	490
Volume to Capacity	0.16	0.11	0.02
Queue Length 95th (ft)	0	9	1
Control Delay (s)	0.0	4.1	12.5
Lane LOS		A	B
Approach Delay (s)	0.0	4.1	12.5
Approach LOS			B

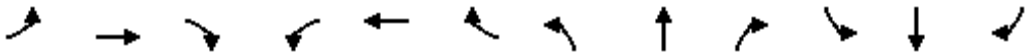
Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	75	8	38	319	24	15
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	1.00	0.73	0.85	0.86	0.75
Hourly flow rate (vph)	88	8	52	375	28	20
Pedestrians	16			16	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	80			813		
pX, platoon unblocked						
vC, conflicting volume			98		590	110
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			98		590	110
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		94	98
cM capacity (veh/h)			1492		447	929

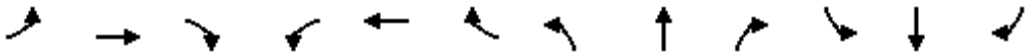
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	96	427	14	14	10	10
Volume Left	0	52	14	14	0	0
Volume Right	8	0	0	0	10	10
cSH	1700	1492	447	447	929	929
Volume to Capacity	0.06	0.03	0.03	0.03	0.01	0.01
Queue Length 95th (ft)	0	3	2	2	1	1
Control Delay (s)	0.0	1.2	13.3	13.3	8.9	8.9
Lane LOS		A	B	B	A	A
Approach Delay (s)	0.0	1.2	11.5			
Approach LOS			B			

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		



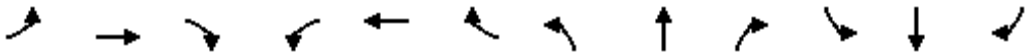
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	153	45	40	41	0	0	0	0	124	322	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.91	
Frpb, ped/bikes		1.00	0.85		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.93						0.97	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.97						0.99	
Satd. Flow (prot)		1863	1340		1695						4787	
Flt Permitted		1.00	1.00		0.65						0.99	
Satd. Flow (perm)		1863	1340		1130						4787	
Peak-hour factor, PHF	0.92	0.87	0.80	0.77	0.85	0.92	0.92	0.92	0.92	0.91	0.90	0.75
Adj. Flow (vph)	0	176	56	52	48	0	0	0	0	136	358	32
RTOR Reduction (vph)	0	0	47	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	176	9	0	100	0	0	0	0	0	523	0
Confl. Peds. (#/hr)	106		106	134		134	73		73	52		52
Confl. Bikes (#/hr)			3			7			21			1
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		13.2	13.2		13.2						58.8	
Effective Green, g (s)		13.2	13.2		13.2						58.8	
Actuated g/C Ratio		0.16	0.16		0.16						0.74	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		307	221		186						3518	
v/s Ratio Prot		c0.09										
v/s Ratio Perm			0.01		0.09						0.11	
v/c Ratio		0.57	0.04		0.54						0.15	
Uniform Delay, d1		30.8	28.1		30.6						3.2	
Progression Factor		1.00	1.00		1.00						0.57	
Incremental Delay, d2		2.6	0.1		3.0						0.1	
Delay (s)		33.4	28.2		33.6						1.9	
Level of Service		C	C		C						A	
Approach Delay (s)		32.1			33.6			0.0			1.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



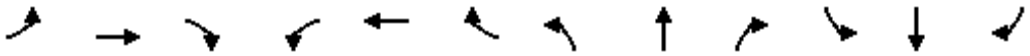
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	146	3	0	33	29	8	163	65	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		0.99			0.94			1.00	0.87			
Flpb, ped/bikes		1.00			1.00			0.99	1.00			
Frt		0.99			0.94			1.00	0.85			
Flt Protected		1.00			1.00			1.00	1.00			
Satd. Flow (prot)		1824			1652			3501	1376			
Flt Permitted		0.99			1.00			1.00	1.00			
Satd. Flow (perm)		1809			1652			3501	1376			
Peak-hour factor, PHF	0.50	0.89	0.25	0.92	0.75	0.81	0.50	0.77	0.86	0.92	0.92	0.92
Adj. Flow (vph)	12	164	12	0	44	36	16	212	76	0	0	0
RTOR Reduction (vph)	0	3	0	0	12	0	0	0	64	0	0	0
Lane Group Flow (vph)	0	185	0	0	68	0	0	228	12	0	0	0
Confl. Peds. (#/hr)	58		58	134		134	73		73	87		87
Confl. Bikes (#/hr)						5			5			2
Turn Type	Perm						Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2						1		1			
Actuated Green, G (s)		29.7			29.7			7.3	7.3			
Effective Green, g (s)		29.7			29.7			7.3	7.3			
Actuated g/C Ratio		0.66			0.66			0.16	0.16			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)		1194			1090			568	223			
v/s Ratio Prot					0.04							
v/s Ratio Perm		c0.10						0.07	0.01			
v/c Ratio		0.15			0.06			0.40	0.06			
Uniform Delay, d1		2.9			2.7			16.9	15.9			
Progression Factor		0.74			1.00			1.00	1.00			
Incremental Delay, d2		0.3			0.1			0.2	0.0			
Delay (s)		2.4			2.8			17.1	16.0			
Level of Service		A			A			B	B			
Approach Delay (s)		2.4			2.8			16.8			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	33.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



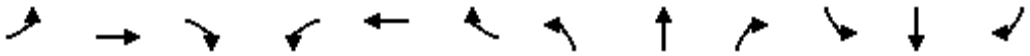
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	92	14	19	0	28	0	257	31	34	285	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	
Flpb, ped/bikes	0.99	1.00			1.00			1.00			1.00	
Frt	1.00	0.98			0.92			0.98			1.00	
Flt Protected	0.95	1.00			0.98			1.00			0.99	
Satd. Flow (prot)	1751	1818			1647			3446			3505	
Flt Permitted	0.72	1.00			0.90			1.00			0.89	
Satd. Flow (perm)	1323	1818			1515			3446			3128	
Peak-hour factor, PHF	0.56	0.92	0.88	0.79	0.92	0.78	0.92	0.85	0.78	0.85	0.89	0.92
Adj. Flow (vph)	16	100	16	24	0	36	0	302	40	40	320	0
RTOR Reduction (vph)	0	9	0	0	21	0	0	23	0	0	0	0
Lane Group Flow (vph)	16	107	0	0	39	0	0	319	0	0	360	0
Confl. Peds. (#/hr)	16		16	17		17	43		43	44		44
Confl. Bikes (#/hr)			2						2			16
Turn Type	Perm			Perm						Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2						4		
Actuated Green, G (s)	19.0	19.0			19.0			17.0			17.0	
Effective Green, g (s)	19.0	19.0			19.0			17.0			17.0	
Actuated g/C Ratio	0.42	0.42			0.42			0.38			0.38	
Clearance Time (s)	4.0	4.0			4.0			5.0			5.0	
Vehicle Extension (s)	2.0	2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)	559	768			640			1302			1182	
v/s Ratio Prot		c0.06						0.09				
v/s Ratio Perm	0.01				0.03						c0.12	
v/c Ratio	0.03	0.14			0.06			0.24			0.30	
Uniform Delay, d1	7.6	8.0			7.7			9.6			9.8	
Progression Factor	1.00	1.00			1.31			1.00			1.00	
Incremental Delay, d2	0.1	0.4			0.2			0.4			0.7	
Delay (s)	7.7	8.4			10.3			10.0			10.5	
Level of Service	A	A			B			B			B	
Approach Delay (s)		8.3			10.3			10.0			10.5	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	10.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	62	16	10	158	80	27	369	19	127	131	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5		4.5	4.5	
Lane Util. Factor		0.95			0.95			0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99			1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00			1.00		1.00	1.00	
Frt		0.97			0.94			0.99		1.00	0.96	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3403			3295			3489		1768	3385	
Flt Permitted		0.86			0.94			0.91		0.43	1.00	
Satd. Flow (perm)		2957			3101			3185		805	3385	
Peak-hour factor, PHF	0.75	0.78	0.80	0.83	0.94	0.74	0.61	0.98	0.79	0.91	0.76	0.78
Adj. Flow (vph)	20	79	20	12	168	108	44	377	24	140	172	60
RTOR Reduction (vph)	0	17	0	0	92	0	0	5	0	0	18	0
Lane Group Flow (vph)	0	102	0	0	196	0	0	440	0	140	214	0
Confl. Peds. (#/hr)	10		10	19		19	5		5	4		4
Confl. Bikes (#/hr)			4			1			3			9
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.9			8.9			31.6		42.1	42.1	
Effective Green, g (s)		8.9			8.9			31.6		42.1	42.1	
Actuated g/C Ratio		0.15			0.15			0.53		0.70	0.70	
Clearance Time (s)		4.5			4.5			4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		439			460			1677		661	2375	
v/s Ratio Prot										c0.02	0.06	
v/s Ratio Perm		0.03			c0.06			c0.14		0.13		
v/c Ratio		0.23			0.43			0.26		0.21	0.09	
Uniform Delay, d1		22.5			23.2			7.8		3.1	2.9	
Progression Factor		1.00			0.97			1.00		1.00	1.00	
Incremental Delay, d2		0.3			0.6			0.4		0.2	0.1	
Delay (s)		22.8			23.1			8.2		3.3	2.9	
Level of Service		C			C			A		A	A	
Approach Delay (s)		22.8			23.1			8.2			3.1	
Approach LOS		C			C			A			A	

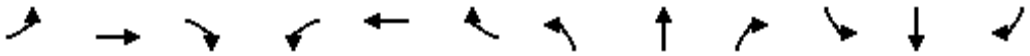
Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	129	52	41	130	94	51	405	58	53	350	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.98			0.96			0.99			1.00	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.96			0.95			0.98			0.99	
Flt Protected		1.00			0.99			0.99			0.99	
Satd. Flow (prot)		3308			3143			3409			4967	
Flt Permitted		0.94			0.87			0.88			0.81	
Satd. Flow (perm)		3128			2768			3004			4034	
Peak-hour factor, PHF	0.88	0.81	0.76	0.79	0.90	0.87	0.91	0.93	0.91	0.78	0.89	0.79
Adj. Flow (vph)	8	159	68	52	144	108	56	435	64	68	393	28
RTOR Reduction (vph)	0	43	0	0	68	0	0	17	0	0	11	0
Lane Group Flow (vph)	0	192	0	0	236	0	0	538	0	0	478	0
Confl. Peds. (#/hr)	58		58	99		99	72		72	49		49
Confl. Bikes (#/hr)			7			33			10			6
Turn Type	Perm			Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						6		
Actuated Green, G (s)		22.0			22.0			29.0			18.0	
Effective Green, g (s)		22.0			22.0			29.0			18.0	
Actuated g/C Ratio		0.37			0.37			0.48			0.30	
Clearance Time (s)		4.0			4.0			5.0			5.0	
Lane Grp Cap (vph)		1147			1015			1499			1210	
v/s Ratio Prot								c0.04				
v/s Ratio Perm		0.06			c0.09			c0.13			0.12	
v/c Ratio		0.17			0.23			0.36			0.39	
Uniform Delay, d1		12.8			13.2			9.7			16.7	
Progression Factor		0.83			1.00			1.00			1.00	
Incremental Delay, d2		0.3			0.5			0.7			1.0	
Delay (s)		11.0			13.7			10.4			17.6	
Level of Service		B			B			B			B	
Approach Delay (s)		11.0			13.7			10.4			17.6	
Approach LOS		B			B			B			B	

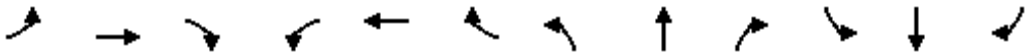
Intersection Summary			
HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	223	0	0	203	69	26	153	76	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.91	1.00			
Frpb, ped/bikes		1.00			1.00	0.93		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			0.99	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3511			3364	1337		5006	1456			
Flt Permitted		0.92			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3257			3364	1337		5006	1456			
Peak-hour factor, PHF	0.96	0.91	0.92	0.92	0.92	0.91	0.72	0.74	0.91	0.92	0.92	0.92
Adj. Flow (vph)	24	245	0	0	221	76	36	207	84	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	14	0	0	74	0	0	0
Lane Group Flow (vph)	0	269	0	0	228	54	0	243	10	0	0	0
Confl. Peds. (#/hr)	40		40	45		45	51		51	207		207
Confl. Bikes (#/hr)			5			6			8			12
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		63.7			63.7	63.7		9.3	9.3			
Effective Green, g (s)		63.7			63.7	63.7		9.3	9.3			
Actuated g/C Ratio		0.80			0.80	0.80		0.12	0.12			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2593			2679	1065		582	169			
v/s Ratio Prot					0.07							
v/s Ratio Perm		c0.08				0.04		0.05	0.01			
v/c Ratio		0.10			0.09	0.05		0.42	0.06			
Uniform Delay, d1		1.8			1.8	1.7		32.8	31.5			
Progression Factor		1.00			0.72	0.46		1.00	1.00			
Incremental Delay, d2		0.1			0.1	0.1		0.5	0.1			
Delay (s)		1.9			1.3	0.9		33.3	31.6			
Level of Service		A			A	A		C	C			
Approach Delay (s)		1.9			1.2			32.9			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	13.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	182	121	127	201	0	0	0	0	54	274	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	0.91	0.91						0.91	
Frpb, ped/bikes		1.00	0.90	1.00	1.00						0.94	
Flpb, ped/bikes		1.00	1.00	1.00	0.99						0.96	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		3539	1422	1610	3354						4397	
Flt Permitted		1.00	1.00	0.95	0.95						0.99	
Satd. Flow (perm)		3539	1422	1610	3184						4397	
Peak-hour factor, PHF	0.92	0.83	0.95	0.91	0.88	0.25	0.92	0.92	0.92	0.84	0.91	0.78
Adj. Flow (vph)	0	219	127	140	228	0	0	0	0	64	301	92
RTOR Reduction (vph)	0	0	94	0	0	0	0	0	0	0	55	0
Lane Group Flow (vph)	0	219	33	119	249	0	0	0	0	0	402	0
Confl. Peds. (#/hr)	53		53	86		86	105		105	331		331
Confl. Bikes (#/hr)			16			2			1			14
Turn Type			Perm	Prot						Perm		
Protected Phases		2		1	6						4	
Permitted Phases			2							4		
Actuated Green, G (s)		21.0	21.0	16.0	41.0						31.0	
Effective Green, g (s)		21.0	21.0	16.0	41.0						31.0	
Actuated g/C Ratio		0.26	0.26	0.20	0.51						0.39	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		929	373	322	1666						1704	
v/s Ratio Prot		c0.06		c0.07	0.03							
v/s Ratio Perm			0.02		0.05						0.09	
v/c Ratio		0.24	0.09	0.37	0.15						0.24	
Uniform Delay, d1		23.2	22.3	27.6	10.3						16.5	
Progression Factor		1.10	1.82	0.96	0.95						1.02	
Incremental Delay, d2		0.6	0.5	0.3	0.0						0.0	
Delay (s)		26.2	41.0	26.9	9.8						16.9	
Level of Service		C	D	C	A						B	
Approach Delay (s)		31.6			15.3			0.0			16.9	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	20.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

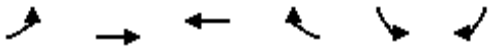
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBT	SBR
Lane Configurations												
Volume (vph)	83	31	122	11	104	34	50	29	249	15	311	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0		4.0	4.0
Lane Util. Factor	0.91	0.91		1.00	0.95				0.95		0.91	0.91
Frpb, ped/bikes	1.00	1.00		1.00	1.00				1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00		1.00	1.00
Frt	1.00	0.89		1.00	0.96				0.99		0.99	0.85
Flt Protected	0.95	1.00		0.95	1.00				0.99		1.00	1.00
Satd. Flow (prot)	3221	1500		1770	3410				3470		3366	1441
Flt Permitted	0.95	1.00		0.95	1.00				0.99		1.00	1.00
Satd. Flow (perm)	3221	1500		1770	3410				3470		3366	1441
Peak-hour factor, PHF	0.79	0.82	0.83	0.69	0.84	0.84	0.94	0.94	0.96	0.75	0.85	0.96
Adj. Flow (vph)	105	38	147	16	124	40	53	31	259	20	366	175
RTOR Reduction (vph)	0	116	0	0	0	0	0	0	6	0	0	0
Lane Group Flow (vph)	94	80	0	16	164	0	0	0	357	0	384	157
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)		2							6			
Turn Type	custom			Split			Split	Split				custom
Protected Phases	1	1		7	7		8	8	8		2	6
Permitted Phases	1											6
Actuated Green, G (s)	16.6	16.6		7.4	7.4				24.0		16.0	36.6
Effective Green, g (s)	16.6	16.6		7.4	7.4				24.0		16.0	36.6
Actuated g/C Ratio	0.21	0.21		0.09	0.09				0.30		0.20	0.46
Clearance Time (s)	4.0	4.0		4.0	4.0				4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0				2.0		2.0	2.0
Lane Grp Cap (vph)	668	311		164	315				1041		673	659
v/s Ratio Prot	0.03	0.05		0.01	c0.05				c0.10		c0.11	c0.11
v/s Ratio Perm												
v/c Ratio	0.14	0.26		0.10	0.52				0.34		0.57	0.24
Uniform Delay, d1	25.9	26.5		33.2	34.6				21.9		28.9	13.2
Progression Factor	0.97	0.94		1.22	1.11				1.00		0.84	0.62
Incremental Delay, d2	0.4	2.0		0.1	0.7				0.1		0.7	0.8
Delay (s)	25.5	26.8		40.7	39.2				21.9		24.9	9.1
Level of Service	C	C		D	D				C		C	A
Approach Delay (s)		26.4			39.3				21.9		19.6	
Approach LOS		C			D				C		B	

Intersection Summary			
HCM Average Control Delay	24.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBR2
Lane Configurations	
Volume (vph)	23
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	24
RTOR Reduction (vph)	13
Lane Group Flow (vph)	11
Confl. Peds. (#/hr)	102
Confl. Bikes (#/hr)	10
Turn Type	custom
Protected Phases	6
Permitted Phases	
Actuated Green, G (s)	36.6
Effective Green, g (s)	36.6
Actuated g/C Ratio	0.46
Clearance Time (s)	4.0
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	724
v/s Ratio Prot	0.01
v/s Ratio Perm	
v/c Ratio	0.02
Uniform Delay, d1	11.9
Progression Factor	0.28
Incremental Delay, d2	0.0
Delay (s)	3.4
Level of Service	A
Approach Delay (s)	
Approach LOS	

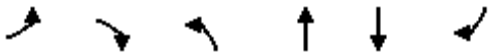
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	27	236	321	0	0	36
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.25	0.25	0.25	0.92	0.92	0.47
Hourly flow rate (vph)	108	944	1284	0	0	77
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		431	98			
pX, platoon unblocked	0.97				0.97	0.97
vC, conflicting volume	1284				1815	642
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1236				1781	576
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	80				100	83
cM capacity (veh/h)	544				57	448

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	SB 1
Volume Total	108	315	315	315	642	642	77
Volume Left	108	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	77
cSH	544	1700	1700	1700	1700	1700	448
Volume to Capacity	0.20	0.19	0.19	0.19	0.38	0.38	0.17
Queue Length 95th (ft)	18	0	0	0	0	0	15
Control Delay (s)	13.2	0.0	0.0	0.0	0.0	0.0	14.7
Lane LOS	B						B
Approach Delay (s)	1.4				0.0		14.7
Approach LOS							B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	18.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	332	0	0	654	378	499
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			4.0	4.0	4.0
Lane Util. Factor	0.94			0.91	0.95	0.76
Frpb, ped/bikes	1.00			1.00	1.00	0.97
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	0.95			1.00	1.00	1.00
Satd. Flow (prot)	4990			5085	3539	3510
Flt Permitted	0.95			1.00	1.00	1.00
Satd. Flow (perm)	4990			5085	3539	3510
Peak-hour factor, PHF	0.90	0.92	0.92	0.97	0.96	0.90
Adj. Flow (vph)	369	0	0	674	394	554
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	369	0	0	674	394	554
Confl. Peds. (#/hr)						14
Confl. Bikes (#/hr)						2
Turn Type						Free
Protected Phases	1			2	2	
Permitted Phases						Free
Actuated Green, G (s)	11.4			59.6	59.6	80.0
Effective Green, g (s)	11.4			59.6	59.6	80.0
Actuated g/C Ratio	0.14			0.74	0.74	1.00
Clearance Time (s)	5.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	711			3788	2637	3510
v/s Ratio Prot	c0.07			c0.13	0.11	
v/s Ratio Perm						0.16
v/c Ratio	0.52			0.18	0.15	0.16
Uniform Delay, d1	31.8			3.0	2.9	0.0
Progression Factor	0.75			1.00	0.98	1.00
Incremental Delay, d2	0.6			0.1	0.1	0.1
Delay (s)	24.4			3.1	3.0	0.1
Level of Service	C			A	A	A
Approach Delay (s)	24.4			3.1	1.3	
Approach LOS	C			A	A	

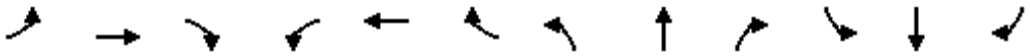
Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	27.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	149	654	378	0	0	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0			3.0
Lane Util. Factor	0.94	0.95	0.95			0.88
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	4990	3539	3539			2787
Flt Permitted	0.94	1.00	1.00			1.00
Satd. Flow (perm)	4938	3539	3539			2787
Peak-hour factor, PHF	0.85	0.94	0.82	0.92	0.92	0.88
Adj. Flow (vph)	175	696	461	0	0	60
RTOR Reduction (vph)	0	0	0	0	0	17
Lane Group Flow (vph)	175	696	461	0	0	43
Confl. Bikes (#/hr)				8		4
Turn Type	Perm					custom
Protected Phases		2	1			2
Permitted Phases	2	1				2
Actuated Green, G (s)	57.7	74.0	16.3			57.7
Effective Green, g (s)	57.7	74.0	16.3			57.7
Actuated g/C Ratio	0.72	0.92	0.20			0.72
Clearance Time (s)	3.0	3.0	3.0			3.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	3562	3539	721			2010
v/s Ratio Prot		c0.14	c0.13			0.02
v/s Ratio Perm	0.04	0.05				
v/c Ratio	0.05	0.20	0.64			0.02
Uniform Delay, d1	3.2	0.3	29.2			3.2
Progression Factor	1.00	1.00	1.06			1.00
Incremental Delay, d2	0.0	0.0	1.9			0.0
Delay (s)	3.2	0.3	32.9			3.2
Level of Service	A	A	C			A
Approach Delay (s)		0.9	32.9		3.2	
Approach LOS		A	C		A	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	3.0
Intersection Capacity Utilization	21.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



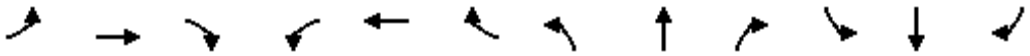
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	82	110	0	0	0	0	0	2315	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0						6.0	
Lane Util. Factor				1.00	0.95						0.86	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				1.00	1.00						1.00	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1770	3539						6398	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1770	3539						6398	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.83	0.92	0.92	0.92	0.92	0.92	0.96	0.45
Adj. Flow (vph)	0	0	0	88	133	0	0	0	0	0	2411	20
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	88	133	0	0	0	0	0	2431	0
Confl. Peds. (#/hr)												14
Confl. Bikes (#/hr)			1									
Turn Type				Perm								
Protected Phases					4						6	
Permitted Phases				4								
Actuated Green, G (s)				9.2	9.2						56.8	
Effective Green, g (s)				9.2	9.2						56.8	
Actuated g/C Ratio				0.12	0.12						0.76	
Clearance Time (s)				3.0	3.0						6.0	
Vehicle Extension (s)				3.0	3.0						4.0	
Lane Grp Cap (vph)				217	434						4845	
v/s Ratio Prot					0.04						c0.38	
v/s Ratio Perm				c0.05								
v/c Ratio				0.41	0.31						0.50	
Uniform Delay, d1				30.4	30.0						3.6	
Progression Factor				1.00	1.00						0.92	
Incremental Delay, d2				5.5	1.8						0.1	
Delay (s)				35.9	31.8						3.4	
Level of Service				D	C						A	
Approach Delay (s)		0.0			33.4			0.0			3.4	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM Average Control Delay	5.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



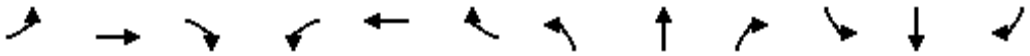
Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	219	1172	410	53	377	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0		5.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.98		0.97	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	5085	4946		3372	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1770	5085	4946		3372	
Peak-hour factor, PHF	0.86	0.96	0.95	0.74	0.94	0.86
Adj. Flow (vph)	255	1221	432	72	401	97
RTOR Reduction (vph)	81	0	37	0	0	0
Lane Group Flow (vph)	174	1221	467	0	498	0
Confl. Peds. (#/hr)				22		
Confl. Bikes (#/hr)				2		
Turn Type	Perm					
Protected Phases		4	2		1	
Permitted Phases	4					
Actuated Green, G (s)	35.6	35.6	12.6		14.8	
Effective Green, g (s)	35.6	35.6	12.6		14.8	
Actuated g/C Ratio	0.47	0.47	0.17		0.20	
Clearance Time (s)	3.0	3.0	4.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	840	2414	831		665	
v/s Ratio Prot		c0.24	c0.09		c0.15	
v/s Ratio Perm	0.10					
v/c Ratio	0.21	0.51	0.56		0.75	
Uniform Delay, d1	11.5	13.6	28.7		28.3	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.6	0.8	0.9		4.6	
Delay (s)	12.0	14.4	29.5		33.0	
Level of Service	B	B	C		C	
Approach Delay (s)		14.0	29.5		33.0	
Approach LOS		B	C		C	

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



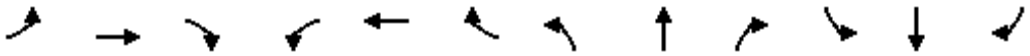
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	128	200	272	273	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	5.0	5.0				
Lane Util. Factor					0.91	0.91	0.81	0.81				
Frpb, ped/bikes					0.99	0.99	1.00	1.00				
Flpb, ped/bikes					1.00	1.00	0.99	1.00				
Frt					0.93	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	0.98				
Satd. Flow (prot)					3141	1423	1425	5920				
Flt Permitted					1.00	1.00	0.95	0.98				
Satd. Flow (perm)					3141	1423	1425	5920				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.89	0.87	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	136	225	313	297	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	42	41	124	125	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	207	71	32	329	0	0	0	0
Confl. Peds. (#/hr)							5		5			
Confl. Bikes (#/hr)			6			2			5			
Turn Type						Perm	Perm					
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					37.8	37.8	12.2	12.2				
Effective Green, g (s)					37.8	37.8	12.2	12.2				
Actuated g/C Ratio					0.63	0.63	0.20	0.20				
Clearance Time (s)					5.0	5.0	5.0	5.0				
Vehicle Extension (s)					3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)					1979	896	290	1204				
v/s Ratio Prot					c0.07							
v/s Ratio Perm						0.05	0.02	0.06				
v/c Ratio					0.10	0.08	0.11	0.27				
Uniform Delay, d1					4.4	4.3	19.5	20.2				
Progression Factor					4.38	7.63	1.00	1.00				
Incremental Delay, d2					0.1	0.1	0.2	0.1				
Delay (s)					19.3	33.1	19.6	20.3				
Level of Service					B	C	B	C				
Approach Delay (s)		0.0			23.6			20.1			0.0	
Approach LOS		A			C			C			A	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	27.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	141	31	0	0	0	0	0	0	954	1071	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		0.95								0.86	0.86	
Frpb, ped/bikes		0.99								1.00	1.00	
Flpb, ped/bikes		1.00								1.00	1.00	
Frt		0.96								1.00	1.00	
Flt Protected		1.00								0.95	0.99	
Satd. Flow (prot)		3393								1522	4717	
Flt Permitted		1.00								0.95	0.99	
Satd. Flow (perm)		3393								1522	4717	
Peak-hour factor, PHF	0.92	0.93	0.65	0.92	0.92	0.92	0.92	0.92	0.92	0.86	0.90	0.75
Adj. Flow (vph)	0	152	48	0	0	0	0	0	0	1109	1190	40
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	337	67	0
Lane Group Flow (vph)	0	189	0	0	0	0	0	0	0	240	1696	0
Confl. Peds. (#/hr)	6		6									
Confl. Bikes (#/hr)			1						1			1
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		62.0								50.0	50.0	
Effective Green, g (s)		62.0								50.0	50.0	
Actuated g/C Ratio		0.52								0.42	0.42	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		1753								634	1965	
v/s Ratio Prot		c0.06										
v/s Ratio Perm										0.16	0.36	
v/c Ratio		0.11								0.38	0.86	
Uniform Delay, d1		14.8								24.2	31.9	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.1								1.7	5.3	
Delay (s)		15.0								26.0	37.2	
Level of Service		B								C	D	
Approach Delay (s)		15.0			0.0			0.0			34.4	
Approach LOS		B			A			A			C	

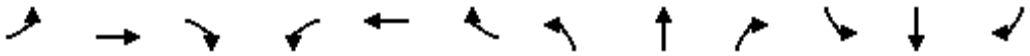
Intersection Summary			
HCM Average Control Delay	32.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	261	0	0	547	480	116	505	23	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Util. Factor		0.95			0.95	1.00		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.98		1.00	0.97			
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3513			3539	1548		3488	1531			
Flt Permitted		0.83			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		2945			3539	1548		3488	1531			
Peak-hour factor, PHF	0.85	0.89	0.92	0.96	0.88	0.96	0.85	0.96	0.72	0.92	0.92	0.92
Adj. Flow (vph)	40	293	0	0	622	500	136	526	32	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	186	0	0	15	0	0	0
Lane Group Flow (vph)	0	333	0	0	622	314	0	662	17	0	0	0
Confl. Peds. (#/hr)	35		35	6		6	26		26	2		2
Confl. Bikes (#/hr)			33			6		10				5
Turn Type	Perm			Perm		Perm	Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4			8		8	2		2			
Actuated Green, G (s)		18.0			18.0	18.0		32.0	32.0			
Effective Green, g (s)		18.0			18.0	18.0		32.0	32.0			
Actuated g/C Ratio		0.30			0.30	0.30		0.53	0.53			
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Grp Cap (vph)		884			1062	464		1860	817			
v/s Ratio Prot					0.18							
v/s Ratio Perm		0.11				c0.20		0.19	0.01			
v/c Ratio		0.38			0.59	0.68		0.36	0.02			
Uniform Delay, d1		16.6			17.8	18.4		8.1	6.6			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		1.2			2.4	7.7		0.5	0.0			
Delay (s)		17.8			20.2	26.1		8.6	6.7			
Level of Service		B			C	C		A	A			
Approach Delay (s)		17.8			22.8			8.5			0.0	
Approach LOS		B			C			A			A	

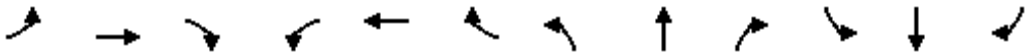
Intersection Summary			
HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



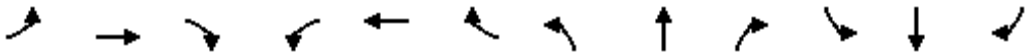
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	233	39	21	621	0	0	0	0	50	308	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0					4.0	4.0	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frpb, ped/bikes		0.99			1.00					1.00	1.00	
Flpb, ped/bikes		1.00			1.00					0.99	1.00	
Frt		0.98			1.00					1.00	0.99	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		3435			3529					1746	3496	
Flt Permitted		1.00			0.93					0.95	1.00	
Satd. Flow (perm)		3435			3292					1746	3496	
Peak-hour factor, PHF	0.92	0.75	0.70	0.66	0.96	0.92	0.92	0.92	0.92	0.74	0.96	0.71
Adj. Flow (vph)	0	311	56	32	647	0	0	0	0	68	321	24
RTOR Reduction (vph)	0	32	0	0	0	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	335	0	0	679	0	0	0	0	68	333	0
Confl. Peds. (#/hr)	36		36	28		28	18		18	16		16
Confl. Bikes (#/hr)			4			10			3			1
Turn Type				Perm						Perm		
Protected Phases		8			4						6	
Permitted Phases				4						6		
Actuated Green, G (s)		19.0			19.0					19.0	19.0	
Effective Green, g (s)		19.0			19.0					19.0	19.0	
Actuated g/C Ratio		0.42			0.42					0.42	0.42	
Clearance Time (s)		3.0			3.0					4.0	4.0	
Vehicle Extension (s)		2.0			2.0					2.0	2.0	
Lane Grp Cap (vph)		1450			1390					737	1476	
v/s Ratio Prot		0.10									c0.10	
v/s Ratio Perm					c0.21					0.04		
v/c Ratio		0.23			0.49					0.09	0.23	
Uniform Delay, d1		8.3			9.5					7.8	8.3	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		0.4			1.2					0.2	0.4	
Delay (s)		8.7			10.7					8.1	8.7	
Level of Service		A			B					A	A	
Approach Delay (s)		8.7			10.7			0.0			8.6	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	141	10	7	340	84	56	353	23	25	63	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.97			0.99			0.97	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		3424			3364			3439			3358	
Flt Permitted		0.85			0.95			0.89			0.80	
Satd. Flow (perm)		2923			3202			3068			2734	
Peak-hour factor, PHF	0.79	0.80	0.36	0.88	0.91	0.75	0.74	0.90	0.52	0.63	0.72	0.86
Adj. Flow (vph)	48	176	28	8	374	112	76	392	44	40	88	28
RTOR Reduction (vph)	0	13	0	0	51	0	0	18	0	0	19	0
Lane Group Flow (vph)	0	239	0	0	443	0	0	494	0	0	137	0
Confl. Peds. (#/hr)	30		30	55		55	41		41	40		40
Confl. Bikes (#/hr)			7			19			6			4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		23.6			23.6			13.9			13.9	
Effective Green, g (s)		23.6			23.6			13.9			13.9	
Actuated g/C Ratio		0.52			0.52			0.31			0.31	
Clearance Time (s)		3.5			3.5			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1533			1679			948			845	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.14			c0.16			0.05	
v/c Ratio		0.16			0.26			0.52			0.16	
Uniform Delay, d1		5.5			5.9			12.8			11.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			0.4			0.5			0.1	
Delay (s)		5.8			6.3			13.3			11.4	
Level of Service		A			A			B			B	
Approach Delay (s)		5.8			6.3			13.3			11.4	
Approach LOS		A			A			B			B	

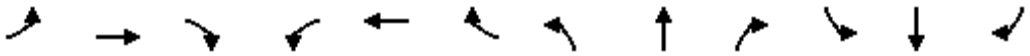
Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	353	1277	0	0	0	0	0	316	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.86						0.91	
Frpb, ped/bikes					1.00						0.99	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					6290						4893	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					6290						4893	
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.97	0.92	0.92	0.92	0.92	0.92	0.98	0.81
Adj. Flow (vph)	0	0	0	388	1316	0	0	0	0	0	322	80
RTOR Reduction (vph)	0	0	0	0	88	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	0	0	0	1616	0	0	0	0	0	394	0
Confl. Peds. (#/hr)	48		48	30		30	54		54	27		27
Confl. Bikes (#/hr)			9			5			4			1
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2726						2161	
v/s Ratio Prot											c0.08	
v/s Ratio Perm					0.26							
v/c Ratio					0.59						0.18	
Uniform Delay, d1					13.0						10.2	
Progression Factor					0.48						1.00	
Incremental Delay, d2					0.8						0.2	
Delay (s)					7.1						10.4	
Level of Service					A						B	
Approach Delay (s)		0.0			7.1			0.0			10.4	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

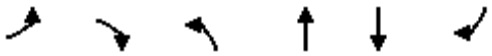
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1431	66	275	668	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5			4.0				
Lane Util. Factor					0.86			0.86				
Frpb, ped/bikes					1.00			1.00				
Flpb, ped/bikes					1.00			0.98				
Frt					0.99			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6338			6163				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6338			6163				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.87	0.93	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1475	76	296	726	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	12	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1539	0	0	1014	0	0	0	0
Confl. Peds. (#/hr)	102		102	84		84	84		84	168		168
Confl. Bikes (#/hr)			1									1
Turn Type							Perm					
Protected Phases					6			4				
Permitted Phases							4					
Actuated Green, G (s)					29.9			20.6				
Effective Green, g (s)					29.9			20.6				
Actuated g/C Ratio					0.50			0.34				
Clearance Time (s)					5.5			4.0				
Lane Grp Cap (vph)					3158			2116				
v/s Ratio Prot					c0.24							
v/s Ratio Perm								0.16				
v/c Ratio					0.49			0.48				
Uniform Delay, d1					10.0			15.5				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.5			0.8				
Delay (s)					10.5			16.3				
Level of Service					B			B				
Approach Delay (s)		0.0			10.5			16.3			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

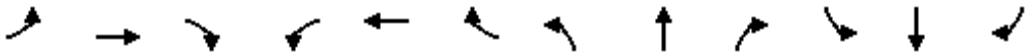
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	56	0	0	903	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.92	0.92	0.99	0.92	0.92
Hourly flow rate (vph)	64	0	0	912	0	0
Pedestrians	12					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1055	320	
pX, platoon unblocked						
vC, conflicting volume	240	12	12			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	240	12	12			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	100	100			
cM capacity (veh/h)	720	1055	1589			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	64	228	228	228	228
Volume Left	64	0	0	0	0
Volume Right	0	0	0	0	0
cSH	720	1700	1700	1700	1700
Volume to Capacity	0.09	0.13	0.13	0.13	0.13
Queue Length 95th (ft)	7	0	0	0	0
Control Delay (s)	10.5	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.5	0.0			
Approach LOS	B				

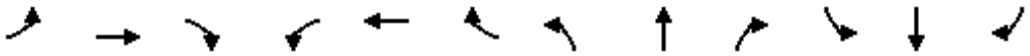
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	23.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	338	121	0	0	0	0	0	0	22	656	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5									5.5	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.96									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		6067									5067	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		6067									5067	
Peak-hour factor, PHF	0.92	0.86	0.84	0.92	0.92	0.92	0.92	0.92	0.92	0.55	0.95	0.92
Adj. Flow (vph)	0	393	144	0	0	0	0	0	0	40	691	0
RTOR Reduction (vph)	0	74	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	463	0	0	0	0	0	0	0	0	720	0
Confl. Peds. (#/hr)	32		32	21		21	23		23	17		17
Confl. Bikes (#/hr)			10			10			2			3
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		23.0									26.0	
Effective Green, g (s)		23.0									26.0	
Actuated g/C Ratio		0.38									0.43	
Clearance Time (s)		5.5									5.5	
Lane Grp Cap (vph)		2326									2196	
v/s Ratio Prot		c0.08										
v/s Ratio Perm											0.14	
v/c Ratio		0.20									0.33	
Uniform Delay, d1		12.4									11.2	
Progression Factor		0.77									1.21	
Incremental Delay, d2		0.2									0.4	
Delay (s)		9.7									14.0	
Level of Service		A									B	
Approach Delay (s)		9.7			0.0			0.0			14.0	
Approach LOS		A			A			A			B	

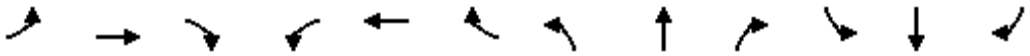
Intersection Summary			
HCM Average Control Delay	12.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	342	0	0	0	0	0	279	50	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.86						0.86				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6292						6249				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6292						6249				
Peak-hour factor, PHF	0.79	0.93	0.92	0.92	0.92	0.92	0.92	0.74	0.83	0.92	0.92	0.92
Adj. Flow (vph)	92	368	0	0	0	0	0	377	60	0	0	0
RTOR Reduction (vph)	0	80	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	380	0	0	0	0	0	422	0	0	0	0
Confl. Peds. (#/hr)	46		46	56		56	21		21	52		52
Confl. Bikes (#/hr)			2			2			5			
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		8.1						44.9				
Effective Green, g (s)		8.1						44.9				
Actuated g/C Ratio		0.13						0.75				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		849						4676				
v/s Ratio Prot								c0.07				
v/s Ratio Perm		0.06										
v/c Ratio		0.45						0.09				
Uniform Delay, d1		23.9						2.0				
Progression Factor		1.00						1.00				
Incremental Delay, d2		0.1						0.0				
Delay (s)		24.0						2.1				
Level of Service		C						A				
Approach Delay (s)		24.0			0.0			2.1			0.0	
Approach LOS		C			A			A			A	

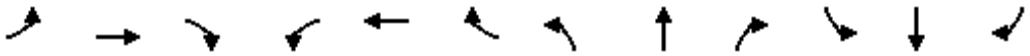
Intersection Summary			
HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.14		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	39.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	483	0	0	0	0	0	938	247	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		0.86						0.91				
Frpb, ped/bikes		1.00						0.99				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6328						4877				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6328						4877				
Peak-hour factor, PHF	0.93	0.91	0.92	0.92	0.92	0.92	0.92	0.85	0.71	0.92	0.92	0.92
Adj. Flow (vph)	124	531	0	0	0	0	0	1104	348	0	0	0
RTOR Reduction (vph)	0	14	0	0	0	0	0	99	0	0	0	0
Lane Group Flow (vph)	0	641	0	0	0	0	0	1353	0	0	0	0
Confl. Peds. (#/hr)	22		22	59		59	12		12	5		5
Confl. Bikes (#/hr)			6			4			2			1
Turn Type	Perm											
Protected Phases		1						2				
Permitted Phases	1											
Actuated Green, G (s)		18.0						18.0				
Effective Green, g (s)		18.0						18.0				
Actuated g/C Ratio		0.40						0.40				
Clearance Time (s)		4.5						4.5				
Lane Grp Cap (vph)		2531						1951				
v/s Ratio Prot								c0.28				
v/s Ratio Perm		0.10										
v/c Ratio		0.25						0.69				
Uniform Delay, d1		9.0						11.2				
Progression Factor		0.81						0.75				
Incremental Delay, d2		0.2						1.8				
Delay (s)		7.5						10.2				
Level of Service		A						B				
Approach Delay (s)		7.5			0.0			10.2			0.0	
Approach LOS		A			A			B			A	

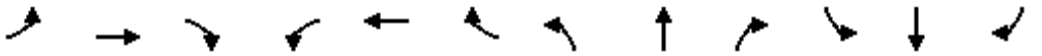
Intersection Summary			
HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



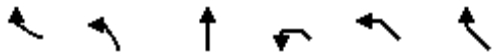
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	469	240	0	0	0	0	0	0	125	524	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									3.0	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.95									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6035									5025	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6035									5025	
Peak-hour factor, PHF	0.92	0.92	0.86	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.98	0.92
Adj. Flow (vph)	0	510	279	0	0	0	0	0	0	140	535	0
RTOR Reduction (vph)	0	127	0	0	0	0	0	0	0	0	78	0
Lane Group Flow (vph)	0	662	0	0	0	0	0	0	0	0	597	0
Confl. Peds. (#/hr)	4		4	10		10	8		8	11		11
Confl. Bikes (#/hr)			1						7			2
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		18.0									20.0	
Effective Green, g (s)		18.0									20.0	
Actuated g/C Ratio		0.40									0.44	
Clearance Time (s)		4.0									3.0	
Vehicle Extension (s)		2.0									2.0	
Lane Grp Cap (vph)		2414									2233	
v/s Ratio Prot		c0.11										
v/s Ratio Perm											0.12	
v/c Ratio		0.27									0.27	
Uniform Delay, d1		9.1									7.9	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.3									0.3	
Delay (s)		9.4									8.2	
Level of Service		A									A	
Approach Delay (s)		9.4			0.0			0.0			8.2	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	20	296	45	192	240	0	0	142	1510
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.95		1.00			1.00	0.98
Flpb, ped/bikes				0.98	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1736	1863	1503		1820			1863	1558
Flt Permitted				0.95	1.00	1.00		0.77			1.00	1.00
Satd. Flow (perm)				1736	1863	1503		1435			1863	1558
Peak-hour factor, PHF	0.92	0.92	0.92	0.71	0.96	0.87	0.84	0.87	0.92	0.92	0.81	0.95
Adj. Flow (vph)	0	0	0	28	308	52	229	276	0	0	175	1589
RTOR Reduction (vph)	0	0	0	0	0	39	0	0	0	0	0	118
Lane Group Flow (vph)	0	0	0	28	308	13	0	505	0	0	175	1471
Confl. Peds. (#/hr)	1		1	23		23	2		2	5		5
Confl. Bikes (#/hr)			2									
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					1			2			2	
Permitted Phases				1		1	2					2
Actuated Green, G (s)				11.6	11.6	11.6		22.4			22.4	22.4
Effective Green, g (s)				11.6	11.6	11.6		22.4			22.4	22.4
Actuated g/C Ratio				0.26	0.26	0.26		0.50			0.50	0.50
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				448	480	387		714			927	776
v/s Ratio Prot					c0.17						0.09	
v/s Ratio Perm				0.02		0.01		0.35				c0.94
v/c Ratio				0.06	0.64	0.03		0.71			0.19	1.90
Uniform Delay, d1				12.6	14.9	12.5		8.8			6.3	11.3
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.1	2.9	0.0		5.8			0.5	408.2
Delay (s)				12.7	17.8	12.5		14.6			6.7	419.5
Level of Service				B	B	B		B			A	F
Approach Delay (s)		0.0			16.7			14.6			378.5	
Approach LOS		A			B			B			F	

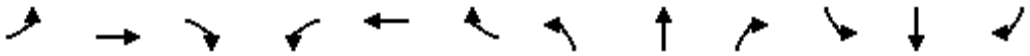
Intersection Summary			
HCM Average Control Delay	256.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.47		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	146.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBR	NBL	NBT	NWL2	NWL	NWR
Lane Configurations						
Volume (vph)	0	123	429	120	48	737
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5		2.0	2.0
Lane Util. Factor			0.95		0.97	0.91
Frpb, ped/bikes			1.00		1.00	1.00
Flpb, ped/bikes			1.00		1.00	1.00
Frt			1.00		0.90	0.85
Flt Protected			0.99		0.98	1.00
Satd. Flow (prot)			3491		3201	1441
Flt Permitted			0.99		0.98	1.00
Satd. Flow (perm)			3491		3201	1441
Peak-hour factor, PHF	0.92	0.75	0.96	0.77	0.86	0.89
Adj. Flow (vph)	0	164	447	156	56	828
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	611	0	626	414
Confl. Peds. (#/hr)	51	2				
Confl. Bikes (#/hr)	2					
Turn Type	custom	Perm		Perm		Perm
Protected Phases			3		1	
Permitted Phases	2	3		1		1
Actuated Green, G (s)			16.3		16.2	16.2
Effective Green, g (s)			16.3		16.2	16.2
Actuated g/C Ratio			0.36		0.36	0.36
Clearance Time (s)			3.5		2.0	2.0
Lane Grp Cap (vph)			1265		1152	519
v/s Ratio Prot						
v/s Ratio Perm			0.18		0.20	c0.29
v/c Ratio			0.48		0.54	0.80
Uniform Delay, d1			11.1		11.5	12.9
Progression Factor			0.81		1.00	1.00
Incremental Delay, d2			0.6		1.8	12.1
Delay (s)			9.6		13.3	25.0
Level of Service			A		B	C
Approach Delay (s)			9.6		18.0	
Approach LOS			A		B	

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	303	551	152	0	0	0	0	230	68	3	117	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5			3.5	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		0.99						1.00			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		0.97						0.97			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4847						1795			1858	
Flt Permitted		0.99						1.00			0.98	
Satd. Flow (perm)		1850						1500			1600	
Peak-hour factor, PHF	0.95	0.89	0.81	0.92	0.92	0.92	0.92	0.82	0.74	0.38	0.77	0.92
Adj. Flow (vph)	319	619	188	0	0	0	0	280	92	8	152	0
RTOR Reduction (vph)	0	67	0	0	0	0	0	26	0	0	0	0
Lane Group Flow (vph)	0	1059	0	0	0	0	0	346	0	0	160	0
Confl. Peds. (#/hr)	14		14	52		52	1		1	4		4
Confl. Bikes (#/hr)			5			2						
Turn Type	Perm									Perm		
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		22.5						15.5			15.5	
Effective Green, g (s)		22.5						15.5			15.5	
Actuated g/C Ratio		0.50						0.34			0.34	
Clearance Time (s)		3.5						3.5			3.5	
Lane Grp Cap (vph)		925						618			551	
v/s Ratio Prot								c0.19				
v/s Ratio Perm		c0.57									0.10	
v/c Ratio		1.14						0.56			0.29	
Uniform Delay, d1		11.2						12.0			10.7	
Progression Factor		1.00						1.00			0.98	
Incremental Delay, d2		78.0						3.6			1.1	
Delay (s)		89.3						15.6			11.7	
Level of Service		F						B			B	
Approach Delay (s)		89.3			0.0			15.6			11.7	
Approach LOS		F			A			B			B	

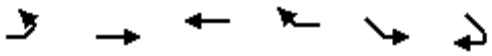
Intersection Summary			
HCM Average Control Delay	65.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	443	302	459	292	155	1088
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.94		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3340		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3340		1770	3539
Peak-hour factor, PHF	0.89	0.92	0.83	0.88	0.90	0.85
Adj. Flow (vph)	498	328	553	332	172	1280
RTOR Reduction (vph)	0	233	94	0	0	0
Lane Group Flow (vph)	498	95	791	0	172	1280
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	26.0	26.0	38.7		13.3	56.0
Effective Green, g (s)	26.0	26.0	38.7		13.3	56.0
Actuated g/C Ratio	0.29	0.29	0.43		0.15	0.62
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	511	457	1436		262	2202
v/s Ratio Prot	c0.28		0.24		c0.10	c0.36
v/s Ratio Perm		0.06				
v/c Ratio	0.97	0.21	0.55		0.66	0.58
Uniform Delay, d1	31.7	24.2	19.2		36.2	10.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	33.0	0.2	1.5		12.2	1.1
Delay (s)	64.7	24.4	20.7		48.4	11.2
Level of Service	E	C	C		D	B
Approach Delay (s)	48.7		20.7			15.6
Approach LOS	D		C			B

Intersection Summary			
HCM Average Control Delay	25.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	471	447	572	262	180	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3370		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3370		1770	1583
Peak-hour factor, PHF	0.94	0.92	0.91	0.89	0.85	0.92
Adj. Flow (vph)	501	486	629	294	212	284
RTOR Reduction (vph)	0	0	79	0	0	219
Lane Group Flow (vph)	501	486	844	0	212	65
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	14.1	33.2	15.1		12.2	12.2
Effective Green, g (s)	14.1	33.2	15.1		12.2	12.2
Actuated g/C Ratio	0.26	0.62	0.28		0.23	0.23
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	467	2200	953		404	362
v/s Ratio Prot	c0.28	0.14	c0.25		c0.12	
v/s Ratio Perm						0.04
v/c Ratio	1.07	0.22	0.89		0.52	0.18
Uniform Delay, d1	19.6	4.4	18.3		18.1	16.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	62.5	0.1	9.9		1.2	0.2
Delay (s)	82.2	4.5	28.2		19.3	16.8
Level of Service	F	A	C		B	B
Approach Delay (s)		43.9	28.2		17.9	
Approach LOS		D	C		B	

Intersection Summary			
HCM Average Control Delay	32.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	53.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

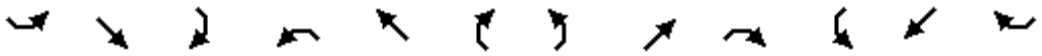
Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	395	626	270	0	571	182	277	980	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.96			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4877			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4877			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.78	0.88	0.69	0.92	0.93	0.76	0.80	0.84	0.92
Adj. Flow (vph)	0	0	506	711	391	0	614	239	346	1167	0
RTOR Reduction (vph)	0	0	0	48	0	0	0	167	0	0	0
Lane Group Flow (vph)	0	0	0	1560	0	0	614	72	346	1167	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				36.5			17.5	17.5	39.0	60.5	
Effective Green, g (s)				36.5			17.5	17.5	39.0	60.5	
Actuated g/C Ratio				0.34			0.17	0.17	0.37	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1679			584	261	651	2020	
v/s Ratio Prot				c0.32			c0.17		0.20	c0.33	
v/s Ratio Perm								0.05			
v/c Ratio				0.93			1.05	0.28	0.53	0.58	
Uniform Delay, d1				33.5			44.3	38.7	26.3	14.6	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				9.5			51.5	2.6	3.1	1.2	
Delay (s)				43.0			95.7	41.3	29.4	15.8	
Level of Service				D			F	D	C	B	
Approach Delay (s)	0.0			43.0			80.5			18.9	
Approach LOS	A			D			F			B	

Intersection Summary			
HCM Average Control Delay	41.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	260	443	196	184	340	259	30	229	31	654
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	4.0				3.5	4.0
Lane Util. Factor	0.91	0.86	0.91	1.00	0.95				1.00	0.95
Frt	1.00	0.99	0.85	0.85	0.93				1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00				0.95	1.00
Satd. Flow (prot)	1610	3173	1441	1583	3282				1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	1.00				0.95	1.00
Satd. Flow (perm)	1610	3173	1441	1583	3282				1770	3539
Peak-hour factor, PHF	0.81	0.88	0.89	0.88	0.94	0.85	0.83	0.91	0.78	0.82
Adj. Flow (vph)	321	503	220	209	362	305	36	252	40	798
RTOR Reduction (vph)	0	0	0	76	3	0	0	0	0	0
Lane Group Flow (vph)	276	570	198	133	700	0	0	0	292	798
Turn Type	Split		Prot	Perm				Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases				4						
Actuated Green, G (s)	28.8	28.8	28.8	28.8	42.0				22.7	68.2
Effective Green, g (s)	28.8	28.8	28.8	28.8	42.0				22.7	68.2
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.40				0.21	0.64
Clearance Time (s)	5.0	5.0	5.0	5.0	4.0				3.5	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0				3.0	3.0
Lane Grp Cap (vph)	437	862	392	430	1300				379	2277
v/s Ratio Prot	0.17	c0.18	0.14		c0.21				c0.17	0.23
v/s Ratio Perm				0.08						
v/c Ratio	0.63	0.66	0.51	0.31	0.54				0.77	0.35
Uniform Delay, d1	33.9	34.3	32.6	30.7	24.6				39.2	8.7
Progression Factor	0.77	0.77	0.77	0.65	1.00				1.00	1.00
Incremental Delay, d2	1.9	1.2	0.7	0.3	1.6				9.3	0.4
Delay (s)	28.2	27.7	25.9	20.3	26.2				48.5	9.1
Level of Service	C	C	C	C	C				D	A
Approach Delay (s)		26.3			26.2					19.7
Approach LOS		C			C					B

Intersection Summary			
HCM Average Control Delay	23.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	2104	103	381	333	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.91	1.00		*0.88				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.97				
Satd. Flow (prot)					5085	1583		4789				
Flt Permitted					1.00	1.00		0.97				
Satd. Flow (perm)					5085	1583		4789				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.78	0.93	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2192	132	410	351	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	69	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2192	63	0	760	0	0	0	0
Turn Type						Perm	Perm					
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					38.0	38.0		34.0				
Effective Green, g (s)					38.0	38.0		34.0				
Actuated g/C Ratio					0.48	0.48		0.42				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					2415	752		2035				
v/s Ratio Prot					c0.43							
v/s Ratio Perm						0.04		0.16				
v/c Ratio					0.91	0.08		0.37				
Uniform Delay, d1					19.4	11.5		15.7				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					6.4	0.2		0.5				
Delay (s)					25.7	11.7		16.2				
Level of Service					C	B		B				
Approach Delay (s)		0.0			24.9			16.2			0.0	
Approach LOS		A			C			B			A	

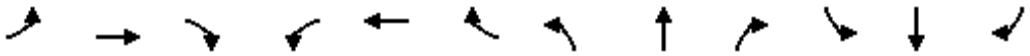
Intersection Summary			
HCM Average Control Delay	22.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	973	1418	0	0	0	0	0	990	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4759						3524	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4759						3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	0	0	1003	1541	0	0	0	0	0	1053	32
RTOR Reduction (vph)	0	0	0	6	6	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	616	1916	0	0	0	0	0	1082	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				46.0	46.0						26.0	
Effective Green, g (s)				46.0	46.0						26.0	
Actuated g/C Ratio				0.57	0.57						0.32	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				875	2736						1145	
v/s Ratio Prot											c0.31	
v/s Ratio Perm				c0.41	0.40							
v/c Ratio				0.70	0.70						0.95	
Uniform Delay, d1				12.1	12.1						26.3	
Progression Factor				1.45	1.48						1.00	
Incremental Delay, d2				2.6	0.8						16.3	
Delay (s)				20.3	18.7						42.6	
Level of Service				C	B						D	
Approach Delay (s)		0.0			19.1			0.0			42.6	
Approach LOS		A			B			A			D	

Intersection Summary			
HCM Average Control Delay	26.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	74	189	6	9	391	13	9	6	8	18	14	13
Peak Hour Factor	0.90	0.94	0.67	0.81	0.84	0.63	0.75	0.75	0.79	0.74	0.77	0.69
Hourly flow rate (vph)	82	201	9	11	465	21	12	8	10	24	18	19

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	82	210	497	30	61
Volume Left (vph)	82	0	11	12	24
Volume Right (vph)	0	9	21	10	19
Hadj (s)	0.53	0.00	0.01	-0.09	-0.07
Departure Headway (s)	5.7	5.2	4.6	5.7	5.7
Degree Utilization, x	0.13	0.30	0.64	0.05	0.10
Capacity (veh/h)	613	672	762	533	552
Control Delay (s)	8.4	9.2	15.5	9.0	9.3
Approach Delay (s)	9.0		15.5	9.0	9.3
Approach LOS	A		C	A	A

Intersection Summary			
Delay	12.7		
HCM Level of Service	B		
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp

Average Delay (sec/veh): 4.0 Worst Case Level Of Service: B[11.9]

Street Name:	Harrison Street						Stanley Place / I-580 EB Off-Ramp					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Yield Sign			Yield Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 3 0 0			0 0 0 0 1			0 0 0 0 0		
Volume Module:												
Base Vol:	0	0	0	0	574	0	0	0	252	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	574	0	0	0	252	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	574	0	0	0	252	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	0.80	1.00	1.00	1.00
PHF Volume:	0	0	0	0	631	0	0	0	315	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	631	0	0	0	315	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	210	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	835	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	835	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.38	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.8	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	11.9	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	B	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			11.9			xxxxxx		
ApproachLOS:	*			*			B			*		

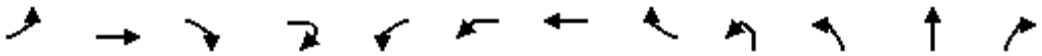
Note: Queue reported is the number of cars per lane.

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Movement	SEL2	SET	NET	NER	NER2
Lane Configurations					
Volume (vph)	543	257	915	549	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	3.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	
Flt Protected	0.95	0.98	1.00	1.00	
Satd. Flow (prot)	1681	1740	3539	1583	
Flt Permitted	0.95	0.98	1.00	1.00	
Satd. Flow (perm)	1681	1740	3539	1583	
Peak-hour factor, PHF	0.88	0.83	0.89	0.92	0.75
Adj. Flow (vph)	617	310	1028	597	96
RTOR Reduction (vph)	86	31	0	9	0
Lane Group Flow (vph)	371	439	1028	684	0
Confl. Peds. (#/hr)				2	
Confl. Bikes (#/hr)					
Turn Type	Perm			custom	
Protected Phases		4	5	1	
Permitted Phases	4			1	
Actuated Green, G (s)	16.0	16.0	36.5	13.5	
Effective Green, g (s)	16.0	16.0	36.5	13.5	
Actuated g/C Ratio	0.27	0.27	0.61	0.22	
Clearance Time (s)	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	448	464	2153	356	
v/s Ratio Prot			c0.29	c0.43	
v/s Ratio Perm	0.22	0.25			
v/c Ratio	0.83	0.95	0.48	1.92	
Uniform Delay, d1	20.7	21.6	6.5	23.2	
Progression Factor	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.4	28.2	0.8	424.5	
Delay (s)	32.1	49.8	7.2	447.8	
Level of Service	C	D	A	F	
Approach Delay (s)		41.1	184.6		
Approach LOS		D	F		

Intersection Summary			
HCM Average Control Delay	134.4	HCM Level of Service	F
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



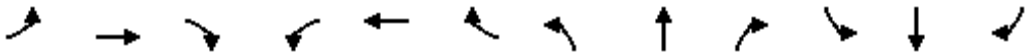
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	182	365	85	17	45	14	155	177	8	286	942	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0			4.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00			1.00	1.00	1.00		0.97	0.95	
Frpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	0.96		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85			1.00	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583			1770	1863	1520		3433	3484	
Flt Permitted	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583			1770	1863	1520		3433	3484	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.85	0.85	0.85	0.85	0.92	0.92	0.92	0.92
Adj. Flow (vph)	194	388	90	18	53	16	182	208	9	311	1024	93
RTOR Reduction (vph)	0	0	8	0	0	0	0	175	0	0	8	0
Lane Group Flow (vph)	194	388	100	0	0	69	182	33	0	320	1109	0
Confl. Peds. (#/hr)	26											20
Confl. Bikes (#/hr)								20				9
Turn Type	Prot		Perm		Prot	Prot		Perm	Prot	Prot		
Protected Phases	3	8			7	7	4		1	1	6	
Permitted Phases			8					4				
Actuated Green, G (s)	19.5	26.3	26.3			7.5	14.3	14.3		13.1	27.2	
Effective Green, g (s)	19.5	26.3	26.3			7.5	14.3	14.3		13.1	27.2	
Actuated g/C Ratio	0.22	0.29	0.29			0.08	0.16	0.16		0.15	0.30	
Clearance Time (s)	4.0	5.0	5.0			4.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	384	1034	463			148	296	242		500	1053	
v/s Ratio Prot	c0.11	0.11				0.04	c0.10			0.09	c0.32	
v/s Ratio Perm			0.06					0.02				
v/c Ratio	0.51	0.38	0.22			0.47	0.61	0.14		0.64	1.05	
Uniform Delay, d1	31.0	25.3	24.1			39.3	35.3	32.5		36.2	31.4	
Progression Factor	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.0	0.2	0.2			2.3	3.8	0.3		2.8	42.9	
Delay (s)	32.1	25.5	24.3			41.7	39.0	32.8		39.0	74.3	
Level of Service	C	C	C			D	D	C		D	E	
Approach Delay (s)		27.2					36.6				66.5	
Approach LOS		C					D				E	

Intersection Summary			
HCM Average Control Delay	49.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Volume (vph)	185	397	39	65
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.97		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3429		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3429		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93
Adj. Flow (vph)	199	427	42	70
RTOR Reduction (vph)	0	13	0	0
Lane Group Flow (vph)	199	526	0	0
Confl. Peds. (#/hr)	26			
Confl. Bikes (#/hr)				
Turn Type	Prot			
Protected Phases	5	2		
Permitted Phases				
Actuated Green, G (s)	11.0	24.1		
Effective Green, g (s)	11.0	24.1		
Actuated g/C Ratio	0.12	0.27		
Clearance Time (s)	4.0	5.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	216	918		
v/s Ratio Prot	c0.11	0.15		
v/s Ratio Perm				
v/c Ratio	0.92	0.57		
Uniform Delay, d1	39.1	28.5		
Progression Factor	1.00	1.00		
Incremental Delay, d2	40.0	2.6		
Delay (s)	79.0	31.1		
Level of Service	E	C		
Approach Delay (s)		44.0		
Approach LOS		D		

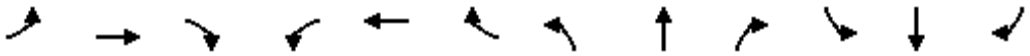
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	202	63	29	330	237	139	580	30	144	579	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.91			0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.97			1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected		0.99			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		4790			3519	1536	1767	3502		1767	3453	
Flt Permitted		0.77			0.87	1.00	0.31	1.00		0.33	1.00	
Satd. Flow (perm)		3720			3073	1536	576	3502		623	3453	
Peak-hour factor, PHF	0.68	0.86	0.66	0.73	0.96	0.87	0.83	0.92	0.75	0.82	0.92	0.86
Adj. Flow (vph)	107	235	95	40	344	272	167	630	40	176	629	88
RTOR Reduction (vph)	0	55	0	0	0	96	0	6	0	0	13	0
Lane Group Flow (vph)	0	382	0	0	384	176	167	664	0	176	704	0
Confl. Peds. (#/hr)	32		32	10		10	6		6	5		5
Confl. Bikes (#/hr)			20			18			17			66
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			2	
Permitted Phases	4			8		8	2			2		
Actuated Green, G (s)		36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Effective Green, g (s)		36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Actuated g/C Ratio		0.42			0.42	0.42	0.45	0.45		0.45	0.45	
Clearance Time (s)		5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)		1576			1302	651	258	1566		279	1544	
v/s Ratio Prot								0.19			0.20	
v/s Ratio Perm		0.10			c0.12	0.11	c0.29			0.28		
v/c Ratio		0.24			0.29	0.27	0.65	0.42		0.63	0.46	
Uniform Delay, d1		15.7			16.1	16.0	18.3	16.0		18.1	16.3	
Progression Factor		0.84			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.3			0.6	1.0	11.9	0.8		10.4	1.0	
Delay (s)		13.5			16.7	17.0	30.2	16.9		28.5	17.3	
Level of Service		B			B	B	C	B		C	B	
Approach Delay (s)		13.5			16.8			19.5			19.5	
Approach LOS		B			B			B			B	

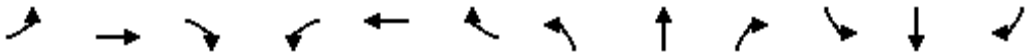
Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	103.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	180	346	117	55	455	98	147	403	39	112	386	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5		4.5	3.5		5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.97		1.00	0.98		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	3388		1769	3415		1761	3468		1762	3253	
Flt Permitted	0.26	1.00		0.45	1.00		0.25	1.00		0.39	1.00	
Satd. Flow (perm)	479	3388		831	3415		463	3468		731	3253	
Peak-hour factor, PHF	0.85	0.90	0.89	0.81	0.88	0.72	0.88	0.87	0.70	0.80	0.92	0.91
Adj. Flow (vph)	212	384	131	68	517	136	167	463	56	140	420	323
RTOR Reduction (vph)	0	34	0	0	26	0	0	12	0	0	172	0
Lane Group Flow (vph)	212	481	0	68	627	0	167	507	0	140	571	0
Confl. Peds. (#/hr)	4		4	1		1	17		17	10		10
Confl. Bikes (#/hr)			4			10			17			28
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	45.5	36.1		37.3	32.0		30.1	30.1		30.1	30.1	
Effective Green, g (s)	45.5	36.1		37.3	32.0		30.1	30.1		30.1	30.1	
Actuated g/C Ratio	0.54	0.42		0.44	0.38		0.35	0.35		0.35	0.35	
Clearance Time (s)	4.5	3.5		4.5	3.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	399	1439		423	1286		164	1228		259	1152	
v/s Ratio Prot	c0.06	0.14		0.01	0.18			0.15			0.18	
v/s Ratio Perm	c0.23			0.06			c0.36			0.19		
v/c Ratio	0.53	0.33		0.16	0.49		1.02	0.41		0.54	0.50	
Uniform Delay, d1	11.8	16.4		13.9	20.2		27.4	20.8		21.9	21.5	
Progression Factor	1.00	1.00		1.54	1.47		0.76	0.68		1.00	1.00	
Incremental Delay, d2	0.7	0.6		0.1	1.3		73.1	0.1		1.2	0.1	
Delay (s)	12.5	17.0		21.5	31.0		93.8	14.1		23.2	21.6	
Level of Service	B	B		C	C		F	B		C	C	
Approach Delay (s)		15.7			30.1			33.5			21.9	
Approach LOS		B			C			C			C	

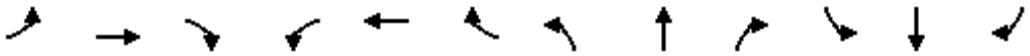
Intersection Summary			
HCM Average Control Delay	25.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	211	561	0	0	221	777	18	682	63	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	0.86	0.86			0.86	0.86		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			0.91	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1521	4783			4360	1362		5000				
Flt Permitted	0.38	0.84			1.00	1.00		1.00				
Satd. Flow (perm)	607	4043			4360	1362		5000				
Peak-hour factor, PHF	0.93	0.90	0.25	0.25	0.89	0.97	0.64	0.92	0.83	0.25	0.25	0.25
Adj. Flow (vph)	227	623	0	0	248	801	28	741	76	0	0	0
RTOR Reduction (vph)	0	0	0	0	55	55	0	29	0	0	0	0
Lane Group Flow (vph)	163	687	0	0	594	345	0	816	0	0	0	0
Confl. Peds. (#/hr)	2		2				4		4	3		3
Confl. Bikes (#/hr)			4						5			7
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	16.0	16.0			16.0	16.0		16.0				
Effective Green, g (s)	16.0	16.0			16.0	16.0		16.0				
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.40				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)	243	1617			1744	545		2000				
v/s Ratio Prot					0.14							
v/s Ratio Perm	c0.27	0.17				0.25		0.16				
v/c Ratio	0.67	0.42			0.34	0.63		0.41				
Uniform Delay, d1	9.8	8.7			8.3	9.6		8.6				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	13.8	0.8			0.5	5.5		0.6				
Delay (s)	23.6	9.5			8.9	15.2		9.2				
Level of Service	C	A			A	B		A				
Approach Delay (s)		12.2			11.3			9.2			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

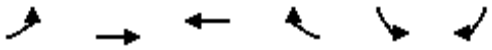
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	423	33	10	209	0	0	0	0	340	242	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0	4.0	4.0
Lane Util. Factor		0.91			0.91					0.91	0.91	1.00
Frpb, ped/bikes		1.00			1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.99			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.98	1.00
Satd. Flow (prot)		5014			5069					1605	3328	1558
Flt Permitted		1.00			0.91					0.95	0.98	1.00
Satd. Flow (perm)		5014			4607					1605	3328	1558
Peak-hour factor, PHF	0.25	0.95	0.83	0.63	0.86	0.25	0.25	0.25	0.25	0.87	0.79	0.88
Adj. Flow (vph)	0	445	40	16	243	0	0	0	0	391	306	195
RTOR Reduction (vph)	0	18	0	0	0	0	0	0	0	0	0	94
Lane Group Flow (vph)	0	467	0	0	259	0	0	0	0	227	470	101
Confl. Peds. (#/hr)	4		4	4		4	1		1	3		3
Confl. Bikes (#/hr)			5			9			1			1
Turn Type				Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases				8						6		6
Actuated Green, G (s)		21.0			21.0					31.0	31.0	31.0
Effective Green, g (s)		21.0			21.0					31.0	31.0	31.0
Actuated g/C Ratio		0.35			0.35					0.52	0.52	0.52
Clearance Time (s)		4.0			4.0					4.0	4.0	4.0
Lane Grp Cap (vph)		1755			1612					829	1719	805
v/s Ratio Prot		c0.09										
v/s Ratio Perm					0.06					c0.14	0.14	0.06
v/c Ratio		0.27			0.16					0.27	0.27	0.13
Uniform Delay, d1		14.0			13.4					8.2	8.2	7.5
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		0.4			0.2					0.8	0.4	0.3
Delay (s)		14.4			13.6					9.0	8.6	7.8
Level of Service		B			B					A	A	A
Approach Delay (s)		14.4			13.6			0.0			8.5	
Approach LOS		B			B			A			A	

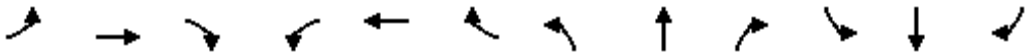
Intersection Summary			
HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



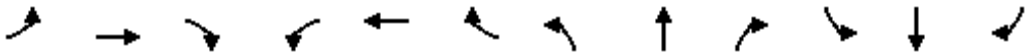
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	234	485	528	366	158	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.91
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.94		0.99	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3284		3424	1421
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3284		3424	1421
Peak-hour factor, PHF	0.74	0.93	0.90	0.97	0.72	0.86
Adj. Flow (vph)	316	522	587	377	219	103
RTOR Reduction (vph)	0	0	101	0	5	82
Lane Group Flow (vph)	316	522	863	0	224	11
Confl. Peds. (#/hr)	14			18		
Confl. Bikes (#/hr)				7		1
Turn Type	Prot					Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	20.4	62.4	38.0		9.6	9.6
Effective Green, g (s)	20.4	62.4	38.0		9.6	9.6
Actuated g/C Ratio	0.26	0.78	0.48		0.12	0.12
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	451	2760	1560		411	171
v/s Ratio Prot	c0.18	0.15	c0.26		c0.07	
v/s Ratio Perm						0.01
v/c Ratio	0.70	0.19	0.55		0.54	0.07
Uniform Delay, d1	27.0	2.3	15.0		33.1	31.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.0	0.2	1.4		0.8	0.1
Delay (s)	31.0	2.4	16.4		33.9	31.3
Level of Service	C	A	B		C	C
Approach Delay (s)		13.2	16.4		33.2	
Approach LOS		B	B		C	

Intersection Summary			
HCM Average Control Delay	17.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



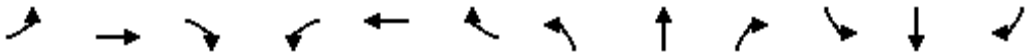
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	579	27	16	693	99	80	447	28	115	361	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1765	3427	1532	1760	3342		1769	3493		1760	3378	
Flt Permitted	0.17	1.00	1.00	0.17	1.00		0.40	1.00		0.44	1.00	
Satd. Flow (perm)	311	3427	1532	322	3342		751	3493		811	3378	
Peak-hour factor, PHF	0.64	0.80	0.61	0.57	0.92	0.85	0.87	0.85	0.64	0.87	0.95	0.72
Adj. Flow (vph)	36	724	44	28	753	116	92	526	44	132	380	124
RTOR Reduction (vph)	0	0	32	0	14	0	0	7	0	0	31	0
Lane Group Flow (vph)	36	724	12	28	855	0	92	563	0	132	473	0
Confl. Peds. (#/hr)	12		12	18		18	3		3	12		12
Confl. Bikes (#/hr)			8			6			10			28
Turn Type	Perm		Perm	Perm			pm+pt			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	23.9	23.9	23.9	23.9	23.9		50.6	50.6		40.7	40.7	
Effective Green, g (s)	23.9	23.9	23.9	23.9	23.9		50.6	50.6		40.7	40.7	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28		0.60	0.60		0.48	0.48	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	87	964	431	91	940		512	2079		388	1617	
v/s Ratio Prot		0.21			c0.26		0.01	c0.16			0.14	
v/s Ratio Perm	0.12		0.01	0.09			0.10			c0.16		
v/c Ratio	0.41	0.75	0.03	0.31	0.91		0.18	0.27		0.34	0.29	
Uniform Delay, d1	24.9	27.8	22.1	24.0	29.5		7.6	8.3		13.8	13.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.12	1.16	
Incremental Delay, d2	13.9	5.4	0.1	8.6	14.2		0.1	0.3		2.2	0.4	
Delay (s)	38.7	33.2	22.3	32.6	43.7		7.7	8.6		17.7	16.0	
Level of Service	D	C	C	C	D		A	A		B	B	
Approach Delay (s)		32.9			43.4			8.5			16.3	
Approach LOS		C			D			A			B	

Intersection Summary			
HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



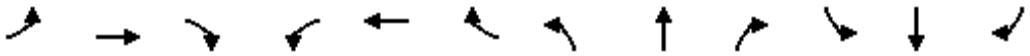
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	390	31	90	293	29	208	523	145	43	420	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	*0.92			*0.92		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	1.00	0.99	1.00	
Frt	1.00	0.98			0.98		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1764	3368			3320		1764	3539	1551	1746	3407	
Flt Permitted	0.32	1.00			0.64		0.42	1.00	1.00	0.43	1.00	
Satd. Flow (perm)	591	3368			2142		771	3539	1551	787	3407	
Peak-hour factor, PHF	0.72	0.91	0.65	0.63	0.90	0.52	0.87	0.95	0.79	0.57	0.90	0.84
Adj. Flow (vph)	96	429	48	143	326	56	239	551	184	75	467	108
RTOR Reduction (vph)	0	14	0	0	14	0	0	0	71	0	17	0
Lane Group Flow (vph)	96	463	0	0	511	0	239	551	113	75	558	0
Confl. Peds. (#/hr)	8		8	2		2	8		8	32		32
Confl. Bikes (#/hr)			6			6			4			28
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	23.0	23.0			23.0		49.0	49.0	49.0	49.0	49.0	
Effective Green, g (s)	23.0	23.0			23.0		49.0	49.0	49.0	49.0	49.0	
Actuated g/C Ratio	0.29	0.29			0.29		0.61	0.61	0.61	0.61	0.61	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	170	968			616		472	2168	950	482	2087	
v/s Ratio Prot		0.14						0.16			0.16	
v/s Ratio Perm	0.16				c0.24		c0.31		0.07	0.10		
v/c Ratio	0.56	0.48			0.83		0.51	0.25	0.12	0.16	0.27	
Uniform Delay, d1	24.2	23.5			26.7		8.7	7.1	6.5	6.6	7.2	
Progression Factor	1.00	1.00			1.05		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.5	0.1			8.6		3.8	0.3	0.3	0.7	0.3	
Delay (s)	26.8	23.7			36.6		12.6	7.4	6.7	7.3	7.5	
Level of Service	C	C			D		B	A	A	A	A	
Approach Delay (s)		24.2			36.6			8.5			7.5	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM Average Control Delay	17.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



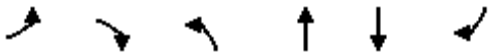
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	570	163	100	319	2	0	0	0	62	192	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						3.0	
Lane Util. Factor		*0.92		1.00	*0.92						0.95	
Frpb, ped/bikes		0.95		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.96		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		3135		1770	3413						3356	
Flt Permitted		0.95		0.21	1.00						0.99	
Satd. Flow (perm)		2972		393	3413						3356	
Peak-hour factor, PHF	0.42	0.99	0.87	0.93	0.88	0.25	0.25	0.25	0.25	0.74	0.94	0.69
Adj. Flow (vph)	12	576	187	108	362	8	0	0	0	84	204	80
RTOR Reduction (vph)	0	33	0	0	2	0	0	0	0	0	32	0
Lane Group Flow (vph)	0	742	0	108	368	0	0	0	0	0	336	0
Confl. Peds. (#/hr)	106		106	8		8	36		36	11		11
Confl. Bikes (#/hr)			18			14			2			8
Turn Type	Perm			pm+pt						Perm		
Protected Phases		2		1	6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)		32.0		43.0	43.0						29.0	
Effective Green, g (s)		32.0		43.0	43.0						29.0	
Actuated g/C Ratio		0.40		0.54	0.54						0.36	
Clearance Time (s)		5.0		5.0	5.0						3.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		1189		315	1834						1217	
v/s Ratio Prot				c0.03	0.11							
v/s Ratio Perm		c0.25		0.16							0.10	
v/c Ratio		0.62		0.34	0.20						0.28	
Uniform Delay, d1		19.2		10.7	9.6						18.1	
Progression Factor		1.67		1.00	1.00						1.00	
Incremental Delay, d2		2.4		0.2	0.2						0.6	
Delay (s)		34.5		11.0	9.8						18.6	
Level of Service		C		B	A						B	
Approach Delay (s)		34.5			10.1			0.0			18.6	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	23.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	114	538	110	279	724	36	9	1086	707	2	504	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	0.92		1.00	0.93		0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	
Satd. Flow (prot)	3433	3539	1484	3433	3539	1459		5081	1466		4912	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.93	1.00		0.93	
Satd. Flow (perm)	3433	3539	1484	3433	3539	1459		4709	1466		4580	
Peak-hour factor, PHF	0.63	0.92	0.83	0.98	0.93	0.75	0.56	0.92	0.86	0.50	0.96	0.50
Adj. Flow (vph)	181	585	133	285	778	48	16	1180	822	4	525	100
RTOR Reduction (vph)	0	0	74	0	0	29	0	0	262	0	28	0
Lane Group Flow (vph)	181	585	59	285	778	19	0	1196	560	0	601	0
Confl. Peds. (#/hr)	31		31	48		48	42		42	34		34
Confl. Bikes (#/hr)			22			15			22			20
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		
Protected Phases	1	6		5	2			4			4	
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	9.6	36.5	36.5	12.5	40.4	40.4		36.0	36.0		36.0	
Effective Green, g (s)	9.6	36.5	36.5	12.5	40.4	40.4		36.0	36.0		36.0	
Actuated g/C Ratio	0.10	0.36	0.36	0.12	0.40	0.40		0.36	0.36		0.36	
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	330	1292	542	429	1430	589		1695	528		1649	
v/s Ratio Prot	0.05	0.17		c0.08	c0.22							
v/s Ratio Perm			0.04			0.01		0.25	c0.38		0.13	
v/c Ratio	0.55	0.45	0.11	0.66	0.54	0.03		0.71	1.06		0.36	
Uniform Delay, d1	43.1	24.2	21.0	41.7	22.8	18.0		27.5	32.0		23.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	1.0	1.1	0.4	3.0	1.5	0.1		2.5	56.0		0.6	
Delay (s)	44.1	25.3	21.4	44.7	24.3	18.1		30.0	88.0		24.2	
Level of Service	D	C	C	D	C	B		C	F		C	
Approach Delay (s)		28.5			29.2			53.6			24.2	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM Average Control Delay	39.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	100.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	258	69	84	1263	766	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.5	4.5	
Lane Util. Factor	0.97		1.00	*0.50	0.86	
Frpb, ped/bikes	0.98		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		0.99	1.00	1.00	
Frt	0.93		1.00	1.00	0.99	
Flt Protected	0.98		0.95	1.00	1.00	
Satd. Flow (prot)	3204		1748	3725	6321	
Flt Permitted	0.98		0.27	1.00	1.00	
Satd. Flow (perm)	3204		496	3725	6321	
Peak-hour factor, PHF	0.90	0.25	0.91	0.96	0.90	0.88
Adj. Flow (vph)	287	276	92	1316	851	84
RTOR Reduction (vph)	229	0	0	0	12	0
Lane Group Flow (vph)	334	0	92	1316	923	0
Confl. Peds. (#/hr)	30	30	106			
Confl. Bikes (#/hr)		2				
Turn Type			pm+pt			
Protected Phases	4		1	2	2	
Permitted Phases			2			
Actuated Green, G (s)	13.6		52.9	47.1	47.1	
Effective Green, g (s)	13.6		52.9	47.1	47.1	
Actuated g/C Ratio	0.17		0.66	0.59	0.59	
Clearance Time (s)	5.0		4.0	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	545		419	2193	3721	
v/s Ratio Prot	c0.10		c0.02	c0.35	0.15	
v/s Ratio Perm			0.13			
v/c Ratio	0.61		0.22	0.60	0.25	
Uniform Delay, d1	30.8		4.9	10.5	7.9	
Progression Factor	1.00		0.58	0.88	1.00	
Incremental Delay, d2	2.0		0.3	1.2	0.2	
Delay (s)	32.8		3.1	10.3	8.1	
Level of Service	C		A	B	A	
Approach Delay (s)	32.8			9.9	8.1	
Approach LOS	C			A	A	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	232	10	21	139	11	54
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.63	0.66	0.91	0.69	0.84
Hourly flow rate (vph)	247	16	32	153	16	64
Pedestrians	18			18		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	533			360		
pX, platoon unblocked						
vC, conflicting volume			263		489	273
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			263		489	273
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	91
cM capacity (veh/h)			1302		517	754

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	263	185	80
Volume Left	0	32	16
Volume Right	16	0	64
cSH	1700	1302	691
Volume to Capacity	0.15	0.02	0.12
Queue Length 95th (ft)	0	2	10
Control Delay (s)	0.0	1.5	10.9
Lane LOS		A	B
Approach Delay (s)	0.0	1.5	10.9
Approach LOS			B

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	182	9	9	141	29	60
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.75	0.31	0.83	0.73	0.75
Hourly flow rate (vph)	202	12	29	170	40	80
Pedestrians	27			27		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	470			423		
pX, platoon unblocked						
vC, conflicting volume			214		463	235
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			214		463	235
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		93	90
cM capacity (veh/h)			1356		533	786

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	214	199	120
Volume Left	0	29	40
Volume Right	12	0	80
cSH	1700	1356	679
Volume to Capacity	0.13	0.02	0.18
Queue Length 95th (ft)	0	2	16
Control Delay (s)	0.0	1.3	11.4
Lane LOS		A	B
Approach Delay (s)	0.0	1.3	11.4
Approach LOS			B

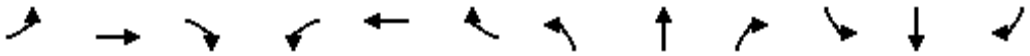
Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	32.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	282	3	15	116	45	82
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.38	0.63	0.94	0.80	0.82
Hourly flow rate (vph)	291	8	24	123	56	100
Pedestrians	20			20		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	80			813		
pX, platoon unblocked			0.92		0.92	0.92
vC, conflicting volume			299		486	315
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			197		400	215
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		90	87
cM capacity (veh/h)			1268		539	748

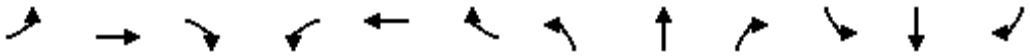
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	299	147	28	28	50	50
Volume Left	0	24	28	28	0	0
Volume Right	8	0	0	0	50	50
cSH	1700	1268	539	539	748	748
Volume to Capacity	0.18	0.02	0.05	0.05	0.07	0.07
Queue Length 95th (ft)	0	1	4	4	5	5
Control Delay (s)	0.0	1.4	12.0	12.0	10.2	10.2
Lane LOS		A	B	B	B	B
Approach Delay (s)	0.0	1.4	10.8			
Approach LOS			B			

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		



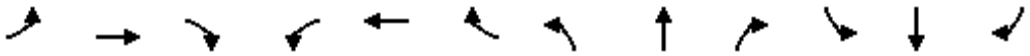
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	157	79	58	131	0	0	0	0	39	402	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.91	
Frpb, ped/bikes		1.00	0.91		1.00						0.98	
Flpb, ped/bikes		1.00	1.00		0.97						0.98	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.98						0.99	
Satd. Flow (prot)		1863	1434		1774						4808	
Flt Permitted		1.00	1.00		0.80						0.99	
Satd. Flow (perm)		1863	1434		1442						4808	
Peak-hour factor, PHF	0.92	0.91	0.79	0.76	0.84	0.92	0.25	0.25	0.25	0.75	0.97	0.69
Adj. Flow (vph)	0	173	100	76	156	0	0	0	0	52	414	32
RTOR Reduction (vph)	0	0	41	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	173	59	0	232	0	0	0	0	0	494	0
Confl. Peds. (#/hr)	58		58	100		100	50		50	104		104
Confl. Bikes (#/hr)			8			6			10			28
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		18.6	18.6		18.6						53.4	
Effective Green, g (s)		18.6	18.6		18.6						53.4	
Actuated g/C Ratio		0.23	0.23		0.23						0.67	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		433	333		335						3209	
v/s Ratio Prot		0.09										
v/s Ratio Perm			0.04		c0.16						0.10	
v/c Ratio		0.40	0.18		0.69						0.15	
Uniform Delay, d1		26.0	24.6		28.1						4.9	
Progression Factor		1.00	1.00		1.00						1.29	
Incremental Delay, d2		0.6	0.3		6.1						0.1	
Delay (s)		26.6	24.8		34.2						6.5	
Level of Service		C	C		C						A	
Approach Delay (s)		25.9			34.2			0.0			6.5	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



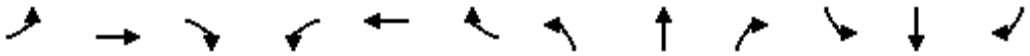
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	91	1	0	87	62	16	264	140	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.97			1.00	0.80			
Flpb, ped/bikes		0.99			1.00			0.99	1.00			
Frt		1.00			0.94			1.00	0.85			
Flt Protected		0.99			1.00			1.00	1.00			
Satd. Flow (prot)		1827			1699			3502	1269			
Flt Permitted		0.97			1.00			1.00	1.00			
Satd. Flow (perm)		1782			1699			3502	1269			
Peak-hour factor, PHF	0.69	0.84	0.25	0.25	0.87	0.82	0.80	0.93	0.88	0.25	0.25	0.25
Adj. Flow (vph)	16	108	4	0	100	76	20	284	159	0	0	0
RTOR Reduction (vph)	0	1	0	0	28	0	0	0	129	0	0	0
Lane Group Flow (vph)	0	127	0	0	148	0	0	304	30	0	0	0
Confl. Peds. (#/hr)	71		71	82		82	88		88	75		75
Confl. Bikes (#/hr)			8			2			40			1
Turn Type	Perm						Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2						1		1			
Actuated Green, G (s)		28.6			28.6			8.4	8.4			
Effective Green, g (s)		28.6			28.6			8.4	8.4			
Actuated g/C Ratio		0.64			0.64			0.19	0.19			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)		1133			1080			654	237			
v/s Ratio Prot					c0.09							
v/s Ratio Perm		0.07						0.09	0.02			
v/c Ratio		0.11			0.14			0.46	0.13			
Uniform Delay, d1		3.2			3.3			16.3	15.2			
Progression Factor		0.44			1.00			1.00	1.00			
Incremental Delay, d2		0.2			0.3			0.2	0.1			
Delay (s)		1.6			3.5			16.5	15.3			
Level of Service		A			A			B	B			
Approach Delay (s)		1.6			3.5			16.1			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



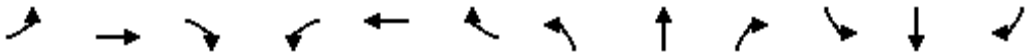
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	36	17	49	0	49	0	423	35	25	368	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frpb, ped/bikes	1.00	0.99			0.98			0.99			1.00	
Flpb, ped/bikes	0.99	1.00			0.99			1.00			1.00	
Frt	1.00	0.95			0.93			0.99			1.00	
Flt Protected	0.95	1.00			0.98			1.00			1.00	
Satd. Flow (prot)	1746	1759			1651			3474			3519	
Flt Permitted	0.68	1.00			0.87			1.00			0.90	
Satd. Flow (perm)	1250	1759			1474			3474			3179	
Peak-hour factor, PHF	0.69	0.82	0.85	0.88	0.92	0.77	0.25	0.89	0.88	0.89	0.99	0.92
Adj. Flow (vph)	16	44	20	56	0	64	0	475	40	28	372	0
RTOR Reduction (vph)	0	12	0	0	37	0	0	14	0	0	0	0
Lane Group Flow (vph)	16	52	0	0	83	0	0	501	0	0	400	0
Confl. Peds. (#/hr)	22		22	24		24	40		40	48		48
Confl. Bikes (#/hr)			3						17			7
Turn Type	Perm			Perm						Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2						4		
Actuated Green, G (s)	19.0	19.0			19.0			17.0			17.0	
Effective Green, g (s)	19.0	19.0			19.0			17.0			17.0	
Actuated g/C Ratio	0.42	0.42			0.42			0.38			0.38	
Clearance Time (s)	4.0	4.0			4.0			5.0			5.0	
Vehicle Extension (s)	2.0	2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)	528	743			622			1312			1201	
v/s Ratio Prot		0.03						c0.14				
v/s Ratio Perm	0.01				c0.06						0.13	
v/c Ratio	0.03	0.07			0.13			0.38			0.33	
Uniform Delay, d1	7.6	7.7			8.0			10.2			10.0	
Progression Factor	1.00	1.00			1.17			1.00			1.00	
Incremental Delay, d2	0.1	0.2			0.4			0.8			0.7	
Delay (s)	7.7	7.9			9.8			11.0			10.7	
Level of Service	A	A			A			B			B	
Approach Delay (s)		7.9			9.8			11.0			10.7	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	127	23	9	151	149	20	507	21	31	139	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5		4.5	4.5	
Lane Util. Factor		0.95			0.95			0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.98			1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00			1.00		1.00	1.00	
Frt		0.97			0.93			0.99		1.00	0.94	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3374			3208			3495		1766	3281	
Flt Permitted		0.75			0.94			0.93		0.35	1.00	
Satd. Flow (perm)		2541			3013			3273		654	3281	
Peak-hour factor, PHF	0.55	0.84	0.52	0.56	0.70	0.65	0.71	0.91	0.66	0.97	0.85	0.44
Adj. Flow (vph)	40	151	44	16	216	229	28	557	32	32	164	111
RTOR Reduction (vph)	0	36	0	0	187	0	0	5	0	0	37	0
Lane Group Flow (vph)	0	199	0	0	274	0	0	613	0	32	238	0
Confl. Peds. (#/hr)	32		32	24		24	16		16	19		19
Confl. Bikes (#/hr)			6			4			25			3
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		10.9			10.9			33.0		40.1	40.1	
Effective Green, g (s)		10.9			10.9			33.0		40.1	40.1	
Actuated g/C Ratio		0.18			0.18			0.55		0.67	0.67	
Clearance Time (s)		4.5			4.5			4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		462			547			1800		485	2193	
v/s Ratio Prot										0.00	c0.07	
v/s Ratio Perm		0.08			c0.09			c0.19		0.04		
v/c Ratio		0.43			0.50			0.34		0.07	0.11	
Uniform Delay, d1		21.8			22.1			7.5		3.7	3.6	
Progression Factor		1.00			0.85			1.00		1.00	1.00	
Incremental Delay, d2		0.6			0.7			0.5		0.1	0.1	
Delay (s)		22.4			19.5			8.0		3.7	3.7	
Level of Service		C			B			A		A	A	
Approach Delay (s)		22.4			19.5			8.0			3.7	
Approach LOS		C			B			A			A	

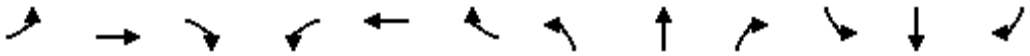
Intersection Summary			
HCM Average Control Delay	12.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	128	80	51	199	86	92	675	95	37	466	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.97			0.96			0.99			0.99	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.95			0.96			0.98			0.99	
Flt Protected		1.00			0.99			0.99			1.00	
Satd. Flow (prot)		3216			3209			3411			4956	
Flt Permitted		0.91			0.87			0.78			0.81	
Satd. Flow (perm)		2937			2828			2672			4024	
Peak-hour factor, PHF	0.79	0.82	0.83	0.91	0.89	0.80	0.92	0.92	0.95	0.71	0.88	0.63
Adj. Flow (vph)	24	156	96	56	224	108	100	734	100	52	530	52
RTOR Reduction (vph)	0	61	0	0	65	0	0	16	0	0	18	0
Lane Group Flow (vph)	0	215	0	0	323	0	0	919	0	0	617	0
Confl. Peds. (#/hr)	74		74	120		120	85		85	65		65
Confl. Bikes (#/hr)			30			13			10			6
Turn Type	Perm			Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						6		
Actuated Green, G (s)		22.0			22.0			29.0			18.0	
Effective Green, g (s)		22.0			22.0			29.0			18.0	
Actuated g/C Ratio		0.37			0.37			0.48			0.30	
Clearance Time (s)		4.0			4.0			5.0			5.0	
Lane Grp Cap (vph)		1077			1037			1378			1207	
v/s Ratio Prot								c0.08				
v/s Ratio Perm		0.07			c0.11			c0.24			0.15	
v/c Ratio		0.20			0.31			0.67			0.51	
Uniform Delay, d1		13.0			13.6			11.8			17.4	
Progression Factor		1.92			1.00			1.00			1.00	
Incremental Delay, d2		0.4			0.8			2.6			1.5	
Delay (s)		25.3			14.4			14.4			18.9	
Level of Service		C			B			B			B	
Approach Delay (s)		25.3			14.4			14.4			18.9	
Approach LOS		C			B			B			B	

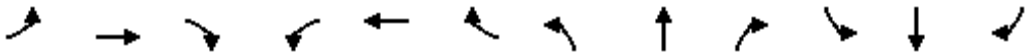
Intersection Summary			
HCM Average Control Delay	17.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	255	0	0	300	75	50	302	198	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.91	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3500			3371	1319		4998	1456			
Flt Permitted		0.88			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3103			3371	1319		4998	1456			
Peak-hour factor, PHF	0.66	0.87	0.92	0.92	0.92	0.94	0.83	0.91	0.93	0.92	0.92	0.92
Adj. Flow (vph)	44	293	0	0	326	80	60	332	213	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	17	0	0	181	0	0	0
Lane Group Flow (vph)	0	337	0	0	333	55	0	392	32	0	0	0
Confl. Peds. (#/hr)	42		42	54		54	58		58	194		194
Confl. Bikes (#/hr)			12			7			5			8
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		60.8			60.8	60.8		12.2	12.2			
Effective Green, g (s)		60.8			60.8	60.8		12.2	12.2			
Actuated g/C Ratio		0.76			0.76	0.76		0.15	0.15			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2358			2562	1002		762	222			
v/s Ratio Prot					0.10							
v/s Ratio Perm		c0.11				0.04		0.08	0.02			
v/c Ratio		0.14			0.13	0.05		0.51	0.15			
Uniform Delay, d1		2.6			2.6	2.4		31.2	29.4			
Progression Factor		1.00			0.72	0.36		1.00	1.00			
Incremental Delay, d2		0.1			0.1	0.1		0.6	0.3			
Delay (s)		2.7			1.9	1.0		31.8	29.7			
Level of Service		A			A	A		C	C			
Approach Delay (s)		2.7			1.8			31.0			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	315	137	109	282	0	0	0	0	63	403	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	0.91	0.91						0.91	
Frpb, ped/bikes		1.00	0.91	1.00	1.00						0.95	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						0.96	
Frt		1.00	0.85	1.00	1.00						0.98	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		3539	1439	1610	3372						4487	
Flt Permitted		1.00	1.00	0.95	0.95						0.99	
Satd. Flow (perm)		3539	1439	1610	3200						4487	
Peak-hour factor, PHF	0.92	0.88	0.90	0.83	0.92	0.25	0.25	0.25	0.25	0.72	0.92	0.92
Adj. Flow (vph)	0	358	152	131	307	0	0	0	0	88	438	100
RTOR Reduction (vph)	0	0	59	0	0	0	0	0	0	0	35	0
Lane Group Flow (vph)	0	358	93	118	320	0	0	0	0	0	591	0
Confl. Peds. (#/hr)	51		51	114		114	115		115	333		333
Confl. Bikes (#/hr)			8			3			17			6
Turn Type			Perm	Prot						Perm		
Protected Phases		2		1	6						4	
Permitted Phases			2							4		
Actuated Green, G (s)		28.0	28.0	10.0	42.0						30.0	
Effective Green, g (s)		28.0	28.0	10.0	42.0						30.0	
Actuated g/C Ratio		0.35	0.35	0.12	0.52						0.38	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		1239	504	201	1702						1683	
v/s Ratio Prot		c0.10		c0.07	0.02							
v/s Ratio Perm			0.06		0.08						0.13	
v/c Ratio		0.29	0.18	0.59	0.19						0.35	
Uniform Delay, d1		18.8	18.1	33.1	10.0						18.0	
Progression Factor		1.16	1.34	0.97	0.93						1.25	
Incremental Delay, d2		0.6	0.8	2.8	0.0						0.0	
Delay (s)		22.5	25.0	34.9	9.3						22.6	
Level of Service		C	C	C	A						C	
Approach Delay (s)		23.2			16.2			0.0			22.6	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

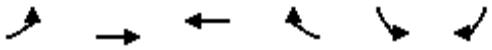
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBT	SBR
Lane Configurations												
Volume (vph)	256	89	35	7	111	14	75	21	629	20	138	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0				4.0		4.0	4.0
Lane Util. Factor	0.91	0.91		1.00	0.95				0.95		0.91	0.91
Frpb, ped/bikes	1.00	1.00		1.00	1.00				1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00				1.00		1.00	1.00
Frt	1.00	0.96		1.00	0.98				1.00		0.98	0.85
Flt Protected	0.95	0.99		0.95	1.00				0.99		1.00	1.00
Satd. Flow (prot)	3221	1614		1770	3481				3495		3334	1441
Flt Permitted	0.95	0.99		0.95	1.00				0.99		1.00	1.00
Satd. Flow (perm)	3221	1614		1770	3481				3495		3334	1441
Peak-hour factor, PHF	0.91	0.86	0.73	0.63	0.86	0.86	0.71	0.71	0.88	0.71	0.78	0.89
Adj. Flow (vph)	281	103	48	11	129	16	106	30	715	28	177	108
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	3	0	0	0
Lane Group Flow (vph)	253	164	0	11	145	0	0	0	876	0	199	86
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)		12							7			
Turn Type	custom			Split			Split	Split				custom
Protected Phases	1	1		7	7		8	8	8		2	6
Permitted Phases	1											6
Actuated Green, G (s)	19.7	19.7		7.7	7.7				25.6		11.0	34.7
Effective Green, g (s)	19.7	19.7		7.7	7.7				25.6		11.0	34.7
Actuated g/C Ratio	0.25	0.25		0.10	0.10				0.32		0.14	0.43
Clearance Time (s)	4.0	4.0		4.0	4.0				4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0				2.0		2.0	2.0
Lane Grp Cap (vph)	793	397		170	335				1118		458	625
v/s Ratio Prot	0.08	c0.10		0.01	c0.04				c0.25		c0.06	0.06
v/s Ratio Perm												
v/c Ratio	0.32	0.41		0.06	0.43				0.78		0.43	0.14
Uniform Delay, d1	24.7	25.3		32.9	34.1				24.7		31.6	13.6
Progression Factor	0.85	0.83		0.80	0.83				1.00		1.14	1.18
Incremental Delay, d2	1.1	3.1		0.1	0.3				3.4		0.2	0.5
Delay (s)	22.0	24.3		26.2	28.7				28.1		36.3	16.5
Level of Service	C	C		C	C				C		D	B
Approach Delay (s)		22.9			28.6				28.1		29.7	
Approach LOS		C			C				C		C	

Intersection Summary			
HCM Average Control Delay	27.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBR2
Lane Configurations	
Volume (vph)	36
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frpb, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.89
Adj. Flow (vph)	40
RTOR Reduction (vph)	23
Lane Group Flow (vph)	17
Confl. Peds. (#/hr)	74
Confl. Bikes (#/hr)	8
Turn Type	custom
Protected Phases	6
Permitted Phases	
Actuated Green, G (s)	34.7
Effective Green, g (s)	34.7
Actuated g/C Ratio	0.43
Clearance Time (s)	4.0
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	687
v/s Ratio Prot	0.01
v/s Ratio Perm	
v/c Ratio	0.03
Uniform Delay, d1	13.0
Progression Factor	1.95
Incremental Delay, d2	0.1
Delay (s)	25.3
Level of Service	C
Approach Delay (s)	
Approach LOS	

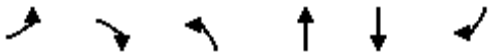
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	380	282	0	0	94
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.25	0.25	0.25	0.92	0.92	0.66
Hourly flow rate (vph)	0	1520	1128	0	0	142
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		420	110			
pX, platoon unblocked	0.97				0.97	0.97
vC, conflicting volume	1128				1635	564
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1073				1594	492
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	72
cM capacity (veh/h)	627				95	507

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	SB 1
Volume Total	0	507	507	507	564	564	142
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	142
cSH	1700	1700	1700	1700	1700	1700	507
Volume to Capacity	0.00	0.30	0.30	0.30	0.33	0.33	0.28
Queue Length 95th (ft)	0	0	0	0	0	0	29
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	14.8
Lane LOS							B
Approach Delay (s)	0.0				0.0		14.8
Approach LOS							B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	20.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	893	0	0	703	624	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			4.0	4.0	4.0
Lane Util. Factor	0.94			0.91	0.95	0.76
Frpb, ped/bikes	1.00			1.00	1.00	0.96
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	0.95			1.00	1.00	1.00
Satd. Flow (prot)	4990			5085	3539	3481
Flt Permitted	0.95			1.00	1.00	1.00
Satd. Flow (perm)	4990			5085	3539	3481
Peak-hour factor, PHF	0.95	0.95	0.25	0.93	0.99	0.84
Adj. Flow (vph)	940	0	0	756	630	324
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	940	0	0	756	630	324
Confl. Peds. (#/hr)						20
Confl. Bikes (#/hr)						16
Turn Type						Free
Protected Phases	1			2	2	
Permitted Phases						Free
Actuated Green, G (s)	21.9			49.1	49.1	80.0
Effective Green, g (s)	21.9			49.1	49.1	80.0
Actuated g/C Ratio	0.27			0.61	0.61	1.00
Clearance Time (s)	5.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1366			3121	2172	3481
v/s Ratio Prot	c0.19			0.15	c0.18	
v/s Ratio Perm						0.09
v/c Ratio	0.69			0.24	0.29	0.09
Uniform Delay, d1	26.0			7.0	7.3	0.0
Progression Factor	1.07			1.00	0.78	1.00
Incremental Delay, d2	1.2			0.2	0.3	0.1
Delay (s)	29.0			7.2	6.0	0.1
Level of Service	C			A	A	A
Approach Delay (s)	29.0			7.2	4.0	
Approach LOS	C			A	A	

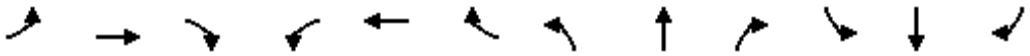
Intersection Summary			
HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	132	703	624	0	0	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0			3.0
Lane Util. Factor	0.94	0.95	0.95			0.88
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	4990	3539	3539			2787
Flt Permitted	0.94	1.00	1.00			1.00
Satd. Flow (perm)	4938	3539	3539			2787
Peak-hour factor, PHF	0.69	0.88	0.92	0.92	0.92	0.71
Adj. Flow (vph)	191	799	678	0	0	154
RTOR Reduction (vph)	0	0	0	0	0	53
Lane Group Flow (vph)	191	799	678	0	0	101
Confl. Bikes (#/hr)				2		
Turn Type	Perm					custom
Protected Phases		2	1			2
Permitted Phases	2	1				2
Actuated Green, G (s)	52.6	74.0	21.4			52.6
Effective Green, g (s)	52.6	74.0	21.4			52.6
Actuated g/C Ratio	0.66	0.92	0.27			0.66
Clearance Time (s)	3.0	3.0	3.0			3.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	3247	3539	947			1832
v/s Ratio Prot		c0.15	c0.19			0.04
v/s Ratio Perm	0.04	0.08				
v/c Ratio	0.06	0.23	0.72			0.06
Uniform Delay, d1	4.9	0.3	26.5			4.9
Progression Factor	1.00	1.00	0.71			3.44
Incremental Delay, d2	0.0	0.0	2.5			0.1
Delay (s)	4.9	0.3	21.5			16.8
Level of Service	A	A	C			B
Approach Delay (s)		1.2	21.5		16.8	
Approach LOS		A	C		B	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	3.0
Intersection Capacity Utilization	27.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	146	151	0	0	0	0	0	986	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0						6.0	
Lane Util. Factor				1.00	0.95						0.86	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				1.00	1.00						1.00	
Frt				1.00	1.00						0.98	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1766	3539						6289	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1766	3539						6289	
Peak-hour factor, PHF	0.25	0.95	0.92	0.91	0.90	0.25	0.25	0.25	0.25	0.92	0.97	0.89
Adj. Flow (vph)	0	0	0	160	168	0	0	0	0	0	1016	128
RTOR Reduction (vph)	0	0	0	10	0	0	0	0	0	0	24	0
Lane Group Flow (vph)	0	0	0	150	168	0	0	0	0	0	1120	0
Confl. Peds. (#/hr)	15		15	2		2				2		2
Confl. Bikes (#/hr)			4									2
Turn Type				Perm								
Protected Phases					4						6	
Permitted Phases				4								
Actuated Green, G (s)				31.0	31.0						35.0	
Effective Green, g (s)				31.0	31.0						35.0	
Actuated g/C Ratio				0.41	0.41						0.47	
Clearance Time (s)				3.0	3.0						6.0	
Vehicle Extension (s)				3.0	3.0						4.0	
Lane Grp Cap (vph)				730	1463						2935	
v/s Ratio Prot					0.05						c0.18	
v/s Ratio Perm				c0.08								
v/c Ratio				0.21	0.11						0.38	
Uniform Delay, d1				14.1	13.5						13.0	
Progression Factor				1.00	1.00						0.62	
Incremental Delay, d2				0.6	0.2						0.1	
Delay (s)				14.7	13.7						8.2	
Level of Service				B	B						A	
Approach Delay (s)		0.0			14.2			0.0			8.2	
Approach LOS		A			B			A			A	

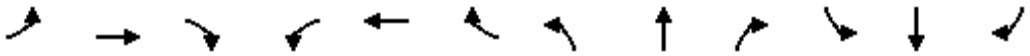
Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	200	396	947	59	269	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0		5.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.98	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	5085	5022		3403	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1770	5085	5022		3403	
Peak-hour factor, PHF	0.82	0.93	0.93	0.82	0.91	0.89
Adj. Flow (vph)	244	426	1018	72	296	36
RTOR Reduction (vph)	7	0	11	0	0	0
Lane Group Flow (vph)	237	426	1079	0	332	0
Confl. Peds. (#/hr)				17		
Confl. Bikes (#/hr)				6		
Turn Type	Perm					
Protected Phases		4	2		1	
Permitted Phases	4					
Actuated Green, G (s)	23.6	23.6	22.4		17.0	
Effective Green, g (s)	23.6	23.6	22.4		17.0	
Actuated g/C Ratio	0.31	0.31	0.30		0.23	
Clearance Time (s)	3.0	3.0	4.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	557	1600	1500		771	
v/s Ratio Prot		0.08	c0.21		c0.10	
v/s Ratio Perm	c0.13					
v/c Ratio	0.43	0.27	0.72		0.43	
Uniform Delay, d1	20.3	19.2	23.5		24.9	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	2.4	0.4	1.7		0.4	
Delay (s)	22.7	19.6	25.2		25.2	
Level of Service	C	B	C		C	
Approach Delay (s)		20.8	25.2		25.2	
Approach LOS		C	C		C	

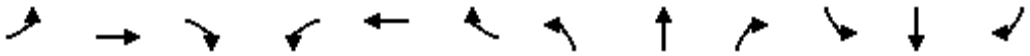
Intersection Summary			
HCM Average Control Delay	23.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



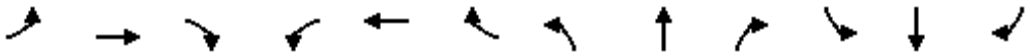
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	226	756	876	452	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	5.0	5.0				
Lane Util. Factor					0.91	0.91	0.81	0.81				
Frpb, ped/bikes					0.99	0.98	1.00	1.00				
Flpb, ped/bikes					1.00	1.00	0.98	0.99				
Frt					0.91	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	0.98				
Satd. Flow (prot)					3051	1417	1403	5826				
Flt Permitted					1.00	1.00	0.95	0.98				
Satd. Flow (perm)					3051	1417	1403	5826				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.77	0.83	0.90	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	294	911	973	486	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	75	75	360	291	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	675	380	126	682	0	0	0	0
Confl. Peds. (#/hr)	1		1	4		4	14		14			
Confl. Bikes (#/hr)						1						4
Turn Type						Perm	Perm					
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					45.6	45.6	19.4	19.4				
Effective Green, g (s)					45.6	45.6	19.4	19.4				
Actuated g/C Ratio					0.61	0.61	0.26	0.26				
Clearance Time (s)					5.0	5.0	5.0	5.0				
Vehicle Extension (s)					3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)					1855	862	363	1507				
v/s Ratio Prot					0.22							
v/s Ratio Perm						c0.27	0.09	0.12				
v/c Ratio					0.36	0.44	0.35	0.45				
Uniform Delay, d1					7.4	7.9	22.6	23.3				
Progression Factor					1.00	1.00	1.00	1.00				
Incremental Delay, d2					0.6	1.6	0.6	0.2				
Delay (s)					8.0	9.5	23.2	23.6				
Level of Service					A	A	C	C				
Approach Delay (s)		0.0			8.5			23.4			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	214	62	0	0	0	0	0	0	480	777	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		0.95								0.86	0.86	
Frpb, ped/bikes		1.00								1.00	1.00	
Flpb, ped/bikes		1.00								1.00	1.00	
Frt		0.96								1.00	0.99	
Flt Protected		1.00								0.95	0.99	
Satd. Flow (prot)		3396								1522	4735	
Flt Permitted		1.00								0.95	0.99	
Satd. Flow (perm)		3396								1522	4735	
Peak-hour factor, PHF	0.92	0.89	0.82	0.25	0.25	0.25	0.25	0.25	0.25	0.89	0.82	0.84
Adj. Flow (vph)	0	240	76	0	0	0	0	0	0	539	948	56
RTOR Reduction (vph)	0	30	0	0	0	0	0	0	0	216	34	0
Lane Group Flow (vph)	0	286	0	0	0	0	0	0	0	161	1132	0
Confl. Peds. (#/hr)	5		5									
Confl. Bikes (#/hr)			2									2
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		35.0								32.0	32.0	
Effective Green, g (s)		35.0								32.0	32.0	
Actuated g/C Ratio		0.47								0.43	0.43	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		1585								649	2020	
v/s Ratio Prot		c0.08										
v/s Ratio Perm										0.11	0.24	
v/c Ratio		0.18								0.25	0.56	
Uniform Delay, d1		11.6								13.8	16.2	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.3								0.9	1.1	
Delay (s)		11.9								14.7	17.3	
Level of Service		B								B	B	
Approach Delay (s)		11.9			0.0			0.0			16.7	
Approach LOS		B			A			A			B	

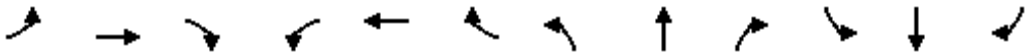
Intersection Summary			
HCM Average Control Delay	15.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	767	0	0	355	218	171	528	35	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Util. Factor		0.95			0.95	1.00		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.96			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3518			3539	1461		3467	1520			
Flt Permitted		0.87			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3078			3539	1461		3467	1520			
Peak-hour factor, PHF	0.63	0.86	0.25	0.99	0.96	0.96	0.84	0.92	0.73	0.25	0.25	0.25
Adj. Flow (vph)	84	892	0	0	370	227	204	574	48	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	158	0	0	6	0	0	0
Lane Group Flow (vph)	0	976	0	0	370	70	0	778	42	0	0	0
Confl. Peds. (#/hr)	36		36	52		52	35		35	10		10
Confl. Bikes (#/hr)			5			21						22
Turn Type	Perm			Perm		Perm	Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4			8		8	2		2			
Actuated Green, G (s)		18.0			18.0	18.0		32.0	32.0			
Effective Green, g (s)		18.0			18.0	18.0		32.0	32.0			
Actuated g/C Ratio		0.30			0.30	0.30		0.53	0.53			
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Grp Cap (vph)		923			1062	438		1849	811			
v/s Ratio Prot					0.10							
v/s Ratio Perm		c0.32				0.05		0.22	0.03			
v/c Ratio		1.06			0.35	0.16		0.42	0.05			
Uniform Delay, d1		21.0			16.4	15.4		8.4	6.7			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		46.0			0.9	0.8		0.7	0.1			
Delay (s)		67.0			17.3	16.2		9.1	6.8			
Level of Service		E			B	B		A	A			
Approach Delay (s)		67.0			16.9			9.0			0.0	
Approach LOS		E			B			A			A	

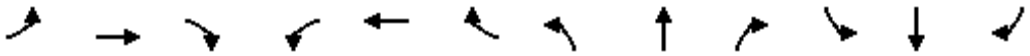
Intersection Summary			
HCM Average Control Delay	34.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



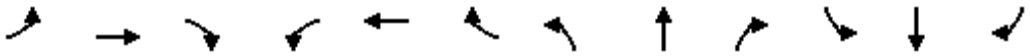
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	538	61	22	468	0	0	0	0	287	501	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0					4.0	4.0	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frpb, ped/bikes		0.99			1.00					1.00	1.00	
Flpb, ped/bikes		1.00			1.00					0.98	1.00	
Frt		0.98			1.00					1.00	0.99	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		3451			3529					1734	3511	
Flt Permitted		1.00			0.91					0.95	1.00	
Satd. Flow (perm)		3451			3233					1734	3511	
Peak-hour factor, PHF	0.25	0.91	0.76	0.79	0.91	0.25	0.25	0.25	0.25	0.94	0.96	0.67
Adj. Flow (vph)	0	591	80	28	514	0	0	0	0	305	522	24
RTOR Reduction (vph)	0	24	0	0	0	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	647	0	0	542	0	0	0	0	305	538	0
Confl. Peds. (#/hr)	50		50	25		25	17		17	24		24
Confl. Bikes (#/hr)			16			17			2			
Turn Type				Perm						Perm		
Protected Phases		8			4						6	
Permitted Phases				4						6		
Actuated Green, G (s)		19.0			19.0					19.0	19.0	
Effective Green, g (s)		19.0			19.0					19.0	19.0	
Actuated g/C Ratio		0.42			0.42					0.42	0.42	
Clearance Time (s)		3.0			3.0					4.0	4.0	
Vehicle Extension (s)		2.0			2.0					2.0	2.0	
Lane Grp Cap (vph)		1457			1365					732	1482	
v/s Ratio Prot		c0.19									0.15	
v/s Ratio Perm					0.17					c0.18		
v/c Ratio		0.44			0.40					0.42	0.36	
Uniform Delay, d1		9.2			9.0					9.1	8.9	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		1.0			0.9					1.7	0.7	
Delay (s)		10.2			9.9					10.9	9.6	
Level of Service		B			A					B	A	
Approach Delay (s)		10.2			9.9			0.0			10.0	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	359	7	16	335	37	58	372	21	95	149	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		0.99			1.00			1.00			0.99	
Frt		1.00			0.98			0.99			0.98	
Flt Protected		0.99			1.00			0.99			0.98	
Satd. Flow (prot)		3471			3446			3459			3347	
Flt Permitted		0.84			0.93			0.87			0.66	
Satd. Flow (perm)		2935			3223			3029			2254	
Peak-hour factor, PHF	0.80	0.92	0.58	0.80	0.83	0.71	0.85	0.86	0.58	0.82	0.97	0.81
Adj. Flow (vph)	76	390	12	20	404	52	68	433	36	116	154	52
RTOR Reduction (vph)	0	3	0	0	18	0	0	13	0	0	36	0
Lane Group Flow (vph)	0	475	0	0	458	0	0	524	0	0	286	0
Confl. Peds. (#/hr)	80		80	58		58	44		44	41		41
Confl. Bikes (#/hr)			14			10			7			4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		23.5			23.5			14.0			14.0	
Effective Green, g (s)		23.5			23.5			14.0			14.0	
Actuated g/C Ratio		0.52			0.52			0.31			0.31	
Clearance Time (s)		3.5			3.5			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1533			1683			942			701	
v/s Ratio Prot												
v/s Ratio Perm		c0.16			0.14			c0.17			0.13	
v/c Ratio		0.31			0.27			0.56			0.41	
Uniform Delay, d1		6.1			6.0			12.9			12.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.5			0.4			0.7			0.4	
Delay (s)		6.7			6.4			13.6			12.6	
Level of Service		A			A			B			B	
Approach Delay (s)		6.7			6.4			13.6			12.6	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	208	786	0	0	0	0	0	582	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.86						0.91	
Frpb, ped/bikes					1.00						1.00	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.99	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					6268						5025	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					6268						5025	
Peak-hour factor, PHF	0.25	0.25	0.25	0.91	0.97	0.25	0.25	0.25	0.25	0.25	0.86	0.86
Adj. Flow (vph)	0	0	0	229	810	0	0	0	0	0	677	44
RTOR Reduction (vph)	0	0	0	0	69	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	0	0	0	970	0	0	0	0	0	709	0
Confl. Peds. (#/hr)	32		32	47		47	36		36	29		29
Confl. Bikes (#/hr)			3			13			9			2
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2716						2219	
v/s Ratio Prot											c0.14	
v/s Ratio Perm					0.15							
v/c Ratio					0.36						0.32	
Uniform Delay, d1					11.4						10.9	
Progression Factor					0.45						1.00	
Incremental Delay, d2					0.4						0.4	
Delay (s)					5.5						11.3	
Level of Service					A						B	
Approach Delay (s)		0.0			5.5			0.0			11.3	
Approach LOS		A			A			A			B	

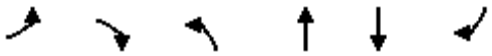
Intersection Summary			
HCM Average Control Delay	7.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	38.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	848	50	149	822	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5			4.0				
Lane Util. Factor					0.86			0.86				
Frpb, ped/bikes					1.00			1.00				
Flpb, ped/bikes					1.00			0.98				
Frt					0.99			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6317			6222				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6317			6222				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.95	0.78	0.83	0.96	0.25	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	893	64	180	856	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	45	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	950	0	0	991	0	0	0	0
Confl. Peds. (#/hr)	121		121	69		69	118		118	84		84
Confl. Bikes (#/hr)			3									15
Turn Type							Perm					
Protected Phases					6			4				
Permitted Phases							4					
Actuated Green, G (s)					29.9			20.6				
Effective Green, g (s)					29.9			20.6				
Actuated g/C Ratio					0.50			0.34				
Clearance Time (s)					5.5			4.0				
Lane Grp Cap (vph)					3148			2136				
v/s Ratio Prot					c0.15							
v/s Ratio Perm								0.16				
v/c Ratio					0.30			0.46				
Uniform Delay, d1					8.9			15.4				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.2			0.7				
Delay (s)					9.1			16.1				
Level of Service					A			B				
Approach Delay (s)		0.0			9.1			16.1			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

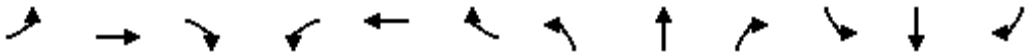
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	57	0	0	901	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.71	0.92	0.25	0.92	0.25	0.25
Hourly flow rate (vph)	80	0	0	979	0	0
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1055	320	
pX, platoon unblocked						
vC, conflicting volume	251	6	6			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	251	6	6			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	100	100			
cM capacity (veh/h)	712	1069	1605			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	80	245	245	245	245
Volume Left	80	0	0	0	0
Volume Right	0	0	0	0	0
cSH	712	1700	1700	1700	1700
Volume to Capacity	0.11	0.14	0.14	0.14	0.14
Queue Length 95th (ft)	9	0	0	0	0
Control Delay (s)	10.7	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.7	0.0			
Approach LOS	B				

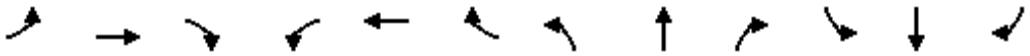
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	23.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	760	162	0	0	0	0	0	0	43	729	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5									5.5	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.97									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		6181									5061	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		6181									5061	
Peak-hour factor, PHF	0.25	0.96	0.86	0.25	0.25	0.25	0.25	0.25	0.25	0.72	0.93	0.25
Adj. Flow (vph)	0	792	188	0	0	0	0	0	0	60	784	0
RTOR Reduction (vph)	0	55	0	0	0	0	0	0	0	0	15	0
Lane Group Flow (vph)	0	925	0	0	0	0	0	0	0	0	829	0
Confl. Peds. (#/hr)	20		20	30		30	12		12	17		17
Confl. Bikes (#/hr)			5			7			3			
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		23.0									26.0	
Effective Green, g (s)		23.0									26.0	
Actuated g/C Ratio		0.38									0.43	
Clearance Time (s)		5.5									5.5	
Lane Grp Cap (vph)		2369									2193	
v/s Ratio Prot		c0.15										
v/s Ratio Perm											0.16	
v/c Ratio		0.39									0.38	
Uniform Delay, d1		13.4									11.5	
Progression Factor		0.84									0.60	
Incremental Delay, d2		0.5									0.5	
Delay (s)		11.7									7.4	
Level of Service		B									A	
Approach Delay (s)		11.7			0.0			0.0			7.4	
Approach LOS		B			A			A			A	

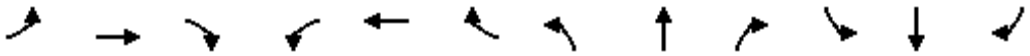
Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	605	0	0	0	0	0	266	112	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.86						0.86				
Frpb, ped/bikes		1.00						0.98				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		6382						6050				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		6382						6050				
Peak-hour factor, PHF	0.63	0.87	0.25	0.25	0.25	0.25	0.25	0.86	0.97	0.25	0.25	0.25
Adj. Flow (vph)	32	695	0	0	0	0	0	309	115	0	0	0
RTOR Reduction (vph)	0	14	0	0	0	0	0	26	0	0	0	0
Lane Group Flow (vph)	0	713	0	0	0	0	0	398	0	0	0	0
Confl. Peds. (#/hr)	46		46	17		17	53		53	68		68
Confl. Bikes (#/hr)			1			1			6			2
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		12.3						40.7				
Effective Green, g (s)		12.3						40.7				
Actuated g/C Ratio		0.20						0.68				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		1308						4104				
v/s Ratio Prot								c0.07				
v/s Ratio Perm		0.11										
v/c Ratio		0.54						0.10				
Uniform Delay, d1		21.3						3.3				
Progression Factor		1.00						1.00				
Incremental Delay, d2		0.3						0.0				
Delay (s)		21.6						3.4				
Level of Service		C						A				
Approach Delay (s)		21.6			0.0			3.4			0.0	
Approach LOS		C			A			A			A	

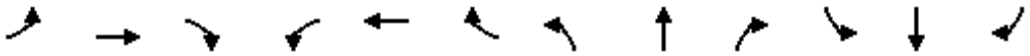
Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	149	897	0	0	0	0	0	785	329	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		0.86						0.91				
Frpb, ped/bikes		1.00						0.99				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6340						4830				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6340						4830				
Peak-hour factor, PHF	0.85	0.98	0.25	0.25	0.25	0.25	0.25	0.94	0.96	0.25	0.25	0.25
Adj. Flow (vph)	175	915	0	0	0	0	0	835	343	0	0	0
RTOR Reduction (vph)	0	37	0	0	0	0	0	26	0	0	0	0
Lane Group Flow (vph)	0	1053	0	0	0	0	0	1152	0	0	0	0
Confl. Peds. (#/hr)	22		22	50		50	14		14	6		6
Confl. Bikes (#/hr)			16			1			2			2
Turn Type	Perm											
Protected Phases		1						2				
Permitted Phases	1											
Actuated Green, G (s)		18.0						18.0				
Effective Green, g (s)		18.0						18.0				
Actuated g/C Ratio		0.40						0.40				
Clearance Time (s)		4.5						4.5				
Lane Grp Cap (vph)		2536						1932				
v/s Ratio Prot								c0.24				
v/s Ratio Perm		0.17										
v/c Ratio		0.42						0.60				
Uniform Delay, d1		9.7						10.6				
Progression Factor		0.99						1.58				
Incremental Delay, d2		0.4						1.1				
Delay (s)		10.0						18.0				
Level of Service		B						B				
Approach Delay (s)		10.0			0.0			18.0			0.0	
Approach LOS		B			A			B			A	

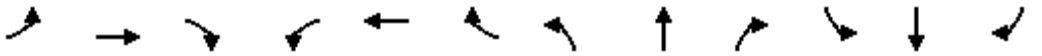
Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



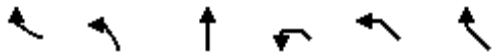
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	812	238	0	0	0	0	0	0	362	1228	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									3.0	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		1.00									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.96									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6153									5014	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6153									5014	
Peak-hour factor, PHF	0.25	0.99	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.87	0.95	0.25
Adj. Flow (vph)	0	820	259	0	0	0	0	0	0	416	1293	0
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	38	0
Lane Group Flow (vph)	0	1068	0	0	0	0	0	0	0	0	1671	0
Confl. Peds. (#/hr)	4		4	8		8	2		2	12		12
Confl. Bikes (#/hr)			2			2			2			
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		18.0									20.0	
Effective Green, g (s)		18.0									20.0	
Actuated g/C Ratio		0.40									0.44	
Clearance Time (s)		4.0									3.0	
Vehicle Extension (s)		2.0									2.0	
Lane Grp Cap (vph)		2461									2228	
v/s Ratio Prot		c0.17										
v/s Ratio Perm											0.33	
v/c Ratio		0.43									0.75	
Uniform Delay, d1		9.8									10.4	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.6									2.4	
Delay (s)		10.4									12.8	
Level of Service		B									B	
Approach Delay (s)		10.4			0.0			0.0			12.8	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	11.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	6	308	47	293	294	0	0	180	1360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.93		1.00			1.00	0.98
Flpb, ped/bikes				0.98	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.97			1.00	1.00
Satd. Flow (prot)				1726	1863	1471		1815			1863	1559
Flt Permitted				0.95	1.00	1.00		0.74			1.00	1.00
Satd. Flow (perm)				1726	1863	1471		1373			1863	1559
Peak-hour factor, PHF	0.25	0.25	0.25	0.50	0.78	0.84	0.84	0.90	0.92	0.92	0.92	0.98
Adj. Flow (vph)	0	0	0	12	395	56	349	327	0	0	196	1388
RTOR Reduction (vph)	0	0	0	0	0	43	0	0	0	0	0	42
Lane Group Flow (vph)	0	0	0	12	395	13	0	676	0	0	196	1346
Confl. Peds. (#/hr)	4		4	20		20	1		1	6		6
Confl. Bikes (#/hr)			10			7						
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					1			2			2	
Permitted Phases				1		1	2					2
Actuated Green, G (s)				14.3	14.3	14.3		34.7			34.7	34.7
Effective Green, g (s)				14.3	14.3	14.3		34.7			34.7	34.7
Actuated g/C Ratio				0.24	0.24	0.24		0.58			0.58	0.58
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				411	444	351		794			1077	902
v/s Ratio Prot					c0.21						0.11	
v/s Ratio Perm				0.01		0.01		0.49				c0.86
v/c Ratio				0.03	0.89	0.04		0.85			0.18	1.49
Uniform Delay, d1				17.5	22.1	17.6		10.5			6.0	12.6
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.0	19.1	0.0		11.1			0.4	227.3
Delay (s)				17.6	41.2	17.6		21.6			6.3	240.0
Level of Service				B	D	B		C			A	F
Approach Delay (s)		0.0			37.7			21.6			211.1	
Approach LOS		A			D			C			F	

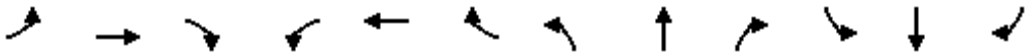
Intersection Summary			
HCM Average Control Delay	134.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	146.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBR	NBL	NBT	NWL2	NWL	NWR
Lane Configurations						
Volume (vph)	0	154	524	55	47	608
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5		2.0	2.0
Lane Util. Factor			0.95		0.97	0.91
Frpb, ped/bikes			1.00		1.00	1.00
Flpb, ped/bikes			1.00		1.00	1.00
Frt			1.00		0.90	0.85
Flt Protected			0.99		0.98	1.00
Satd. Flow (prot)			3501		3192	1441
Flt Permitted			0.99		0.98	1.00
Satd. Flow (perm)			3501		3192	1441
Peak-hour factor, PHF	0.92	0.90	0.86	0.60	0.84	0.94
Adj. Flow (vph)	0	171	609	92	56	647
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	780	0	472	323
Confl. Peds. (#/hr)	46					
Confl. Bikes (#/hr)	3					
Turn Type	custom	Perm		Perm		Perm
Protected Phases			3		1	
Permitted Phases	2	3		1		1
Actuated Green, G (s)			16.3		16.2	16.2
Effective Green, g (s)			16.3		16.2	16.2
Actuated g/C Ratio			0.36		0.36	0.36
Clearance Time (s)			3.5		2.0	2.0
Lane Grp Cap (vph)			1268		1149	519
v/s Ratio Prot						
v/s Ratio Perm			0.22		0.15	c0.22
v/c Ratio			0.62		0.41	0.62
Uniform Delay, d1			11.8		10.8	11.9
Progression Factor			0.68		1.00	1.00
Incremental Delay, d2			0.2		1.1	5.5
Delay (s)			8.2		11.9	17.4
Level of Service			A		B	B
Approach Delay (s)			8.2		14.1	
Approach LOS			A		B	

Intersection Summary			
HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	243	476	69	0	0	0	0	446	62	1	58	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5			3.5	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						1.00			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		0.98						0.98			1.00	
Flt Protected		0.98						1.00			1.00	
Satd. Flow (prot)		4897						1830			1858	
Flt Permitted		0.98						1.00			0.71	
Satd. Flow (perm)		1000						1300			1300	
Peak-hour factor, PHF	0.86	0.93	0.72	0.25	0.25	0.25	0.25	0.75	0.70	0.25	0.76	0.25
Adj. Flow (vph)	283	512	96	0	0	0	0	595	89	4	76	0
RTOR Reduction (vph)	0	34	0	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	858	0	0	0	0	0	672	0	0	80	0
Confl. Peds. (#/hr)	9		9	38		38				2		2
Confl. Bikes (#/hr)			11			4						2
Turn Type	Perm									Perm		
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		22.5						15.5			15.5	
Effective Green, g (s)		22.5						15.5			15.5	
Actuated g/C Ratio		0.50						0.34			0.34	
Clearance Time (s)		3.5						3.5			3.5	
Lane Grp Cap (vph)		500						630			448	
v/s Ratio Prot								c0.37				
v/s Ratio Perm		c0.86									0.06	
v/c Ratio		1.72						1.07			0.18	
Uniform Delay, d1		11.2						14.8			10.3	
Progression Factor		1.00						1.00			0.03	
Incremental Delay, d2		330.2						55.1			0.8	
Delay (s)		341.4						69.8			1.2	
Level of Service		F						E			A	
Approach Delay (s)		341.4			0.0			69.8			1.2	
Approach LOS		F			A			E			A	

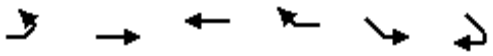
Intersection Summary			
HCM Average Control Delay	212.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.45		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	245	255	1000	700	235	713
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.93		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3306		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3306		1770	3539
Peak-hour factor, PHF	0.91	0.78	0.94	0.84	0.92	0.88
Adj. Flow (vph)	269	327	1064	833	255	810
RTOR Reduction (vph)	0	97	154	0	0	0
Lane Group Flow (vph)	269	230	1743	0	255	810
Turn Type		custom			Prot	
Protected Phases	4		6		5	2
Permitted Phases		2				
Actuated Green, G (s)	18.8	63.2	37.1		22.1	63.2
Effective Green, g (s)	18.8	63.2	37.1		22.1	63.2
Actuated g/C Ratio	0.21	0.70	0.41		0.25	0.70
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	370	1112	1363		435	2485
v/s Ratio Prot	c0.15		c0.53		c0.14	0.23
v/s Ratio Perm		0.15				
v/c Ratio	0.73	0.21	1.28		0.59	0.33
Uniform Delay, d1	33.2	4.7	26.4		29.9	5.2
Progression Factor	1.00	1.00	1.00		0.76	1.05
Incremental Delay, d2	7.0	0.4	131.2		5.0	0.3
Delay (s)	40.2	5.1	157.7		27.8	5.8
Level of Service	D	A	F		C	A
Approach Delay (s)	20.9		157.7			11.0
Approach LOS	C		F			B

Intersection Summary			
HCM Average Control Delay	90.9	HCM Level of Service	F
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	350	665	466	148	311	623
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3403		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3403		1770	1583
Peak-hour factor, PHF	0.84	0.85	0.87	0.80	0.91	0.85
Adj. Flow (vph)	417	782	536	185	342	733
RTOR Reduction (vph)	0	0	52	0	0	380
Lane Group Flow (vph)	417	782	669	0	342	353
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	14.2	32.6	14.4		18.3	18.3
Effective Green, g (s)	14.2	32.6	14.4		18.3	18.3
Actuated g/C Ratio	0.24	0.55	0.24		0.31	0.31
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	427	1959	832		550	492
v/s Ratio Prot	c0.24	0.22	c0.20		0.19	
v/s Ratio Perm						c0.22
v/c Ratio	0.98	0.40	0.80		0.62	0.72
Uniform Delay, d1	22.2	7.5	20.9		17.3	18.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	37.1	0.1	5.7		2.2	4.9
Delay (s)	59.2	7.7	26.6		19.5	22.9
Level of Service	E	A	C		B	C
Approach Delay (s)		25.6	26.6		21.8	
Approach LOS		C	C		C	

Intersection Summary			
HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	298	768	224	0	696	560	350	738	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.97			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4906			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4906			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.96	0.91	0.84	0.92	0.93	0.84	0.90	0.91	0.92
Adj. Flow (vph)	0	0	310	844	267	0	748	667	389	811	0
RTOR Reduction (vph)	0	0	0	46	0	0	0	102	0	0	0
Lane Group Flow (vph)	0	0	0	1375	0	0	748	565	389	811	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				29.4			20.8	20.8	26.8	51.6	
Effective Green, g (s)				29.4			20.8	20.8	26.8	51.6	
Actuated g/C Ratio				0.33			0.23	0.23	0.30	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1603			818	366	527	2029	
v/s Ratio Prot				c0.28			0.21		c0.22	0.23	
v/s Ratio Perm								c0.36			
v/c Ratio				0.86			0.91	1.54	0.74	0.40	
Uniform Delay, d1				28.3			33.7	34.6	28.4	10.6	
Progression Factor				1.00			1.43	1.62	1.00	1.00	
Incremental Delay, d2				4.8			2.0	245.6	5.4	0.1	
Delay (s)				33.1			50.2	301.6	33.8	10.8	
Level of Service				C			D	F	C	B	
Approach Delay (s)	0.0			33.1			168.7			18.2	
Approach LOS	A			C			F			B	

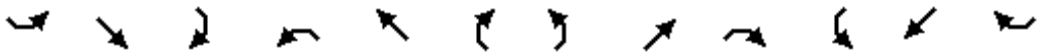
Intersection Summary			
HCM Average Control Delay	76.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	329	761	424	163	444	483	72	263	19	456
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	4.0				4.0	4.0
Lane Util. Factor	0.91	0.86	0.91	1.00	0.95				1.00	0.95
Frt	1.00	0.99	0.85	0.85	0.92				1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00				0.95	1.00
Satd. Flow (prot)	1610	3154	1441	1583	3250				1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	1.00				0.95	1.00
Satd. Flow (perm)	1610	3154	1441	1583	3250				1770	3539
Peak-hour factor, PHF	0.70	0.94	0.87	0.74	0.81	0.84	0.90	0.83	0.68	0.91
Adj. Flow (vph)	470	810	487	220	548	575	80	317	28	501
RTOR Reduction (vph)	0	0	0	43	6	0	0	0	0	0
Lane Group Flow (vph)	423	940	404	177	1197	0	0	0	345	501
Turn Type	Split		Prot	Perm				Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases				4						
Actuated Green, G (s)	28.0	28.0	28.0	28.0	37.0				12.0	53.0
Effective Green, g (s)	28.0	28.0	28.0	28.0	37.0				12.0	53.0
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.41				0.13	0.59
Clearance Time (s)	5.0	5.0	5.0	5.0	4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0				3.0	3.0
Lane Grp Cap (vph)	501	981	448	492	1336				236	2084
v/s Ratio Prot	0.26	c0.30	0.28		c0.37				c0.19	0.14
v/s Ratio Perm				0.11						
v/c Ratio	0.84	0.96	0.90	0.36	0.98dr				1.46	0.24
Uniform Delay, d1	29.0	30.4	29.7	24.0	24.7				39.0	8.9
Progression Factor	0.80	0.81	0.80	0.69	1.00				1.00	1.00
Incremental Delay, d2	5.2	8.3	8.8	0.6	9.6				229.7	0.3
Delay (s)	28.3	33.0	32.6	17.2	34.3				268.7	9.1
Level of Service	C	C	C	B	C				F	A
Approach Delay (s)		30.2			34.3					115.0
Approach LOS		C			C					F

Intersection Summary			
HCM Average Control Delay	49.2	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	1213	172	242	745	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.91	1.00		*0.88				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1583		4860				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1583		4860				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.91	0.98	0.94	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1264	189	247	793	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	31	0	23	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1264	159	0	1017	0	0	0	0
Turn Type						Perm	Perm					
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					30.0	30.0		22.0				
Effective Green, g (s)					30.0	30.0		22.0				
Actuated g/C Ratio					0.50	0.50		0.37				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					2543	792		1782				
v/s Ratio Prot					c0.25							
v/s Ratio Perm						0.10		0.21				
v/c Ratio					0.50	0.20		0.57				
Uniform Delay, d1					10.0	8.3		15.2				
Progression Factor					1.00	1.00		0.88				
Incremental Delay, d2					0.7	0.6		1.0				
Delay (s)					10.7	8.9		14.5				
Level of Service					B	A		B				
Approach Delay (s)		0.0			10.4			14.5			0.0	
Approach LOS		A			B			B			A	

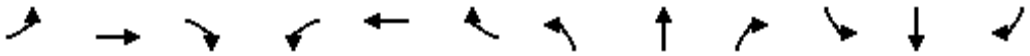
Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	475	1008	0	0	0	0	0	526	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4776						3500	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4776						3500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.97	0.92	0.92	0.92	0.92	0.92	0.75	0.86
Adj. Flow (vph)	0	0	0	528	1039	0	0	0	0	0	701	56
RTOR Reduction (vph)	0	0	0	50	28	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	0	0	330	1159	0	0	0	0	0	747	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				29.0	29.0						23.0	
Effective Green, g (s)				29.0	29.0						23.0	
Actuated g/C Ratio				0.48	0.48						0.38	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				736	2308						1342	
v/s Ratio Prot											c0.21	
v/s Ratio Perm				0.22	0.24							
v/c Ratio				0.45	0.50						0.56	
Uniform Delay, d1				10.2	10.6						14.5	
Progression Factor				1.66	1.45						1.00	
Incremental Delay, d2				1.7	0.7						1.7	
Delay (s)				18.7	16.1						16.2	
Level of Service				B	B						B	
Approach Delay (s)		0.0			16.7			0.0			16.2	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	16.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	169	362	8	13	178	15	12	18	22	50	37	33
Peak Hour Factor	0.90	0.94	0.67	0.81	0.84	0.63	0.75	0.75	0.79	0.74	0.77	0.69
Hourly flow rate (vph)	188	385	12	16	212	24	16	24	28	68	48	48

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	188	397	252	68	163
Volume Left (vph)	188	0	16	16	68
Volume Right (vph)	0	12	24	28	48
Hadj (s)	0.53	0.01	-0.01	-0.17	-0.06
Departure Headway (s)	6.1	5.5	5.5	6.1	6.0
Degree Utilization, x	0.32	0.61	0.38	0.11	0.27
Capacity (veh/h)	573	636	628	510	550
Control Delay (s)	10.7	15.7	11.8	9.9	11.1
Approach Delay (s)	14.1		11.8	9.9	11.1
Approach LOS	B		B	A	B

Intersection Summary			
Delay	12.8		
HCM Level of Service	B		
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp

Average Delay (sec/veh): 6.2 Worst Case Level Of Service: C[22.1]

Street Name:	Harrison Street						Stanley Place / I-580 EB Off-Ramp					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Yield Sign			Yield Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0	0	0 0 3	0	0	0 0 0	0	1	0 0 0	0	0
Volume Module:												
Base Vol:	0	0	0	0	1077	0	0	0	428	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	1077	0	0	0	428	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	1077	0	0	0	428	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	0.93	1.00	1.00	1.00
PHF Volume:	0	0	0	0	1184	0	0	0	460	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	1184	0	0	0	460	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	395	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	659	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	659	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.70	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	5.7	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	22.1	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	C	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			22.1			xxxxxx		
ApproachLOS:	*			*			C			*		

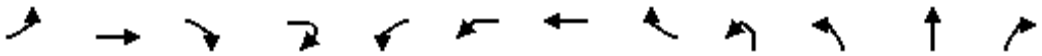
Note: Queue reported is the number of cars per lane.

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Movement	SEL2	SET	NET	NER	NER2
Lane Configurations					
Volume (vph)	383	135	828	396	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	3.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	
Flt Protected	0.95	0.98	1.00	1.00	
Satd. Flow (prot)	1681	1733	3539	1583	
Flt Permitted	0.95	0.98	1.00	1.00	
Satd. Flow (perm)	1681	1733	3539	1583	
Peak-hour factor, PHF	0.97	0.83	0.89	0.91	0.58
Adj. Flow (vph)	395	163	930	435	40
RTOR Reduction (vph)	117	48	0	0	0
Lane Group Flow (vph)	159	234	930	475	0
Confl. Peds. (#/hr)					2
Confl. Bikes (#/hr)					
Turn Type	Perm			custom	
Protected Phases		4	5	1	
Permitted Phases	4			1	
Actuated Green, G (s)	11.8	11.8	40.7	17.7	
Effective Green, g (s)	11.8	11.8	40.7	17.7	
Actuated g/C Ratio	0.20	0.20	0.68	0.30	
Clearance Time (s)	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	331	341	2401	467	
v/s Ratio Prot			c0.26	c0.30	
v/s Ratio Perm	0.09	0.13			
v/c Ratio	0.48	0.69	0.39	1.02	
Uniform Delay, d1	21.4	22.4	4.2	21.2	
Progression Factor	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	4.5	0.5	46.0	
Delay (s)	21.8	26.9	4.7	67.2	
Level of Service	C	C	A	E	
Approach Delay (s)		24.4	25.8		
Approach LOS		C	C		

Intersection Summary			
HCM Average Control Delay	25.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	46.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



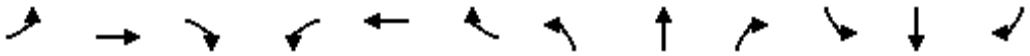
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	34	94	82	17	38	13	128	114	12	218	317	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00			1.00	1.00	1.00		0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.94			1.00	1.00	0.92		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85			1.00	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1483			1770	1863	1450		3433	3502	
Flt Permitted	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1483			1770	1863	1450		3433	3502	
Peak-hour factor, PHF	0.67	0.65	0.88	0.53	0.56	0.65	0.70	0.95	0.60	0.81	0.75	0.79
Adj. Flow (vph)	51	145	93	32	68	20	183	120	20	269	423	28
RTOR Reduction (vph)	0	0	15	0	0	0	0	99	0	0	4	0
Lane Group Flow (vph)	51	145	110	0	0	88	183	21	0	289	447	0
Confl. Peds. (#/hr)	21		21					27		9		8
Confl. Bikes (#/hr)			8					24				1
Turn Type	Prot		Perm		Prot	Prot		Perm	Prot	Prot		
Protected Phases	3	8			7	7	4		1	1	6	
Permitted Phases			8					4				
Actuated Green, G (s)	5.6	13.7	13.7			8.0	16.1	16.1		12.8	42.9	
Effective Green, g (s)	5.6	13.7	13.7			8.0	16.1	16.1		12.8	42.9	
Actuated g/C Ratio	0.06	0.15	0.15			0.09	0.18	0.18		0.14	0.48	
Clearance Time (s)	4.0	4.0	4.0			4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	110	539	226			157	333	259		488	1669	
v/s Ratio Prot	0.03	0.04				0.05	c0.10			c0.08	c0.13	
v/s Ratio Perm			c0.07					0.01				
v/c Ratio	0.46	0.27	0.49			0.56	0.55	0.08		0.59	0.27	
Uniform Delay, d1	40.7	33.7	34.9			39.3	33.6	30.8		36.2	14.1	
Progression Factor	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.1	0.3	1.6			4.5	1.9	0.1		1.9	0.4	
Delay (s)	43.8	34.0	36.6			43.8	35.5	30.9		38.1	14.5	
Level of Service	D	C	D			D	D	C		D	B	
Approach Delay (s)		36.6					36.0				23.7	
Approach LOS		D					D				C	

Intersection Summary			
HCM Average Control Delay	31.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Volume (vph)	82	1035	81	80
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.98		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3460		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3460		
Peak-hour factor, PHF	0.76	0.89	0.84	0.74
Adj. Flow (vph)	108	1163	96	108
RTOR Reduction (vph)	0	6	0	0
Lane Group Flow (vph)	108	1361	0	0
Confl. Peds. (#/hr)	18			
Confl. Bikes (#/hr)				
Turn Type	Prot			
Protected Phases	5	2		
Permitted Phases				
Actuated Green, G (s)	9.4	39.5		
Effective Green, g (s)	9.4	39.5		
Actuated g/C Ratio	0.10	0.44		
Clearance Time (s)	4.0	4.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	185	1519		
v/s Ratio Prot	0.06	c0.39		
v/s Ratio Perm				
v/c Ratio	0.58	0.90		
Uniform Delay, d1	38.4	23.4		
Progression Factor	1.00	1.00		
Incremental Delay, d2	4.6	8.6		
Delay (s)	43.1	32.0		
Level of Service	D	C		
Approach Delay (s)		32.8		
Approach LOS		C		

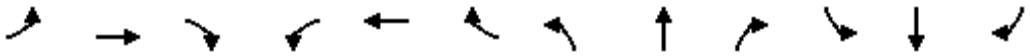
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	156	87	28	253	247	47	392	31	80	506	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.91			0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt		0.96			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		4748			3507	1543	1759	3481		1765	3481	
Flt Permitted		0.80			0.85	1.00	0.37	1.00		0.48	1.00	
Satd. Flow (perm)		3844			3003	1543	677	3481		888	3481	
Peak-hour factor, PHF	0.60	0.93	0.92	0.58	0.95	0.85	0.68	0.97	0.86	0.71	0.91	0.60
Adj. Flow (vph)	80	168	95	48	266	291	69	404	36	113	556	60
RTOR Reduction (vph)	0	55	0	0	0	168	0	8	0	0	9	0
Lane Group Flow (vph)	0	288	0	0	314	123	69	432	0	113	607	0
Confl. Peds. (#/hr)	25		25	18		13	19		13	6		6
Confl. Bikes (#/hr)		16	16	59		5		5	59			6
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			2	
Permitted Phases	4			8		8	2			2		
Actuated Green, G (s)		36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Effective Green, g (s)		36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Actuated g/C Ratio		0.42			0.42	0.42	0.45	0.45		0.45	0.45	
Clearance Time (s)		5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)		1628			1272	654	303	1556		397	1556	
v/s Ratio Prot								0.12			c0.17	
v/s Ratio Perm		0.07			c0.10	0.08	0.10			0.13		
v/c Ratio		0.18			0.25	0.19	0.23	0.28		0.28	0.39	
Uniform Delay, d1		15.3			15.8	15.3	14.5	14.8		14.9	15.7	
Progression Factor		0.78			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.2			0.5	0.6	1.7	0.4		1.8	0.7	
Delay (s)		12.1			16.2	16.0	16.2	15.3		16.7	16.5	
Level of Service		B			B	B	B	B		B	B	
Approach Delay (s)		12.1			16.1			15.4			16.5	
Approach LOS		B			B			B			B	

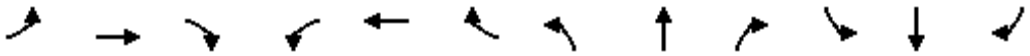
Intersection Summary			
HCM Average Control Delay	15.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	293	340	125	37	227	91	75	309	19	41	306	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5		4.5	3.5		5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.96		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	3391		1766	3378		1761	3484		1764	3357	
Flt Permitted	0.45	1.00		0.45	1.00		0.28	1.00		0.44	1.00	
Satd. Flow (perm)	843	3391		845	3378		518	3484		811	3357	
Peak-hour factor, PHF	0.81	0.86	0.92	0.84	0.79	0.88	0.96	0.91	0.68	0.70	0.87	0.76
Adj. Flow (vph)	362	395	136	44	287	103	78	340	28	59	352	149
RTOR Reduction (vph)	0	23	0	0	31	0	0	10	0	0	73	0
Lane Group Flow (vph)	362	508	0	44	359	0	78	358	0	59	428	0
Confl. Peds. (#/hr)	1		1	8		8	12		12	6		6
Confl. Bikes (#/hr)			2			5			27			6
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	60.2	52.3		47.0	43.6		15.8	15.8		15.8	15.8	
Effective Green, g (s)	60.2	52.3		47.0	43.6		15.8	15.8		15.8	15.8	
Actuated g/C Ratio	0.71	0.62		0.55	0.51		0.19	0.19		0.19	0.19	
Clearance Time (s)	4.5	3.5		4.5	3.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	729	2086		504	1733		96	648		151	624	
v/s Ratio Prot	c0.07	0.15		0.00	0.11			0.10			0.13	
v/s Ratio Perm	c0.28			0.04			c0.15			0.07		
v/c Ratio	0.50	0.24		0.09	0.21		0.81	0.55		0.39	0.69	
Uniform Delay, d1	4.9	7.4		8.7	11.3		33.2	31.4		30.4	32.3	
Progression Factor	1.00	1.00		0.63	0.71		0.91	0.89		1.00	1.00	
Incremental Delay, d2	0.2	0.3		0.0	0.3		35.8	0.6		0.6	2.5	
Delay (s)	5.1	7.7		5.5	8.3		66.2	28.6		31.0	34.8	
Level of Service	A	A		A	A		E	C		C	C	
Approach Delay (s)		6.6			8.0			35.2			34.4	
Approach LOS		A			A			D			C	

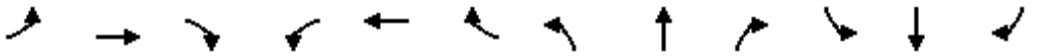
Intersection Summary			
HCM Average Control Delay	19.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	132	751	0	0	127	270	4	229	21	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	0.86	0.86			0.86	0.86		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			0.92	0.85		0.98				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1520	4802			4407	1362		4977				
Flt Permitted	0.53	0.93			1.00	1.00		1.00				
Satd. Flow (perm)	854	4479			4407	1362		4977				
Peak-hour factor, PHF	0.89	0.89	0.92	0.92	0.86	0.74	0.50	0.88	0.58	0.92	0.92	0.92
Adj. Flow (vph)	148	844	0	0	148	365	8	260	36	0	0	0
RTOR Reduction (vph)	0	0	0	0	110	109	0	22	0	0	0	0
Lane Group Flow (vph)	133	859	0	0	221	73	0	282	0	0	0	0
Confl. Peds. (#/hr)	2		2				6		6	4		4
Confl. Bikes (#/hr)									4			3
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	16.0	16.0			16.0	16.0		16.0				
Effective Green, g (s)	16.0	16.0			16.0	16.0		16.0				
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.40				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)	342	1792			1763	545		1991				
v/s Ratio Prot					0.05							
v/s Ratio Perm	0.16	c0.19				0.05		0.06				
v/c Ratio	0.39	0.48			0.13	0.13		0.14				
Uniform Delay, d1	8.5	8.9			7.6	7.6		7.6				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	3.3	0.9			0.1	0.5		0.1				
Delay (s)	11.8	9.8			7.7	8.1		7.8				
Level of Service	B	A			A	A		A				
Approach Delay (s)		10.1			7.9			7.8			0.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

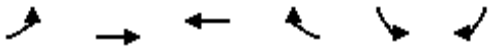
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	239	23	9	135	0	0	0	0	626	940	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0	4.0	4.0
Lane Util. Factor		0.91			0.91					0.91	0.91	1.00
Frpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.98			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.99	1.00
Satd. Flow (prot)		4984			5060					1610	3368	1583
Flt Permitted		1.00			0.91					0.95	0.99	1.00
Satd. Flow (perm)		4984			4613					1610	3368	1583
Peak-hour factor, PHF	0.92	0.91	0.64	0.56	0.82	0.92	0.92	0.92	0.92	0.88	0.93	0.77
Adj. Flow (vph)	0	263	36	16	165	0	0	0	0	711	1011	386
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	0	0	0	187
Lane Group Flow (vph)	0	276	0	0	181	0	0	0	0	555	1167	199
Confl. Peds. (#/hr)	2		2	10		10	6		6			
Confl. Bikes (#/hr)			3			4			1			
Turn Type				Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases				8						6		6
Actuated Green, G (s)		21.0			21.0					31.0	31.0	31.0
Effective Green, g (s)		21.0			21.0					31.0	31.0	31.0
Actuated g/C Ratio		0.35			0.35					0.52	0.52	0.52
Clearance Time (s)		4.0			4.0					4.0	4.0	4.0
Lane Grp Cap (vph)		1744			1615					832	1740	818
v/s Ratio Prot		c0.06										
v/s Ratio Perm					0.04					0.34	0.35	0.13
v/c Ratio		0.16			0.11					0.67	0.67	0.24
Uniform Delay, d1		13.4			13.2					10.7	10.7	8.0
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		0.2			0.1					4.2	2.1	0.7
Delay (s)		13.6			13.3					14.9	12.8	8.7
Level of Service		B			B					B	B	A
Approach Delay (s)		13.6			13.3			0.0			12.6	
Approach LOS		B			B			A			B	

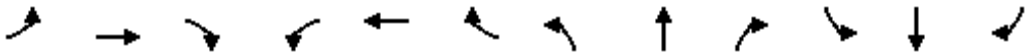
Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



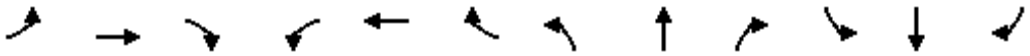
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	166	517	571	114	740	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.91
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.97		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3411		3432	1414
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3411		3432	1414
Peak-hour factor, PHF	0.91	0.86	0.89	0.70	0.90	0.89
Adj. Flow (vph)	182	601	642	163	822	188
RTOR Reduction (vph)	0	0	25	0	2	119
Lane Group Flow (vph)	182	601	780	0	839	50
Confl. Peds. (#/hr)	14			11	6	6
Confl. Bikes (#/hr)				10		1
Turn Type	Prot					Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	12.0	48.4	32.4		23.6	23.6
Effective Green, g (s)	12.0	48.4	32.4		23.6	23.6
Actuated g/C Ratio	0.15	0.60	0.40		0.30	0.30
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	266	2141	1381		1012	417
v/s Ratio Prot	c0.10	0.17	c0.23		c0.24	
v/s Ratio Perm						0.04
v/c Ratio	0.68	0.28	0.56		0.83	0.12
Uniform Delay, d1	32.2	7.5	18.4		26.3	20.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.7	0.3	1.7		5.4	0.0
Delay (s)	37.9	7.8	20.0		31.8	20.7
Level of Service	D	A	C		C	C
Approach Delay (s)		14.8	20.0		29.9	
Approach LOS		B	C		C	

Intersection Summary			
HCM Average Control Delay	22.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



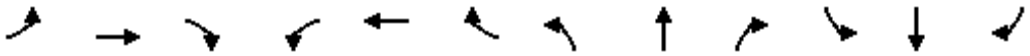
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	786	303	58	368	59	170	223	26	106	314	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92		1.00	*0.92		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.95		1.00	0.98		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1766	3253		1770	3336		1768	3450		1756	3418	
Flt Permitted	0.33	1.00		0.16	1.00		0.44	1.00		0.58	1.00	
Satd. Flow (perm)	610	3253		297	3336		811	3450		1077	3418	
Peak-hour factor, PHF	0.77	0.96	0.85	0.85	0.83	0.72	0.82	0.95	0.65	0.87	0.92	0.77
Adj. Flow (vph)	119	819	356	68	443	82	207	235	40	122	341	84
RTOR Reduction (vph)	0	54	0	0	17	0	0	10	0	0	24	0
Lane Group Flow (vph)	119	1121	0	68	508	0	207	265	0	122	401	0
Confl. Peds. (#/hr)	4		4	4		4	4		4	11		11
Confl. Bikes (#/hr)			3			7			21			1
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4			4			2			6		
Actuated Green, G (s)	25.1	25.1		25.1	25.1		49.4	49.4		35.8	35.8	
Effective Green, g (s)	25.1	25.1		25.1	25.1		49.4	49.4		35.8	35.8	
Actuated g/C Ratio	0.30	0.30		0.30	0.30		0.58	0.58		0.42	0.42	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	180	961		88	985		574	2005		454	1440	
v/s Ratio Prot		c0.34			0.15		c0.04	0.08			0.12	
v/s Ratio Perm	0.20			0.23			c0.17			0.11		
v/c Ratio	0.66	1.17		0.77	0.52		0.36	0.13		0.27	0.28	
Uniform Delay, d1	26.2	30.0		27.3	24.9		8.7	8.1		16.1	16.1	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.07	1.09	
Incremental Delay, d2	17.5	86.5		47.5	1.9		0.1	0.1		1.4	0.5	
Delay (s)	43.7	116.5		74.8	26.8		8.8	8.2		18.7	18.1	
Level of Service	D	F		E	C		A	A		B	B	
Approach Delay (s)		109.8			32.3			8.5			18.2	
Approach LOS		F			C			A			B	

Intersection Summary			
HCM Average Control Delay	60.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



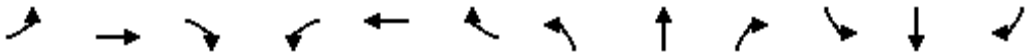
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	681	81	80	414	61	98	372	83	87	342	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	*0.92			*0.92		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	0.99			0.99		1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00	1.00	0.99	1.00	
Frt	1.00	0.98			0.98		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1750	3340			3323		1763	3539	1531	1760	3435	
Flt Permitted	0.29	1.00			0.59		0.46	1.00	1.00	0.51	1.00	
Satd. Flow (perm)	528	3340			1989		863	3539	1531	937	3435	
Peak-hour factor, PHF	0.71	0.92	0.74	0.83	0.90	0.90	0.63	0.92	0.66	0.55	0.88	0.83
Adj. Flow (vph)	111	740	109	96	460	68	156	404	126	158	389	80
RTOR Reduction (vph)	0	17	0	0	14	0	0	0	48	0	17	0
Lane Group Flow (vph)	111	832	0	0	610	0	156	404	78	158	452	0
Confl. Peds. (#/hr)	34		34	37		37	8		8	10		10
Confl. Bikes (#/hr)			11			8			35			7
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	27.6	27.6			27.6		44.4	44.4	44.4	44.4	44.4	
Effective Green, g (s)	27.6	27.6			27.6		44.4	44.4	44.4	44.4	44.4	
Actuated g/C Ratio	0.34	0.34			0.34		0.55	0.55	0.55	0.55	0.55	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	182	1152			686		479	1964	850	520	1906	
v/s Ratio Prot		0.25						0.11			0.13	
v/s Ratio Perm	0.21				c0.31		c0.18		0.05	0.17		
v/c Ratio	0.61	0.72			0.89		0.33	0.21	0.09	0.30	0.24	
Uniform Delay, d1	21.7	22.9			24.8		9.7	8.9	8.3	9.5	9.1	
Progression Factor	1.00	1.00			1.12		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.9	1.9			13.1		1.8	0.2	0.2	1.5	0.3	
Delay (s)	25.7	24.8			40.7		11.5	9.2	8.6	11.0	9.4	
Level of Service	C	C			D		B	A	A	B	A	
Approach Delay (s)		24.9			40.7			9.6			9.8	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	356	406	101	375	0	0	0	0	10	128	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						3.0	
Lane Util. Factor		*0.92		1.00	*0.92						0.95	
Frpb, ped/bikes		0.97		1.00	1.00						0.98	
Flpb, ped/bikes		1.00		1.00	1.00						0.99	
Frt		0.92		1.00	1.00						0.98	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		3055		1770	3427						3360	
Flt Permitted		1.00		0.19	1.00						0.99	
Satd. Flow (perm)		3055		350	3427						3360	
Peak-hour factor, PHF	0.25	0.93	0.92	0.84	0.91	0.25	0.92	0.92	0.92	0.50	0.91	0.63
Adj. Flow (vph)	0	383	441	120	412	0	0	0	0	20	141	25
RTOR Reduction (vph)	0	223	0	0	0	0	0	0	0	0	15	0
Lane Group Flow (vph)	0	601	0	120	412	0	0	0	0	0	171	0
Confl. Peds. (#/hr)	26		26	28		28	21		21	101		101
Confl. Bikes (#/hr)			4			4			3			6
Turn Type	Perm			pm+pt						Perm		
Protected Phases		2		1	6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)		31.8		43.0	43.0						29.0	
Effective Green, g (s)		31.8		43.0	43.0						29.0	
Actuated g/C Ratio		0.40		0.54	0.54						0.36	
Clearance Time (s)		5.0		5.0	5.0						3.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		1214		298	1842						1218	
v/s Ratio Prot		c0.20		c0.03	0.12							
v/s Ratio Perm				0.18							0.05	
v/c Ratio		0.50		0.40	0.22						0.14	
Uniform Delay, d1		18.1		11.2	9.7						17.1	
Progression Factor		2.54		1.00	1.00						1.00	
Incremental Delay, d2		1.3		0.3	0.3						0.2	
Delay (s)		47.2		11.5	10.0						17.4	
Level of Service		D		B	B						B	
Approach Delay (s)		47.2			10.3			0.0			17.4	
Approach LOS		D			B			A			B	

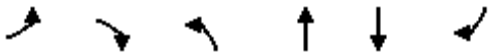
Intersection Summary			
HCM Average Control Delay	30.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	128	66	573	465	101	103	701	292	28	787	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	0.97	1.00	1.00	0.97	0.95	1.00		0.91	1.00		0.91	
Frpb, ped/bikes	1.00	1.00	0.93	1.00	1.00	0.94		1.00	0.90		0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	
Satd. Flow (prot)	3433	1863	1479	3433	3539	1485		5042	1419		4954	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.66	1.00		0.79	
Satd. Flow (perm)	3433	1863	1479	3433	3539	1485		3333	1419		3947	
Peak-hour factor, PHF	0.74	0.81	0.65	0.89	0.80	0.52	0.83	0.88	0.82	0.50	0.93	0.79
Adj. Flow (vph)	74	158	102	644	581	194	124	797	356	56	846	116
RTOR Reduction (vph)	0	0	18	0	0	108	0	0	228	0	16	0
Lane Group Flow (vph)	74	158	84	644	581	86	0	921	128	0	1002	0
Confl. Peds. (#/hr)	38		38	34		34	60		60	28		28
Confl. Bikes (#/hr)			12			18			39			9
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		
Protected Phases	1	6		5	2			4			4	
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	5.6	33.0	33.0	16.0	44.4	44.4		36.0	36.0		36.0	
Effective Green, g (s)	5.6	33.0	33.0	16.0	44.4	44.4		36.0	36.0		36.0	
Actuated g/C Ratio	0.06	0.33	0.33	0.16	0.44	0.44		0.36	0.36		0.36	
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	192	615	488	549	1571	659		1200	511		1421	
v/s Ratio Prot	0.02	0.08		c0.19	c0.16							
v/s Ratio Perm			0.06			0.06		c0.28	0.09		0.25	
v/c Ratio	0.39	0.26	0.17	1.17	0.37	0.13		1.02dl	0.25		0.71	
Uniform Delay, d1	45.5	24.5	23.8	42.0	18.5	16.4		28.3	22.5		27.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.5	1.0	0.8	95.9	0.7	0.4		4.7	1.2		3.0	
Delay (s)	46.0	25.5	24.6	137.9	19.2	16.8		33.0	23.7		30.4	
Level of Service	D	C	C	F	B	B		C	C		C	
Approach Delay (s)		29.8			72.7			30.4			30.4	
Approach LOS		C			E			C			C	

Intersection Summary			
HCM Average Control Delay	45.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	94.7%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	112	37	94	816	976	649
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.5	4.5	
Lane Util. Factor	0.97		1.00	*0.50	0.86	
Frpb, ped/bikes	0.98		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.96		1.00	1.00	0.94	
Flt Protected	0.96		0.95	1.00	1.00	
Satd. Flow (prot)	3303		1768	3725	6019	
Flt Permitted	0.96		0.10	1.00	1.00	
Satd. Flow (perm)	3303		178	3725	6019	
Peak-hour factor, PHF	0.83	0.89	0.84	0.96	0.93	0.91
Adj. Flow (vph)	135	42	112	850	1049	713
RTOR Reduction (vph)	37	0	0	0	77	0
Lane Group Flow (vph)	140	0	112	850	1685	0
Confl. Peds. (#/hr)	36	36	109			
Confl. Bikes (#/hr)		14				
Turn Type			pm+pt			
Protected Phases	4		1	2	2	
Permitted Phases			2			
Actuated Green, G (s)	8.7		57.8	51.7	51.7	
Effective Green, g (s)	8.7		57.8	51.7	51.7	
Actuated g/C Ratio	0.11		0.72	0.65	0.65	
Clearance Time (s)	5.0		4.0	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	359		250	2407	3890	
v/s Ratio Prot	c0.04		c0.03	0.23	0.28	
v/s Ratio Perm			c0.29			
v/c Ratio	0.39		0.45	0.35	0.43	
Uniform Delay, d1	33.2		3.9	6.5	7.0	
Progression Factor	1.00		1.63	1.15	1.00	
Incremental Delay, d2	0.7		1.3	0.4	0.4	
Delay (s)	33.9		7.7	7.9	7.3	
Level of Service	C		A	A	A	
Approach Delay (s)	33.9			7.9	7.3	
Approach LOS	C			A	A	

Intersection Summary			
HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	136	29	111	629	1	13
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.66	0.82	0.83	0.25	0.25
Hourly flow rate (vph)	162	44	135	758	4	52
Pedestrians	7			7	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	533			360		
pX, platoon unblocked						
vC, conflicting volume			208		1221	193
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			208		1221	193
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			90		98	94
cM capacity (veh/h)			1361		177	842

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	206	893	56
Volume Left	0	135	4
Volume Right	44	0	52
cSH	1700	1361	664
Volume to Capacity	0.12	0.10	0.08
Queue Length 95th (ft)	0	8	7
Control Delay (s)	0.0	2.4	10.9
Lane LOS		A	B
Approach Delay (s)	0.0	2.4	10.9
Approach LOS			B

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	130	253	398	232	2	34
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.83	0.88	0.76	0.50	0.50
Hourly flow rate (vph)	173	305	452	305	4	68
Pedestrians	24			24	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	2			2	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	470			423		
pX, platoon unblocked						
vC, conflicting volume			480		1562	352
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			480		1562	352
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			58		94	90
cM capacity (veh/h)			1080		70	677

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	478	758	72
Volume Left	0	452	4
Volume Right	305	0	68
cSH	1700	1080	457
Volume to Capacity	0.28	0.42	0.16
Queue Length 95th (ft)	0	53	14
Control Delay (s)	0.0	8.6	14.3
Lane LOS		A	B
Approach Delay (s)	0.0	8.6	14.3
Approach LOS			B

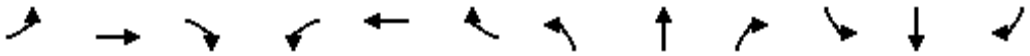
Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	228	149	130	319	33	42
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	1.00	0.73	0.85	0.86	0.75
Hourly flow rate (vph)	268	149	178	375	38	56
Pedestrians	16			16	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	80			813		
pX, platoon unblocked			0.85		0.85	0.85
vC, conflicting volume			419		1092	361
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			223		1018	154
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			84		79	92
cM capacity (veh/h)			1137		185	743

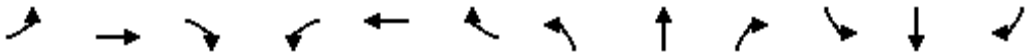
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	417	553	19	19	28	28
Volume Left	0	178	19	19	0	0
Volume Right	149	0	0	0	28	28
cSH	1700	1137	185	185	743	743
Volume to Capacity	0.25	0.16	0.10	0.10	0.04	0.04
Queue Length 95th (ft)	0	14	9	9	3	3
Control Delay (s)	0.0	4.0	26.7	26.7	10.0	10.0
Lane LOS		A	D	D	B	B
Approach Delay (s)	0.0	4.0	16.8			
Approach LOS			C			

Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		



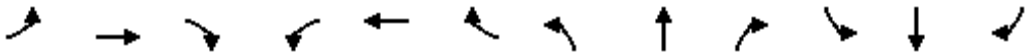
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	317	54	40	50	0	0	0	0	255	334	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.91	
Frpb, ped/bikes		1.00	0.85		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.96						0.95	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.98						0.98	
Satd. Flow (prot)		1863	1342		1755						4684	
Flt Permitted		1.00	1.00		0.58						0.98	
Satd. Flow (perm)		1863	1342		1044						4684	
Peak-hour factor, PHF	0.92	0.87	0.80	0.77	0.85	0.92	0.92	0.92	0.92	0.91	0.90	0.75
Adj. Flow (vph)	0	364	68	52	59	0	0	0	0	280	371	32
RTOR Reduction (vph)	0	0	48	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	364	20	0	111	0	0	0	0	0	680	0
Confl. Peds. (#/hr)	106		106	134		134	73		73	52		52
Confl. Bikes (#/hr)			3			7			21			1
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		22.8	22.8		22.8						49.2	
Effective Green, g (s)		22.8	22.8		22.8						49.2	
Actuated g/C Ratio		0.29	0.29		0.29						0.62	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		531	382		298						2881	
v/s Ratio Prot		c0.20										
v/s Ratio Perm			0.01		0.11						0.15	
v/c Ratio		0.69	0.05		0.37						0.24	
Uniform Delay, d1		25.4	20.8		22.9						6.9	
Progression Factor		1.00	1.00		1.00						0.68	
Incremental Delay, d2		3.7	0.1		0.8						0.2	
Delay (s)		29.1	20.8		23.7						4.9	
Level of Service		C	C		C						A	
Approach Delay (s)		27.8			23.7			0.0			4.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



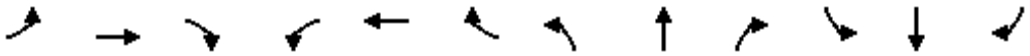
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	227	3	0	37	34	8	177	157	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.94			1.00	0.87			
Flpb, ped/bikes		1.00			1.00			0.99	1.00			
Frt		0.99			0.94			1.00	0.85			
Flt Protected		1.00			1.00			1.00	1.00			
Satd. Flow (prot)		1837			1647			3504	1377			
Flt Permitted		0.99			1.00			1.00	1.00			
Satd. Flow (perm)		1826			1647			3504	1377			
Peak-hour factor, PHF	0.50	0.89	0.25	0.92	0.75	0.81	0.50	0.77	0.86	0.92	0.92	0.92
Adj. Flow (vph)	12	255	12	0	49	42	16	230	183	0	0	0
RTOR Reduction (vph)	0	2	0	0	15	0	0	0	152	0	0	0
Lane Group Flow (vph)	0	277	0	0	76	0	0	246	31	0	0	0
Confl. Peds. (#/hr)	58		58	134		134	73		73	87		87
Confl. Bikes (#/hr)						5			5			2
Turn Type	Perm						Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2						1		1			
Actuated Green, G (s)		29.4			29.4			7.6	7.6			
Effective Green, g (s)		29.4			29.4			7.6	7.6			
Actuated g/C Ratio		0.65			0.65			0.17	0.17			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)		1193			1076			592	233			
v/s Ratio Prot					0.05							
v/s Ratio Perm		c0.15						0.07	0.02			
v/c Ratio		0.23			0.07			0.42	0.13			
Uniform Delay, d1		3.2			2.8			16.7	15.9			
Progression Factor		0.43			1.00			1.00	1.00			
Incremental Delay, d2		0.4			0.1			0.2	0.1			
Delay (s)		1.8			3.0			16.9	16.0			
Level of Service		A			A			B	B			
Approach Delay (s)		1.8			3.0			16.5			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



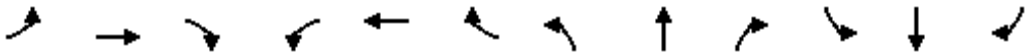
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	9	113	14	21	0	30	0	269	31	94	290	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	
Flpb, ped/bikes	0.99	1.00			1.00			1.00			0.99	
Frt	1.00	0.98			0.92			0.98			1.00	
Flt Protected	0.95	1.00			0.98			1.00			0.99	
Satd. Flow (prot)	1751	1825			1651			3449			3463	
Flt Permitted	0.71	1.00			0.89			1.00			0.77	
Satd. Flow (perm)	1317	1825			1497			3449			2710	
Peak-hour factor, PHF	0.56	0.92	0.88	0.79	0.92	0.78	0.92	0.85	0.78	0.85	0.89	0.92
Adj. Flow (vph)	16	123	16	27	0	38	0	316	40	111	326	0
RTOR Reduction (vph)	0	9	0	0	22	0	0	22	0	0	0	0
Lane Group Flow (vph)	16	130	0	0	43	0	0	334	0	0	437	0
Confl. Peds. (#/hr)	16		16	17		17	43		43	44		44
Confl. Bikes (#/hr)			2						2			16
Turn Type	Perm			Perm						Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2						4		
Actuated Green, G (s)	19.0	19.0			19.0			17.0			17.0	
Effective Green, g (s)	19.0	19.0			19.0			17.0			17.0	
Actuated g/C Ratio	0.42	0.42			0.42			0.38			0.38	
Clearance Time (s)	4.0	4.0			4.0			5.0			5.0	
Vehicle Extension (s)	2.0	2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)	556	771			632			1303			1024	
v/s Ratio Prot		c0.07						0.10				
v/s Ratio Perm	0.01				0.03						c0.16	
v/c Ratio	0.03	0.17			0.07			0.26			0.43	
Uniform Delay, d1	7.6	8.1			7.7			9.6			10.4	
Progression Factor	1.00	1.00			1.38			1.00			1.00	
Incremental Delay, d2	0.1	0.5			0.2			0.5			1.3	
Delay (s)	7.7	8.6			10.9			10.1			11.7	
Level of Service	A	A			B			B			B	
Approach Delay (s)		8.5			10.9			10.1			11.7	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	86	16	10	161	86	27	369	42	132	131	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5		4.5	4.5	
Lane Util. Factor		0.95			0.95			0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99			1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00			1.00		1.00	1.00	
Frt		0.98			0.94			0.98		1.00	0.96	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3431			3287			3455		1768	3385	
Flt Permitted		0.88			0.94			0.91		0.42	1.00	
Satd. Flow (perm)		3029			3092			3162		779	3385	
Peak-hour factor, PHF	0.75	0.78	0.80	0.83	0.94	0.74	0.61	0.98	0.79	0.91	0.76	0.78
Adj. Flow (vph)	20	110	20	12	171	116	44	377	53	145	172	60
RTOR Reduction (vph)	0	17	0	0	98	0	0	12	0	0	18	0
Lane Group Flow (vph)	0	133	0	0	201	0	0	462	0	145	214	0
Confl. Peds. (#/hr)	10		10	19		19	5		5	4		4
Confl. Bikes (#/hr)			4			1			3			9
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		9.2			9.2			31.2		41.8	41.8	
Effective Green, g (s)		9.2			9.2			31.2		41.8	41.8	
Actuated g/C Ratio		0.15			0.15			0.52		0.70	0.70	
Clearance Time (s)		4.5			4.5			4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		464			474			1644		643	2358	
v/s Ratio Prot										c0.02	0.06	
v/s Ratio Perm		0.04			c0.06			c0.15		0.13		
v/c Ratio		0.29			0.42			0.28		0.23	0.09	
Uniform Delay, d1		22.5			23.0			8.1		3.2	2.9	
Progression Factor		1.00			0.99			1.00		1.00	1.00	
Incremental Delay, d2		0.3			0.6			0.4		0.2	0.1	
Delay (s)		22.8			23.4			8.5		3.4	3.0	
Level of Service		C			C			A		A	A	
Approach Delay (s)		22.8			23.4			8.5			3.2	
Approach LOS		C			C			A			A	

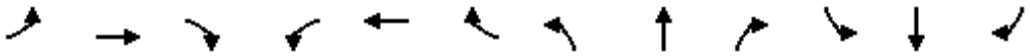
Intersection Summary			
HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	179	52	41	138	97	51	414	76	57	352	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.98			0.96			0.99			1.00	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.97			0.95			0.98			0.99	
Flt Protected		1.00			0.99			1.00			0.99	
Satd. Flow (prot)		3355			3152			3386			4966	
Flt Permitted		0.95			0.87			0.88			0.79	
Satd. Flow (perm)		3179			2750			2990			3972	
Peak-hour factor, PHF	0.88	0.81	0.76	0.79	0.90	0.87	0.91	0.93	0.91	0.78	0.89	0.79
Adj. Flow (vph)	8	221	68	52	153	111	56	445	84	73	396	28
RTOR Reduction (vph)	0	43	0	0	70	0	0	23	0	0	11	0
Lane Group Flow (vph)	0	254	0	0	246	0	0	562	0	0	486	0
Confl. Peds. (#/hr)	58		58	99		99	72		72	49		49
Confl. Bikes (#/hr)			7			33			10			6
Turn Type	Perm			Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						6		
Actuated Green, G (s)		22.0			22.0			29.0			18.0	
Effective Green, g (s)		22.0			22.0			29.0			18.0	
Actuated g/C Ratio		0.37			0.37			0.48			0.30	
Clearance Time (s)		4.0			4.0			5.0			5.0	
Lane Grp Cap (vph)		1166			1008			1491			1192	
v/s Ratio Prot								c0.04				
v/s Ratio Perm		0.08			c0.09			c0.14			0.12	
v/c Ratio		0.22			0.24			0.38			0.41	
Uniform Delay, d1		13.1			13.2			9.8			16.7	
Progression Factor		0.88			1.00			1.00			1.00	
Incremental Delay, d2		0.4			0.6			0.7			1.0	
Delay (s)		11.9			13.8			10.5			17.8	
Level of Service		B			B			B			B	
Approach Delay (s)		11.9			13.8			10.5			17.8	
Approach LOS		B			B			B			B	

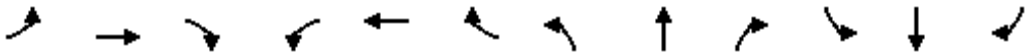
Intersection Summary			
HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



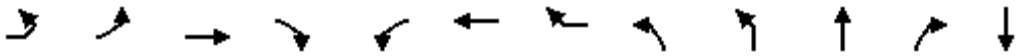
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	296	0	0	212	80	29	248	95	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.91	1.00			
Frpb, ped/bikes		1.00			1.00	0.93		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			0.99	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3518			3362	1337		5028	1460			
Flt Permitted		0.93			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3280			3362	1337		5028	1460			
Peak-hour factor, PHF	0.96	0.91	0.92	0.92	0.92	0.91	0.72	0.74	0.91	0.92	0.92	0.92
Adj. Flow (vph)	24	325	0	0	230	88	40	335	104	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	18	0	0	89	0	0	0
Lane Group Flow (vph)	0	349	0	0	238	61	0	375	15	0	0	0
Confl. Peds. (#/hr)	40		40	45		45	51		51	207		207
Confl. Bikes (#/hr)			5			6			8			12
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		61.4			61.4	61.4		11.6	11.6			
Effective Green, g (s)		61.4			61.4	61.4		11.6	11.6			
Actuated g/C Ratio		0.77			0.77	0.77		0.14	0.14			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2517			2580	1026		729	212			
v/s Ratio Prot					0.07							
v/s Ratio Perm		c0.11				0.05		0.07	0.01			
v/c Ratio		0.14			0.09	0.06		0.51	0.07			
Uniform Delay, d1		2.4			2.3	2.3		31.6	29.5			
Progression Factor		1.00			1.06	2.11		1.00	1.00			
Incremental Delay, d2		0.1			0.1	0.1		0.6	0.1			
Delay (s)		2.5			2.5	4.9		32.2	29.7			
Level of Service		A			A	A		C	C			
Approach Delay (s)		2.5			3.1			31.7			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	257	138	163	221	0	0	0	0	54	295	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	0.91	0.91						0.91	
Frpb, ped/bikes		1.00	0.90	1.00	1.00						0.94	
Flpb, ped/bikes		1.00	1.00	1.00	0.99						0.96	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	0.99						0.99	
Satd. Flow (prot)		3539	1422	1610	3339						4429	
Flt Permitted		1.00	1.00	0.95	0.91						0.99	
Satd. Flow (perm)		3539	1422	1610	3067						4429	
Peak-hour factor, PHF	0.92	0.83	0.95	0.91	0.88	0.25	0.92	0.92	0.92	0.84	0.91	0.78
Adj. Flow (vph)	0	310	145	179	251	0	0	0	0	64	324	92
RTOR Reduction (vph)	0	0	107	0	0	0	0	0	0	0	49	0
Lane Group Flow (vph)	0	310	38	140	290	0	0	0	0	0	431	0
Confl. Peds. (#/hr)	53		53	86		86	105		105	331		331
Confl. Bikes (#/hr)			16			2			1			14
Turn Type			Perm	Prot						Perm		
Protected Phases		2		1	6						4	
Permitted Phases			2							4		
Actuated Green, G (s)		21.0	21.0	16.0	41.0						31.0	
Effective Green, g (s)		21.0	21.0	16.0	41.0						31.0	
Actuated g/C Ratio		0.26	0.26	0.20	0.51						0.39	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		929	373	322	1626						1716	
v/s Ratio Prot		c0.09		c0.09	0.04							
v/s Ratio Perm			0.03		0.06						0.10	
v/c Ratio		0.33	0.10	0.43	0.18						0.25	
Uniform Delay, d1		23.8	22.4	28.0	10.5						16.6	
Progression Factor		1.06	1.74	1.19	1.36						1.12	
Incremental Delay, d2		1.0	0.5	0.3	0.0						0.0	
Delay (s)		26.3	39.5	33.7	14.3						18.7	
Level of Service		C	D	C	B						B	
Approach Delay (s)		30.5			20.6			0.0			18.7	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	23.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



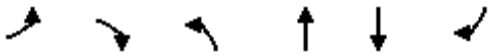
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBT
Lane Configurations												
Volume (vph)	96	89	31	122	11	111	42	50	67	249	15	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0				4.0		4.0
Lane Util. Factor	1.00	0.91	0.91		1.00	0.95				0.95		0.91
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00				1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00				1.00		1.00
Frt	1.00	1.00	0.89		1.00	0.96				0.99		0.99
Flt Protected	0.95	0.95	1.00		0.95	1.00				0.98		1.00
Satd. Flow (prot)	1770	3221	1500		1770	3393				3460		3351
Flt Permitted	0.95	0.95	1.00		0.95	1.00				0.98		1.00
Satd. Flow (perm)	1770	3221	1500		1770	3393				3460		3351
Peak-hour factor, PHF	0.92	0.79	0.82	0.83	0.69	0.84	0.84	0.94	0.94	0.96	0.75	0.85
Adj. Flow (vph)	104	113	38	147	16	132	50	53	71	259	20	384
RTOR Reduction (vph)	0	0	113	0	0	0	0	0	0	5	0	0
Lane Group Flow (vph)	104	102	83	0	16	182	0	0	0	398	0	416
Confl. Peds. (#/hr)	16											
Confl. Bikes (#/hr)			2							6		
Turn Type	Prot	custom			Split			Split	Split			
Protected Phases	5	1	1		7	7		8	8	8		2
Permitted Phases		1										
Actuated Green, G (s)	7.8	18.7	18.7		7.5	7.5				12.5		16.8
Effective Green, g (s)	7.8	18.7	18.7		7.5	7.5				12.5		16.8
Actuated g/C Ratio	0.10	0.23	0.23		0.09	0.09				0.16		0.21
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0				4.0		4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0				2.0		2.0
Lane Grp Cap (vph)	173	753	351		166	318				541		704
v/s Ratio Prot	c0.06	0.03	0.06		0.01	c0.05				c0.12		c0.12
v/s Ratio Perm												
v/c Ratio	0.60	0.14	0.24		0.10	0.57				0.74		0.59
Uniform Delay, d1	34.6	24.3	24.9		33.2	34.7				32.2		28.5
Progression Factor	1.31	1.64	3.28		1.12	1.18				1.00		0.78
Incremental Delay, d2	3.9	0.4	1.5		0.1	1.5				4.5		0.9
Delay (s)	49.1	40.1	83.2		37.3	42.4				36.6		23.2
Level of Service	D	D	F		D	D				D		C
Approach Delay (s)			63.4			42.0				36.6		20.6
Approach LOS			E			D				D		C

Intersection Summary			
HCM Average Control Delay	37.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBR	SBR2	SEL	SER	SER2
Lane Configurations					
Volume (vph)	202	23	20	19	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0
Lane Util. Factor	0.91	1.00	1.00		0.95
Frpb, ped/bikes	1.00	1.00	0.90		0.94
Flpb, ped/bikes	1.00	1.00	1.00		1.00
Frt	0.85	0.85	0.92		0.85
Flt Protected	1.00	1.00	0.98		1.00
Satd. Flow (prot)	1441	1583	1515		1416
Flt Permitted	1.00	1.00	0.98		1.00
Satd. Flow (perm)	1441	1583	1515		1416
Peak-hour factor, PHF	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	210	24	22	21	27
RTOR Reduction (vph)	0	16	3	0	19
Lane Group Flow (vph)	178	8	43	0	5
Confl. Peds. (#/hr)		102	32		32
Confl. Bikes (#/hr)		10			2
Turn Type	custom	custom			custom
Protected Phases	6	6	9		
Permitted Phases	6				2
Actuated Green, G (s)	27.7	27.7	4.5		16.8
Effective Green, g (s)	27.7	27.7	4.5		16.8
Actuated g/C Ratio	0.35	0.35	0.06		0.21
Clearance Time (s)	4.0	4.0	4.0		4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0
Lane Grp Cap (vph)	499	548	85		297
v/s Ratio Prot	c0.12	0.01	c0.03		
v/s Ratio Perm					0.00
v/c Ratio	0.36	0.02	0.51		0.02
Uniform Delay, d1	19.5	17.2	36.7		25.1
Progression Factor	0.72	0.54	1.00		1.00
Incremental Delay, d2	2.0	0.1	1.7		0.0
Delay (s)	16.1	9.4	38.4		25.1
Level of Service	B	A	D		C
Approach Delay (s)			33.8		
Approach LOS			C		

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	339	0	0	669	385	548
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			4.0	4.0	4.0
Lane Util. Factor	0.94			0.91	0.95	0.76
Frpb, ped/bikes	1.00			1.00	1.00	0.97
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	0.95			1.00	1.00	1.00
Satd. Flow (prot)	4990			5085	3539	3510
Flt Permitted	0.95			1.00	1.00	1.00
Satd. Flow (perm)	4990			5085	3539	3510
Peak-hour factor, PHF	0.90	0.92	0.92	0.97	0.96	0.90
Adj. Flow (vph)	377	0	0	690	401	609
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	377	0	0	690	401	609
Confl. Peds. (#/hr)						14
Confl. Bikes (#/hr)						2
Turn Type						Free
Protected Phases	1			2	2	
Permitted Phases						Free
Actuated Green, G (s)	11.5			59.5	59.5	80.0
Effective Green, g (s)	11.5			59.5	59.5	80.0
Actuated g/C Ratio	0.14			0.74	0.74	1.00
Clearance Time (s)	5.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	717			3782	2632	3510
v/s Ratio Prot	c0.08			0.14	0.11	
v/s Ratio Perm						c0.17
v/c Ratio	0.53			0.18	0.15	0.17
Uniform Delay, d1	31.7			3.0	3.0	0.0
Progression Factor	1.25			1.00	1.26	1.00
Incremental Delay, d2	0.6			0.1	0.1	0.1
Delay (s)	40.2			3.1	3.8	0.1
Level of Service	D			A	A	A
Approach Delay (s)	40.2			3.1	1.6	
Approach LOS	D			A	A	

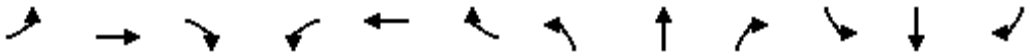
Intersection Summary			
HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	5.0
Intersection Capacity Utilization	27.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	165	669	385	0	0	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0			3.0
Lane Util. Factor	0.94	0.95	0.95			0.88
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	4990	3539	3539			2787
Flt Permitted	0.94	1.00	1.00			1.00
Satd. Flow (perm)	4938	3539	3539			2787
Peak-hour factor, PHF	0.85	0.94	0.82	0.92	0.92	0.88
Adj. Flow (vph)	194	712	470	0	0	68
RTOR Reduction (vph)	0	0	0	0	0	19
Lane Group Flow (vph)	194	712	470	0	0	49
Confl. Bikes (#/hr)				8		4
Turn Type	Perm					custom
Protected Phases		2	1			2
Permitted Phases	2	1				2
Actuated Green, G (s)	57.3	74.0	16.7			57.3
Effective Green, g (s)	57.3	74.0	16.7			57.3
Actuated g/C Ratio	0.72	0.92	0.21			0.72
Clearance Time (s)	3.0	3.0	3.0			3.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	3537	3539	739			1996
v/s Ratio Prot		c0.14	c0.13			0.02
v/s Ratio Perm	0.04	0.06				
v/c Ratio	0.05	0.20	0.64			0.02
Uniform Delay, d1	3.4	0.3	28.9			3.3
Progression Factor	1.00	1.00	1.10			1.00
Incremental Delay, d2	0.0	0.0	1.8			0.0
Delay (s)	3.4	0.3	33.5			3.3
Level of Service	A	A	C			A
Approach Delay (s)		1.0	33.5		3.3	
Approach LOS		A	C		A	

Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	3.0
Intersection Capacity Utilization	21.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



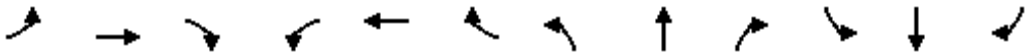
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	82	113	0	0	0	0	0	2317	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0						6.0	
Lane Util. Factor				1.00	0.95						0.86	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				1.00	1.00						1.00	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1770	3539						6398	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1770	3539						6398	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.83	0.92	0.92	0.92	0.92	0.92	0.96	0.45
Adj. Flow (vph)	0	0	0	88	136	0	0	0	0	0	2414	20
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	88	136	0	0	0	0	0	2434	0
Confl. Peds. (#/hr)												14
Confl. Bikes (#/hr)			1									
Turn Type				Perm								
Protected Phases					4						6	
Permitted Phases				4								
Actuated Green, G (s)				9.2	9.2						56.8	
Effective Green, g (s)				9.2	9.2						56.8	
Actuated g/C Ratio				0.12	0.12						0.76	
Clearance Time (s)				3.0	3.0						6.0	
Vehicle Extension (s)				3.0	3.0						4.0	
Lane Grp Cap (vph)				217	434						4845	
v/s Ratio Prot					0.04						c0.38	
v/s Ratio Perm				c0.05								
v/c Ratio				0.41	0.31						0.50	
Uniform Delay, d1				30.4	30.0						3.6	
Progression Factor				1.00	1.00						0.92	
Incremental Delay, d2				5.5	1.9						0.1	
Delay (s)				35.9	31.9						3.4	
Level of Service				D	C						A	
Approach Delay (s)		0.0			33.5			0.0			3.4	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM Average Control Delay	5.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



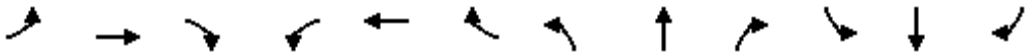
Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	219	1178	410	65	377	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0		5.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.97		0.97	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	5085	4920		3372	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1770	5085	4920		3372	
Peak-hour factor, PHF	0.86	0.96	0.95	0.74	0.94	0.86
Adj. Flow (vph)	255	1227	432	88	401	97
RTOR Reduction (vph)	81	0	37	0	0	0
Lane Group Flow (vph)	174	1227	483	0	498	0
Confl. Peds. (#/hr)				22		
Confl. Bikes (#/hr)				2		
Turn Type	Perm					
Protected Phases		4	2		1	
Permitted Phases	4					
Actuated Green, G (s)	35.5	35.5	12.9		14.6	
Effective Green, g (s)	35.5	35.5	12.9		14.6	
Actuated g/C Ratio	0.47	0.47	0.17		0.19	
Clearance Time (s)	3.0	3.0	4.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	838	2407	846		656	
v/s Ratio Prot		c0.24	c0.10		c0.15	
v/s Ratio Perm	0.10					
v/c Ratio	0.21	0.51	0.57		0.76	
Uniform Delay, d1	11.5	13.7	28.5		28.5	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.6	0.8	0.9		5.0	
Delay (s)	12.1	14.5	29.4		33.6	
Level of Service	B	B	C		C	
Approach Delay (s)		14.1	29.4		33.6	
Approach LOS		B	C		C	

Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



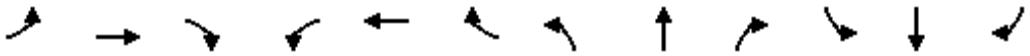
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	130	200	272	273	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	5.0	5.0				
Lane Util. Factor					0.91	0.91	0.81	0.81				
Frpb, ped/bikes					0.99	0.99	1.00	1.00				
Flpb, ped/bikes					1.00	1.00	0.99	1.00				
Frt					0.93	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	0.98				
Satd. Flow (prot)					3147	1423	1425	5920				
Flt Permitted					1.00	1.00	0.95	0.98				
Satd. Flow (perm)					3147	1423	1425	5920				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.89	0.87	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	138	225	313	297	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	41	43	124	125	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	207	72	32	329	0	0	0	0
Confl. Peds. (#/hr)							5		5			
Confl. Bikes (#/hr)			6			2			5			
Turn Type						Perm	Perm					
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					37.8	37.8	12.2	12.2				
Effective Green, g (s)					37.8	37.8	12.2	12.2				
Actuated g/C Ratio					0.63	0.63	0.20	0.20				
Clearance Time (s)					5.0	5.0	5.0	5.0				
Vehicle Extension (s)					3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)					1983	896	290	1204				
v/s Ratio Prot					c0.07							
v/s Ratio Perm						0.05	0.02	0.06				
v/c Ratio					0.10	0.08	0.11	0.27				
Uniform Delay, d1					4.4	4.3	19.5	20.2				
Progression Factor					4.34	7.68	1.00	1.00				
Incremental Delay, d2					0.1	0.1	0.2	0.1				
Delay (s)					19.2	33.4	19.6	20.3				
Level of Service					B	C	B	C				
Approach Delay (s)		0.0			23.7			20.1			0.0	
Approach LOS		A			C			C			A	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	27.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	153	31	0	0	0	0	0	0	954	1071	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		0.95								0.86	0.86	
Frpb, ped/bikes		0.99								1.00	1.00	
Flpb, ped/bikes		1.00								1.00	1.00	
Frt		0.97								1.00	1.00	
Flt Protected		1.00								0.95	0.99	
Satd. Flow (prot)		3401								1522	4717	
Flt Permitted		1.00								0.95	0.99	
Satd. Flow (perm)		3401								1522	4717	
Peak-hour factor, PHF	0.92	0.93	0.65	0.92	0.92	0.92	0.92	0.92	0.92	0.86	0.90	0.75
Adj. Flow (vph)	0	165	48	0	0	0	0	0	0	1109	1190	40
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	337	67	0
Lane Group Flow (vph)	0	202	0	0	0	0	0	0	0	240	1696	0
Confl. Peds. (#/hr)	6		6									
Confl. Bikes (#/hr)			1						1			1
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		62.0								50.0	50.0	
Effective Green, g (s)		62.0								50.0	50.0	
Actuated g/C Ratio		0.52								0.42	0.42	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		1757								634	1965	
v/s Ratio Prot		c0.06										
v/s Ratio Perm										0.16	0.36	
v/c Ratio		0.11								0.38	0.86	
Uniform Delay, d1		14.9								24.2	31.9	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.1								1.7	5.3	
Delay (s)		15.0								26.0	37.2	
Level of Service		B								C	D	
Approach Delay (s)		15.0			0.0			0.0			34.4	
Approach LOS		B			A			A			C	

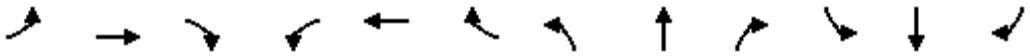
Intersection Summary			
HCM Average Control Delay	32.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	261	0	0	547	480	116	535	23	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Util. Factor		0.95			0.95	1.00		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.98		1.00	0.97			
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3513			3539	1548		3490	1531			
Flt Permitted		0.83			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		2945			3539	1548		3490	1531			
Peak-hour factor, PHF	0.85	0.89	0.92	0.96	0.88	0.96	0.85	0.96	0.72	0.92	0.92	0.92
Adj. Flow (vph)	40	293	0	0	622	500	136	557	32	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	172	0	0	15	0	0	0
Lane Group Flow (vph)	0	333	0	0	622	328	0	693	17	0	0	0
Confl. Peds. (#/hr)	35		35	6		6	26		26	2		2
Confl. Bikes (#/hr)			33			6		10				5
Turn Type	Perm			Perm		Perm	Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4			8		8	2		2			
Actuated Green, G (s)		18.0			18.0	18.0		32.0	32.0			
Effective Green, g (s)		18.0			18.0	18.0		32.0	32.0			
Actuated g/C Ratio		0.30			0.30	0.30		0.53	0.53			
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Grp Cap (vph)		884			1062	464		1861	817			
v/s Ratio Prot					0.18							
v/s Ratio Perm		0.11				c0.21		0.20	0.01			
v/c Ratio		0.38			0.59	0.71		0.37	0.02			
Uniform Delay, d1		16.6			17.8	18.7		8.2	6.6			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		1.2			2.4	8.8		0.6	0.0			
Delay (s)		17.8			20.2	27.4		8.7	6.7			
Level of Service		B			C	C		A	A			
Approach Delay (s)		17.8			23.4			8.6			0.0	
Approach LOS		B			C			A			A	

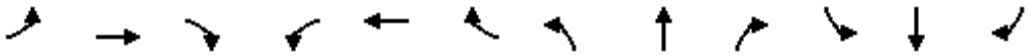
Intersection Summary			
HCM Average Control Delay	17.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



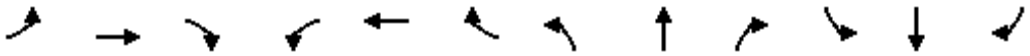
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	233	39	21	621	0	0	0	0	50	320	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0					4.0	4.0	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frpb, ped/bikes		0.99			1.00					1.00	1.00	
Flpb, ped/bikes		1.00			1.00					0.99	1.00	
Frt		0.98			1.00					1.00	0.99	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		3435			3529					1746	3497	
Flt Permitted		1.00			0.93					0.95	1.00	
Satd. Flow (perm)		3435			3292					1746	3497	
Peak-hour factor, PHF	0.92	0.75	0.70	0.66	0.96	0.92	0.92	0.92	0.92	0.74	0.96	0.71
Adj. Flow (vph)	0	311	56	32	647	0	0	0	0	68	333	24
RTOR Reduction (vph)	0	32	0	0	0	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	335	0	0	679	0	0	0	0	68	345	0
Confl. Peds. (#/hr)	36		36	28		28	18		18	16		16
Confl. Bikes (#/hr)			4			10			3			1
Turn Type				Perm						Perm		
Protected Phases		8			4						6	
Permitted Phases				4						6		
Actuated Green, G (s)		19.0			19.0					19.0	19.0	
Effective Green, g (s)		19.0			19.0					19.0	19.0	
Actuated g/C Ratio		0.42			0.42					0.42	0.42	
Clearance Time (s)		3.0			3.0					4.0	4.0	
Vehicle Extension (s)		2.0			2.0					2.0	2.0	
Lane Grp Cap (vph)		1450			1390					737	1477	
v/s Ratio Prot		0.10									c0.10	
v/s Ratio Perm					c0.21					0.04		
v/c Ratio		0.23			0.49					0.09	0.23	
Uniform Delay, d1		8.3			9.5					7.8	8.3	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		0.4			1.2					0.2	0.4	
Delay (s)		8.7			10.7					8.1	8.7	
Level of Service		A			B					A	A	
Approach Delay (s)		8.7			10.7			0.0			8.6	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	141	10	7	340	84	56	375	23	25	63	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.97			0.99			0.97	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		3424			3364			3443			3358	
Flt Permitted		0.85			0.95			0.89			0.80	
Satd. Flow (perm)		2922			3202			3083			2725	
Peak-hour factor, PHF	0.79	0.80	0.36	0.88	0.91	0.75	0.74	0.90	0.52	0.63	0.72	0.86
Adj. Flow (vph)	48	176	28	8	374	112	76	417	44	40	88	28
RTOR Reduction (vph)	0	14	0	0	52	0	0	17	0	0	19	0
Lane Group Flow (vph)	0	238	0	0	442	0	0	520	0	0	137	0
Confl. Peds. (#/hr)	30		30	55		55	41		41	40		40
Confl. Bikes (#/hr)			7			19			6			4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		23.2			23.2			14.3			14.3	
Effective Green, g (s)		23.2			23.2			14.3			14.3	
Actuated g/C Ratio		0.52			0.52			0.32			0.32	
Clearance Time (s)		3.5			3.5			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1506			1651			980			866	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.14			c0.17			0.05	
v/c Ratio		0.16			0.27			0.53			0.16	
Uniform Delay, d1		5.7			6.1			12.6			11.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			0.4			0.6			0.1	
Delay (s)		6.0			6.5			13.2			11.1	
Level of Service		A			A			B			B	
Approach Delay (s)		6.0			6.5			13.2			11.1	
Approach LOS		A			A			B			B	

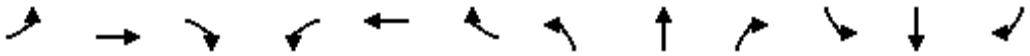
Intersection Summary			
HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	353	1277	0	0	0	0	0	328	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.86						0.91	
Frpb, ped/bikes					1.00						0.99	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					6290						4899	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					6290						4899	
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.97	0.92	0.92	0.92	0.92	0.92	0.98	0.81
Adj. Flow (vph)	0	0	0	388	1316	0	0	0	0	0	335	80
RTOR Reduction (vph)	0	0	0	0	88	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	0	0	0	1616	0	0	0	0	0	407	0
Confl. Peds. (#/hr)	48		48	30		30	54		54	27		27
Confl. Bikes (#/hr)			9			5			4			1
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2726						2164	
v/s Ratio Prot											c0.08	
v/s Ratio Perm					0.26							
v/c Ratio					0.59						0.19	
Uniform Delay, d1					13.0						10.2	
Progression Factor					0.48						1.00	
Incremental Delay, d2					0.8						0.2	
Delay (s)					7.0						10.4	
Level of Service					A						B	
Approach Delay (s)		0.0			7.0			0.0			10.4	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	7.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

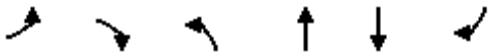
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1431	66	275	698	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5			4.0				
Lane Util. Factor					0.86			0.86				
Frpb, ped/bikes					1.00			1.00				
Flpb, ped/bikes					1.00			0.98				
Frt					0.99			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6338			6170				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6338			6170				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.87	0.93	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1475	76	296	759	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	12	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1539	0	0	1047	0	0	0	0
Confl. Peds. (#/hr)	102		102	84		84	84		84	168		168
Confl. Bikes (#/hr)			1									1
Turn Type							Perm					
Protected Phases					6			4				
Permitted Phases							4					
Actuated Green, G (s)					29.9			20.6				
Effective Green, g (s)					29.9			20.6				
Actuated g/C Ratio					0.50			0.34				
Clearance Time (s)					5.5			4.0				
Lane Grp Cap (vph)					3158			2118				
v/s Ratio Prot					c0.24							
v/s Ratio Perm								0.17				
v/c Ratio					0.49			0.49				
Uniform Delay, d1					10.0			15.6				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.5			0.8				
Delay (s)					10.5			16.4				
Level of Service					B			B				
Approach Delay (s)		0.0			10.5			16.4			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	12.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

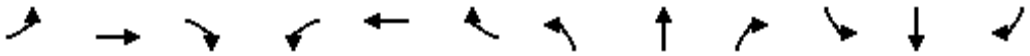
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	56	0	0	937	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.92	0.92	0.99	0.92	0.92
Hourly flow rate (vph)	64	0	0	946	0	0
Pedestrians	12					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1055	320	
pX, platoon unblocked						
vC, conflicting volume	249	12	12			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	249	12	12			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	91	100	100			
cM capacity (veh/h)	711	1055	1589			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	64	237	237	237	237
Volume Left	64	0	0	0	0
Volume Right	0	0	0	0	0
cSH	711	1700	1700	1700	1700
Volume to Capacity	0.09	0.14	0.14	0.14	0.14
Queue Length 95th (ft)	7	0	0	0	0
Control Delay (s)	10.6	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.6	0.0			
Approach LOS	B				

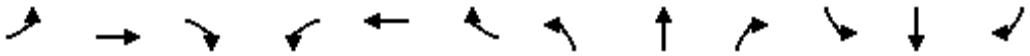
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	23.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	338	121	0	0	0	0	0	0	22	668	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5									5.5	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.96									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		6067									5067	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		6067									5067	
Peak-hour factor, PHF	0.92	0.86	0.84	0.92	0.92	0.92	0.92	0.92	0.92	0.55	0.95	0.92
Adj. Flow (vph)	0	393	144	0	0	0	0	0	0	40	703	0
RTOR Reduction (vph)	0	71	0	0	0	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	466	0	0	0	0	0	0	0	0	733	0
Confl. Peds. (#/hr)	32		32	21		21	23		23	17		17
Confl. Bikes (#/hr)			10			10			2			3
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		23.0									26.0	
Effective Green, g (s)		23.0									26.0	
Actuated g/C Ratio		0.38									0.43	
Clearance Time (s)		5.5									5.5	
Lane Grp Cap (vph)		2326									2196	
v/s Ratio Prot		c0.08										
v/s Ratio Perm											0.14	
v/c Ratio		0.20									0.33	
Uniform Delay, d1		12.4									11.3	
Progression Factor		0.77									1.19	
Incremental Delay, d2		0.2									0.4	
Delay (s)		9.7									13.8	
Level of Service		A									B	
Approach Delay (s)		9.7			0.0			0.0			13.8	
Approach LOS		A			A			A			B	

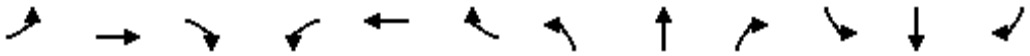
Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	342	0	0	0	0	0	362	50	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.86						0.86				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6253						6281				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6253						6281				
Peak-hour factor, PHF	0.79	0.93	0.92	0.92	0.92	0.92	0.92	0.74	0.83	0.92	0.92	0.92
Adj. Flow (vph)	135	368	0	0	0	0	0	489	60	0	0	0
RTOR Reduction (vph)	0	116	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	387	0	0	0	0	0	534	0	0	0	0
Confl. Peds. (#/hr)	46		46	56		56	21		21	52		52
Confl. Bikes (#/hr)			2			2			5			
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		8.4						44.6				
Effective Green, g (s)		8.4						44.6				
Actuated g/C Ratio		0.14						0.74				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		875						4669				
v/s Ratio Prot								c0.08				
v/s Ratio Perm		0.06										
v/c Ratio		0.44						0.11				
Uniform Delay, d1		23.7						2.2				
Progression Factor		1.02						1.00				
Incremental Delay, d2		0.1						0.0				
Delay (s)		24.2						2.2				
Level of Service		C						A				
Approach Delay (s)		24.2			0.0			2.2			0.0	
Approach LOS		C			A			A			A	

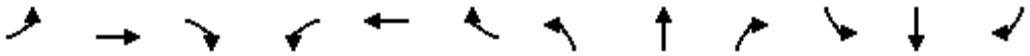
Intersection Summary			
HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	490	0	0	0	0	0	979	247	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		0.86						0.91				
Frpb, ped/bikes		1.00						0.99				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.97				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6329						4883				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6329						4883				
Peak-hour factor, PHF	0.93	0.91	0.92	0.92	0.92	0.92	0.92	0.85	0.71	0.92	0.92	0.92
Adj. Flow (vph)	124	538	0	0	0	0	0	1152	348	0	0	0
RTOR Reduction (vph)	0	12	0	0	0	0	0	97	0	0	0	0
Lane Group Flow (vph)	0	650	0	0	0	0	0	1403	0	0	0	0
Confl. Peds. (#/hr)	22		22	59		59	12		12	5		5
Confl. Bikes (#/hr)			6			4			2			1
Turn Type	Perm											
Protected Phases		1						2				
Permitted Phases	1											
Actuated Green, G (s)		18.0						18.0				
Effective Green, g (s)		18.0						18.0				
Actuated g/C Ratio		0.40						0.40				
Clearance Time (s)		4.5						4.5				
Lane Grp Cap (vph)		2532						1953				
v/s Ratio Prot								c0.29				
v/s Ratio Perm		0.10										
v/c Ratio		0.26						0.72				
Uniform Delay, d1		9.0						11.4				
Progression Factor		0.82						0.73				
Incremental Delay, d2		0.2						1.9				
Delay (s)		7.6						10.3				
Level of Service		A						B				
Approach Delay (s)		7.6			0.0			10.3			0.0	
Approach LOS		A			A			B			A	

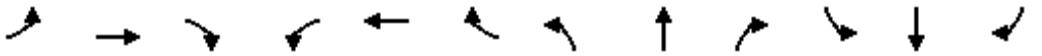
Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



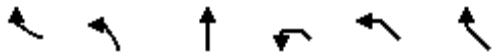
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	470	241	0	0	0	0	0	0	131	530	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									3.0	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.95									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6034									5024	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6034									5024	
Peak-hour factor, PHF	0.92	0.92	0.86	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.98	0.92
Adj. Flow (vph)	0	511	280	0	0	0	0	0	0	147	541	0
RTOR Reduction (vph)	0	125	0	0	0	0	0	0	0	0	82	0
Lane Group Flow (vph)	0	666	0	0	0	0	0	0	0	0	606	0
Confl. Peds. (#/hr)	4		4	10		10	8		8	11		11
Confl. Bikes (#/hr)			1						7			2
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		18.0									20.0	
Effective Green, g (s)		18.0									20.0	
Actuated g/C Ratio		0.40									0.44	
Clearance Time (s)		4.0									3.0	
Vehicle Extension (s)		2.0									2.0	
Lane Grp Cap (vph)		2414									2233	
v/s Ratio Prot		c0.11										
v/s Ratio Perm											0.12	
v/c Ratio		0.28									0.27	
Uniform Delay, d1		9.1									7.9	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.3									0.3	
Delay (s)		9.4									8.2	
Level of Service		A									A	
Approach Delay (s)		9.4			0.0			0.0			8.2	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	20	297	45	192	240	0	0	142	1512
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.95		1.00			1.00	0.98
Flpb, ped/bikes				0.98	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1736	1863	1503		1820			1863	1558
Flt Permitted				0.95	1.00	1.00		0.77			1.00	1.00
Satd. Flow (perm)				1736	1863	1503		1435			1863	1558
Peak-hour factor, PHF	0.92	0.92	0.92	0.71	0.96	0.87	0.84	0.87	0.92	0.92	0.81	0.95
Adj. Flow (vph)	0	0	0	28	309	52	229	276	0	0	175	1592
RTOR Reduction (vph)	0	0	0	0	0	39	0	0	0	0	0	117
Lane Group Flow (vph)	0	0	0	28	309	13	0	505	0	0	175	1475
Confl. Peds. (#/hr)	1		1	23		23	2		2	5		5
Confl. Bikes (#/hr)			2									
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					1			2			2	
Permitted Phases				1		1	2					2
Actuated Green, G (s)				11.6	11.6	11.6		22.4			22.4	22.4
Effective Green, g (s)				11.6	11.6	11.6		22.4			22.4	22.4
Actuated g/C Ratio				0.26	0.26	0.26		0.50			0.50	0.50
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				448	480	387		714			927	776
v/s Ratio Prot					c0.17						0.09	
v/s Ratio Perm				0.02		0.01		0.35				c0.95
v/c Ratio				0.06	0.64	0.03		0.71			0.19	1.90
Uniform Delay, d1				12.6	14.9	12.5		8.8			6.3	11.3
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.1	3.0	0.0		5.8			0.5	410.2
Delay (s)				12.7	17.8	12.5		14.6			6.7	421.5
Level of Service				B	B	B		B			A	F
Approach Delay (s)		0.0			16.7			14.6			380.4	
Approach LOS		A			B			B			F	

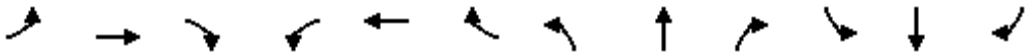
Intersection Summary			
HCM Average Control Delay	257.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.47		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	146.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBR	NBL	NBT	NWL2	NWL	NWR
Lane Configurations						
Volume (vph)	0	123	429	120	49	778
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5		2.0	2.0
Lane Util. Factor			0.95		0.97	0.91
Frpb, ped/bikes			1.00		1.00	1.00
Flpb, ped/bikes			1.00		1.00	1.00
Frt			1.00		0.90	0.85
Flt Protected			0.99		0.98	1.00
Satd. Flow (prot)			3491		3197	1441
Flt Permitted			0.99		0.98	1.00
Satd. Flow (perm)			3491		3197	1441
Peak-hour factor, PHF	0.92	0.75	0.96	0.77	0.86	0.89
Adj. Flow (vph)	0	164	447	156	57	874
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	611	0	650	437
Confl. Peds. (#/hr)	51	2				
Confl. Bikes (#/hr)	2					
Turn Type	custom	Perm		Perm		Perm
Protected Phases			3		1	
Permitted Phases	2	3		1		1
Actuated Green, G (s)			16.3		16.2	16.2
Effective Green, g (s)			16.3		16.2	16.2
Actuated g/C Ratio			0.36		0.36	0.36
Clearance Time (s)			3.5		2.0	2.0
Lane Grp Cap (vph)			1265		1151	519
v/s Ratio Prot						
v/s Ratio Perm			0.18		0.20	c0.30
v/c Ratio			0.48		0.56	0.84
Uniform Delay, d1			11.1		11.6	13.2
Progression Factor			0.81		1.00	1.00
Incremental Delay, d2			0.6		2.0	15.2
Delay (s)			9.6		13.6	28.4
Level of Service			A		B	C
Approach Delay (s)			9.6		19.6	
Approach LOS			A		B	

Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	303	558	152	0	0	0	0	230	68	3	117	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5			3.5	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		0.99						1.00			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		0.98						0.97			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4848						1795			1858	
Flt Permitted		0.99						1.00			0.98	
Satd. Flow (perm)		1850						1500			1600	
Peak-hour factor, PHF	0.95	0.89	0.81	0.92	0.92	0.92	0.92	0.82	0.74	0.38	0.77	0.92
Adj. Flow (vph)	319	627	188	0	0	0	0	280	92	8	152	0
RTOR Reduction (vph)	0	67	0	0	0	0	0	26	0	0	0	0
Lane Group Flow (vph)	0	1068	0	0	0	0	0	346	0	0	160	0
Confl. Peds. (#/hr)	14		14	52		52	1		1	4		4
Confl. Bikes (#/hr)			5			2						
Turn Type	Perm									Perm		
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		22.5						15.5			15.5	
Effective Green, g (s)		22.5						15.5			15.5	
Actuated g/C Ratio		0.50						0.34			0.34	
Clearance Time (s)		3.5						3.5			3.5	
Lane Grp Cap (vph)		925						618			551	
v/s Ratio Prot								c0.19				
v/s Ratio Perm		c0.58									0.10	
v/c Ratio		1.15						0.56			0.29	
Uniform Delay, d1		11.2						12.0			10.7	
Progression Factor		1.00						1.00			0.97	
Incremental Delay, d2		81.7						3.6			1.1	
Delay (s)		92.9						15.6			11.6	
Level of Service		F						B			B	
Approach Delay (s)		92.9			0.0			15.6			11.6	
Approach LOS		F			A			B			B	

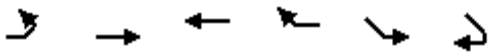
Intersection Summary			
HCM Average Control Delay	67.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	443	302	461	294	155	1028
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.94		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3340		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3340		1770	3539
Peak-hour factor, PHF	0.89	0.92	0.83	0.88	0.90	0.85
Adj. Flow (vph)	498	328	555	334	172	1209
RTOR Reduction (vph)	0	233	95	0	0	0
Lane Group Flow (vph)	498	95	794	0	172	1209
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	26.0	26.0	38.7		13.3	56.0
Effective Green, g (s)	26.0	26.0	38.7		13.3	56.0
Actuated g/C Ratio	0.29	0.29	0.43		0.15	0.62
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	511	457	1436		262	2202
v/s Ratio Prot	c0.28		0.24		c0.10	c0.34
v/s Ratio Perm		0.06				
v/c Ratio	0.97	0.21	0.55		0.66	0.55
Uniform Delay, d1	31.7	24.2	19.2		36.2	9.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	33.0	0.2	1.5		12.2	1.0
Delay (s)	64.7	24.4	20.7		48.4	10.7
Level of Service	E	C	C		D	B
Approach Delay (s)	48.7		20.7			15.4
Approach LOS	D		C			B

Intersection Summary			
HCM Average Control Delay	25.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	471	447	572	262	182	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3370		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3370		1770	1583
Peak-hour factor, PHF	0.94	0.92	0.91	0.89	0.85	0.92
Adj. Flow (vph)	501	486	629	294	214	284
RTOR Reduction (vph)	0	0	79	0	0	219
Lane Group Flow (vph)	501	486	844	0	214	65
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	14.1	33.2	15.1		12.3	12.3
Effective Green, g (s)	14.1	33.2	15.1		12.3	12.3
Actuated g/C Ratio	0.26	0.62	0.28		0.23	0.23
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	466	2196	951		407	364
v/s Ratio Prot	c0.28	0.14	c0.25		c0.12	
v/s Ratio Perm						0.04
v/c Ratio	1.08	0.22	0.89		0.53	0.18
Uniform Delay, d1	19.7	4.5	18.4		18.0	16.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	63.3	0.1	10.1		1.2	0.2
Delay (s)	83.0	4.5	28.5		19.3	16.8
Level of Service	F	A	C		B	B
Approach Delay (s)		44.4	28.5		17.9	
Approach LOS		D	C		B	

Intersection Summary			
HCM Average Control Delay	32.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	53.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



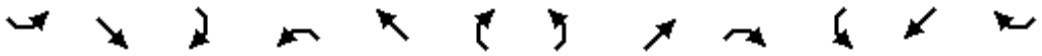
Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	395	626	270	0	571	184	277	1208	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.96			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4877			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4877			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.78	0.88	0.69	0.92	0.93	0.76	0.80	0.84	0.92
Adj. Flow (vph)	0	0	506	711	391	0	614	242	346	1438	0
RTOR Reduction (vph)	0	0	0	25	0	0	0	167	0	0	0
Lane Group Flow (vph)	0	0	0	1583	0	0	614	75	346	1438	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				36.5			17.5	17.5	39.0	60.5	
Effective Green, g (s)				36.5			17.5	17.5	39.0	60.5	
Actuated g/C Ratio				0.34			0.17	0.17	0.37	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1679			584	261	651	2020	
v/s Ratio Prot				c0.32			c0.17		0.20	c0.41	
v/s Ratio Perm								0.05			
v/c Ratio				0.94			1.05	0.29	0.53	0.71	
Uniform Delay, d1				33.7			44.3	38.8	26.3	16.4	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				11.2			51.5	2.8	3.1	2.2	
Delay (s)				44.9			95.7	41.5	29.4	18.6	
Level of Service				D			F	D	C	B	
Approach Delay (s)	0.0			44.9			80.4			20.7	
Approach LOS	A			D			F			C	

Intersection Summary			
HCM Average Control Delay	41.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	260	445	196	184	340	259	32	229	31	654
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	4.0				3.5	4.0
Lane Util. Factor	0.91	0.86	0.91	1.00	0.95				1.00	0.95
Frt	1.00	0.99	0.85	0.85	0.93				1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00				0.95	1.00
Satd. Flow (prot)	1610	3173	1441	1583	3281				1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	1.00				0.95	1.00
Satd. Flow (perm)	1610	3173	1441	1583	3281				1770	3539
Peak-hour factor, PHF	0.81	0.88	0.89	0.88	0.94	0.85	0.83	0.91	0.78	0.82
Adj. Flow (vph)	321	506	220	209	362	305	39	252	40	798
RTOR Reduction (vph)	0	0	0	76	3	0	0	0	0	0
Lane Group Flow (vph)	276	573	198	133	703	0	0	0	292	798
Turn Type	Split		Prot	Perm				Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases				4						
Actuated Green, G (s)	28.8	28.8	28.8	28.8	42.0				22.7	68.2
Effective Green, g (s)	28.8	28.8	28.8	28.8	42.0				22.7	68.2
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.40				0.21	0.64
Clearance Time (s)	5.0	5.0	5.0	5.0	4.0				3.5	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0				3.0	3.0
Lane Grp Cap (vph)	437	862	392	430	1300				379	2277
v/s Ratio Prot	0.17	c0.18	0.14		c0.21				c0.17	0.23
v/s Ratio Perm				0.08						
v/c Ratio	0.63	0.66	0.51	0.31	0.54				0.77	0.35
Uniform Delay, d1	33.9	34.3	32.6	30.7	24.6				39.2	8.7
Progression Factor	0.76	0.76	0.76	0.64	1.00				1.00	1.00
Incremental Delay, d2	1.9	1.2	0.6	0.3	1.6				9.3	0.4
Delay (s)	27.8	27.4	25.5	19.8	26.2				48.5	9.1
Level of Service	C	C	C	B	C				D	A
Approach Delay (s)		25.9			26.2					19.7
Approach LOS		C			C					B

Intersection Summary			
HCM Average Control Delay	23.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	2273	103	381	340	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.91	1.00		*0.88				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.97				
Satd. Flow (prot)					5085	1583		4790				
Flt Permitted					1.00	1.00		0.97				
Satd. Flow (perm)					5085	1583		4790				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.78	0.93	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2368	132	410	358	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	69	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2368	63	0	767	0	0	0	0
Turn Type						Perm	Perm					
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					38.0	38.0		34.0				
Effective Green, g (s)					38.0	38.0		34.0				
Actuated g/C Ratio					0.48	0.48		0.42				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					2415	752		2036				
v/s Ratio Prot					c0.47							
v/s Ratio Perm						0.04		0.16				
v/c Ratio					0.98	0.08		0.38				
Uniform Delay, d1					20.6	11.5		15.7				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					14.3	0.2		0.5				
Delay (s)					34.9	11.7		16.3				
Level of Service					C	B		B				
Approach Delay (s)		0.0			33.7			16.3			0.0	
Approach LOS		A			C			B			A	

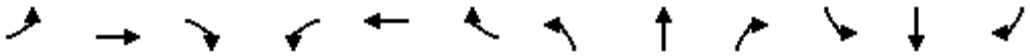
Intersection Summary			
HCM Average Control Delay	29.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	1142	1418	0	0	0	0	0	1032	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4746						3524	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4746						3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	0	0	1177	1541	0	0	0	0	0	1098	32
RTOR Reduction (vph)	0	0	0	5	5	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	654	2054	0	0	0	0	0	1127	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				46.0	46.0						26.0	
Effective Green, g (s)				46.0	46.0						26.0	
Actuated g/C Ratio				0.57	0.57						0.32	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				875	2729						1145	
v/s Ratio Prot											c0.32	
v/s Ratio Perm				0.43	0.43							
v/c Ratio				0.75	0.75						0.98	
Uniform Delay, d1				12.7	12.7						26.8	
Progression Factor				1.47	1.49						1.00	
Incremental Delay, d2				2.6	0.9						23.1	
Delay (s)				21.2	19.8						49.9	
Level of Service				C	B						D	
Approach Delay (s)		0.0			20.1			0.0			49.9	
Approach LOS		A			C			A			D	

Intersection Summary			
HCM Average Control Delay	28.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	74	196	6	9	433	13	9	6	8	18	14	13
Peak Hour Factor	0.90	0.94	0.67	0.81	0.84	0.63	0.75	0.75	0.79	0.74	0.77	0.69
Hourly flow rate (vph)	82	209	9	11	515	21	12	8	10	24	18	19

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	82	217	547	30	61
Volume Left (vph)	82	0	11	12	24
Volume Right (vph)	0	9	21	10	19
Hadj (s)	0.53	0.01	0.02	-0.09	-0.07
Departure Headway (s)	5.8	5.2	4.6	5.9	5.8
Degree Utilization, x	0.13	0.32	0.71	0.05	0.10
Capacity (veh/h)	607	665	761	538	544
Control Delay (s)	8.4	9.4	18.0	9.2	9.5
Approach Delay (s)	9.2		18.0	9.2	9.5
Approach LOS	A		C	A	A

Intersection Summary			
Delay	14.3		
HCM Level of Service	B		
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp

Average Delay (sec/veh): 4.0 Worst Case Level Of Service: B[12.2]

Street Name:	Harrison Street						Stanley Place / I-580 EB Off-Ramp					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Yield Sign			Yield Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0	0	0 0	3 0	0	0 0	0 1		0 0	0 0	0
Volume Module:												
Base Vol:	0	0	0	0	609	0	0	0	258	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	609	0	0	0	258	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	609	0	0	0	258	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	0.80	1.00	1.00	1.00
PHF Volume:	0	0	0	0	669	0	0	0	323	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	669	0	0	0	323	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	223	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	821	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	821	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.39	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	1.9	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	12.2	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	B	*	*	*

Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			12.2			xxxxxx		
ApproachLOS:	*			*			B			*		

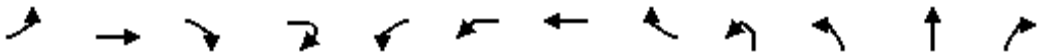
Note: Queue reported is the number of cars per lane.

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Movement	SEL2	SET	NET	NER	NER2
Lane Configurations					
Volume (vph)	543	257	990	746	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	3.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	
Flt Protected	0.95	0.98	1.00	1.00	
Satd. Flow (prot)	1681	1740	3539	1583	
Flt Permitted	0.95	0.98	1.00	1.00	
Satd. Flow (perm)	1681	1740	3539	1583	
Peak-hour factor, PHF	0.88	0.83	0.89	0.92	0.75
Adj. Flow (vph)	617	310	1112	811	96
RTOR Reduction (vph)	71	31	0	0	0
Lane Group Flow (vph)	386	439	1112	907	0
Confl. Peds. (#/hr)				2	
Confl. Bikes (#/hr)					
Turn Type	Perm			custom	
Protected Phases		4	5	1	
Permitted Phases	4			1	
Actuated Green, G (s)	16.0	16.0	36.5	13.5	
Effective Green, g (s)	16.0	16.0	36.5	13.5	
Actuated g/C Ratio	0.27	0.27	0.61	0.22	
Clearance Time (s)	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	448	464	2153	356	
v/s Ratio Prot			c0.31	c0.57	
v/s Ratio Perm	0.23	0.25			
v/c Ratio	0.86	0.95	0.52	2.55	
Uniform Delay, d1	20.9	21.6	6.7	23.2	
Progression Factor	1.00	1.00	1.00	1.00	
Incremental Delay, d2	15.0	28.2	0.9	704.7	
Delay (s)	36.0	49.8	7.6	728.0	
Level of Service	D	D	A	F	
Approach Delay (s)		43.0	331.2		
Approach LOS		D	F		

Intersection Summary			
HCM Average Control Delay	240.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



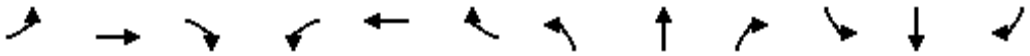
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	192	365	89	17	45	14	155	177	8	384	1204	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0			4.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00			1.00	1.00	1.00		0.97	0.95	
Frpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	0.96		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85			1.00	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583			1770	1863	1520		3433	3495	
Flt Permitted	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583			1770	1863	1520		3433	3495	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.85	0.85	0.85	0.85	0.92	0.92	0.92	0.92
Adj. Flow (vph)	204	388	95	18	53	16	182	208	9	417	1309	93
RTOR Reduction (vph)	0	0	7	0	0	0	0	175	0	0	6	0
Lane Group Flow (vph)	204	388	106	0	0	69	182	33	0	426	1396	0
Confl. Peds. (#/hr)	26											20
Confl. Bikes (#/hr)								20				9
Turn Type	Prot		Perm		Prot	Prot		Perm	Prot	Prot		
Protected Phases	3	8			7	7	4		1	1	6	
Permitted Phases			8					4				
Actuated Green, G (s)	19.5	26.3	26.3			7.5	14.3	14.3		14.4	27.2	
Effective Green, g (s)	19.5	26.3	26.3			7.5	14.3	14.3		14.4	27.2	
Actuated g/C Ratio	0.22	0.29	0.29			0.08	0.16	0.16		0.16	0.30	
Clearance Time (s)	4.0	5.0	5.0			4.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	384	1034	463			148	296	242		549	1056	
v/s Ratio Prot	c0.12	0.11				0.04	c0.10			0.12	c0.40	
v/s Ratio Perm			0.07					0.02				
v/c Ratio	0.53	0.38	0.23			0.47	0.61	0.14		0.78	1.32	
Uniform Delay, d1	31.2	25.3	24.2			39.3	35.3	32.5		36.3	31.4	
Progression Factor	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.2	0.3			2.3	3.8	0.3		6.8	151.7	
Delay (s)	32.6	25.5	24.4			41.7	39.0	32.8		43.0	183.1	
Level of Service	C	C	C			D	D	C		D	F	
Approach Delay (s)		27.4					36.6				150.5	
Approach LOS		C					D				F	

Intersection Summary			
HCM Average Control Delay	91.9	HCM Level of Service	F
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Volume (vph)	185	437	39	65
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.97		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3437		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3437		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93
Adj. Flow (vph)	199	470	42	70
RTOR Reduction (vph)	0	12	0	0
Lane Group Flow (vph)	199	570	0	0
Confl. Peds. (#/hr)	26			
Confl. Bikes (#/hr)				
Turn Type	Prot			
Protected Phases	5	2		
Permitted Phases				
Actuated Green, G (s)	11.0	22.8		
Effective Green, g (s)	11.0	22.8		
Actuated g/C Ratio	0.12	0.25		
Clearance Time (s)	4.0	5.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	216	871		
v/s Ratio Prot	c0.11	0.17		
v/s Ratio Perm				
v/c Ratio	0.92	0.65		
Uniform Delay, d1	39.1	30.1		
Progression Factor	1.00	1.00		
Incremental Delay, d2	40.0	3.8		
Delay (s)	79.0	33.9		
Level of Service	E	C		
Approach Delay (s)		45.4		
Approach LOS		D		

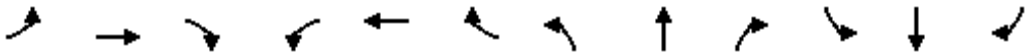
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	206	66	29	427	237	173	618	30	144	594	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor		0.91			0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes		0.99			1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.97			1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected		0.99			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		4788			3523	1536	1767	3504		1767	3455	
Flt Permitted		0.74			0.88	1.00	0.30	1.00		0.31	1.00	
Satd. Flow (perm)		3588			3119	1536	559	3504		581	3455	
Peak-hour factor, PHF	0.68	0.86	0.66	0.73	0.96	0.87	0.83	0.92	0.75	0.82	0.92	0.86
Adj. Flow (vph)	107	240	100	40	445	272	208	672	40	176	646	88
RTOR Reduction (vph)	0	58	0	0	0	84	0	5	0	0	13	0
Lane Group Flow (vph)	0	389	0	0	485	188	208	707	0	176	721	0
Confl. Peds. (#/hr)	32		32	10		10	6		6	5		5
Confl. Bikes (#/hr)			20			18			17			66
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			2	
Permitted Phases	4			8		8	2			2		
Actuated Green, G (s)		36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Effective Green, g (s)		36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Actuated g/C Ratio		0.42			0.42	0.42	0.45	0.45		0.45	0.45	
Clearance Time (s)		5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)		1520			1321	651	250	1566		260	1545	
v/s Ratio Prot								0.20			0.21	
v/s Ratio Perm		0.11			c0.16	0.12	c0.37			0.30		
v/c Ratio		0.26			0.37	0.29	0.83	0.45		0.68	0.47	
Uniform Delay, d1		15.8			16.7	16.1	20.7	16.3		18.6	16.4	
Progression Factor		0.79			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4			0.8	1.1	26.4	0.9		13.3	1.0	
Delay (s)		12.9			17.5	17.2	47.1	17.2		31.9	17.4	
Level of Service		B			B	B	D	B		C	B	
Approach Delay (s)		12.9			17.4			24.0			20.2	
Approach LOS		B			B			C			C	

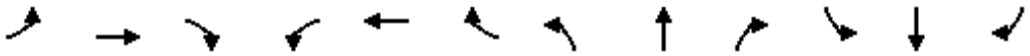
Intersection Summary			
HCM Average Control Delay	19.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	105.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	180	352	118	55	585	99	182	430	39	112	391	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5		4.5	3.5		5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	0.97		1.00	0.98		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	3388		1769	3436		1761	3472		1762	3257	
Flt Permitted	0.16	1.00		0.43	1.00		0.27	1.00		0.39	1.00	
Satd. Flow (perm)	297	3388		806	3436		495	3472		716	3257	
Peak-hour factor, PHF	0.85	0.90	0.89	0.81	0.88	0.72	0.88	0.87	0.70	0.80	0.92	0.91
Adj. Flow (vph)	212	391	133	68	665	138	207	494	56	140	425	323
RTOR Reduction (vph)	0	35	0	0	20	0	0	10	0	0	161	0
Lane Group Flow (vph)	212	489	0	68	783	0	207	540	0	140	587	0
Confl. Peds. (#/hr)	4		4	1		1	17		17	10		10
Confl. Bikes (#/hr)			4			10			17			28
Turn Type	pm+pt			pm+pt			Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	42.8	33.2		34.2	28.9		33.0	33.0		33.0	33.0	
Effective Green, g (s)	42.8	33.2		34.2	28.9		33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.50	0.39		0.40	0.34		0.39	0.39		0.39	0.39	
Clearance Time (s)	4.5	3.5		4.5	3.5		5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	316	1323		384	1168		192	1348		278	1264	
v/s Ratio Prot	c0.08	0.14		0.01	0.23			0.16			0.18	
v/s Ratio Perm	c0.26			0.06			c0.42			0.20		
v/c Ratio	0.67	0.37		0.18	0.67		1.08	0.40		0.50	0.46	
Uniform Delay, d1	14.7	18.4		15.8	24.0		26.0	18.8		19.8	19.4	
Progression Factor	1.00	1.00		1.58	1.46		0.76	0.66		1.00	1.00	
Incremental Delay, d2	4.4	0.8		0.1	2.8		84.5	0.1		0.5	0.1	
Delay (s)	19.1	19.2		25.0	37.8		104.2	12.6		20.3	19.5	
Level of Service	B	B		C	D		F	B		C	B	
Approach Delay (s)		19.2			36.8			37.6			19.6	
Approach LOS		B			D			D			B	

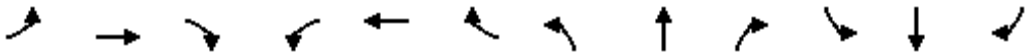
Intersection Summary			
HCM Average Control Delay	28.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	14.5
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	211	569	0	0	221	942	18	747	63	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	0.86	0.86			0.86	0.86		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			0.90	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1521	4785			4329	1362		5007				
Flt Permitted	0.33	0.84			1.00	1.00		1.00				
Satd. Flow (perm)	536	4023			4329	1362		5007				
Peak-hour factor, PHF	0.93	0.90	0.25	0.25	0.89	0.97	0.64	0.92	0.83	0.25	0.25	0.25
Adj. Flow (vph)	227	632	0	0	248	971	28	812	76	0	0	0
RTOR Reduction (vph)	0	0	0	0	43	43	0	26	0	0	0	0
Lane Group Flow (vph)	166	693	0	0	691	442	0	890	0	0	0	0
Confl. Peds. (#/hr)	2		2				4		4	3		3
Confl. Bikes (#/hr)			4						5			7
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	16.0	16.0			16.0	16.0		16.0				
Effective Green, g (s)	16.0	16.0			16.0	16.0		16.0				
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.40				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)	214	1609			1732	545		2003				
v/s Ratio Prot					0.16							
v/s Ratio Perm	0.31	0.17				c0.32		0.18				
v/c Ratio	0.78	0.43			0.40	0.81		0.44				
Uniform Delay, d1	10.4	8.7			8.6	10.7		8.8				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	23.6	0.8			0.7	12.4		0.7				
Delay (s)	34.0	9.5			9.3	23.1		9.5				
Level of Service	C	A			A	C		A				
Approach Delay (s)		14.3			14.8			9.5			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	13.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

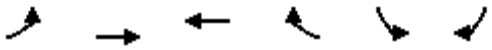
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	423	33	10	209	0	0	0	0	348	261	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0					4.0	4.0	4.0
Lane Util. Factor		0.91			0.91					0.91	0.91	1.00
Frpb, ped/bikes		1.00			1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00			1.00					1.00	1.00	1.00
Frt		0.99			1.00					1.00	1.00	0.85
Flt Protected		1.00			1.00					0.95	0.98	1.00
Satd. Flow (prot)		5014			5069					1605	3332	1558
Flt Permitted		1.00			0.91					0.95	0.98	1.00
Satd. Flow (perm)		5014			4607					1605	3332	1558
Peak-hour factor, PHF	0.25	0.95	0.83	0.63	0.86	0.25	0.25	0.25	0.25	0.87	0.79	0.88
Adj. Flow (vph)	0	445	40	16	243	0	0	0	0	400	330	195
RTOR Reduction (vph)	0	18	0	0	0	0	0	0	0	0	0	94
Lane Group Flow (vph)	0	467	0	0	259	0	0	0	0	240	490	101
Confl. Peds. (#/hr)	4		4	4		4	1		1	3		3
Confl. Bikes (#/hr)			5			9			1			1
Turn Type				Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases				8						6		6
Actuated Green, G (s)		21.0			21.0					31.0	31.0	31.0
Effective Green, g (s)		21.0			21.0					31.0	31.0	31.0
Actuated g/C Ratio		0.35			0.35					0.52	0.52	0.52
Clearance Time (s)		4.0			4.0					4.0	4.0	4.0
Lane Grp Cap (vph)		1755			1612					829	1722	805
v/s Ratio Prot		c0.09										
v/s Ratio Perm					0.06					c0.15	0.15	0.06
v/c Ratio		0.27			0.16					0.29	0.28	0.13
Uniform Delay, d1		14.0			13.4					8.2	8.2	7.5
Progression Factor		1.00			1.00					1.00	1.00	1.00
Incremental Delay, d2		0.4			0.2					0.9	0.4	0.3
Delay (s)		14.4			13.6					9.1	8.6	7.8
Level of Service		B			B					A	A	A
Approach Delay (s)		14.4			13.6			0.0			8.6	
Approach LOS		B			B			A			A	

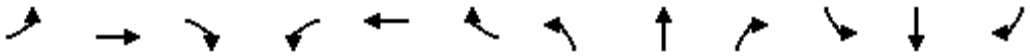
Intersection Summary			
HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



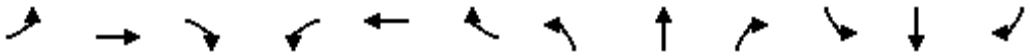
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	234	492	546	431	176	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.91
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.94		0.99	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3264		3426	1421
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3264		3426	1421
Peak-hour factor, PHF	0.74	0.93	0.90	0.97	0.72	0.86
Adj. Flow (vph)	316	529	607	444	244	103
RTOR Reduction (vph)	0	0	130	0	5	81
Lane Group Flow (vph)	316	529	921	0	249	12
Confl. Peds. (#/hr)	14			18		
Confl. Bikes (#/hr)				7		1
Turn Type	Prot					Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	20.4	61.8	37.4		10.2	10.2
Effective Green, g (s)	20.4	61.8	37.4		10.2	10.2
Actuated g/C Ratio	0.26	0.77	0.47		0.13	0.13
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	451	2734	1526		437	181
v/s Ratio Prot	c0.18	0.15	c0.28		c0.07	
v/s Ratio Perm						0.01
v/c Ratio	0.70	0.19	0.60		0.57	0.07
Uniform Delay, d1	27.0	2.4	15.8		32.8	30.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.0	0.2	1.8		1.0	0.1
Delay (s)	31.0	2.6	17.6		33.9	30.8
Level of Service	C	A	B		C	C
Approach Delay (s)		13.2	17.6		33.0	
Approach LOS		B	B		C	

Intersection Summary			
HCM Average Control Delay	18.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



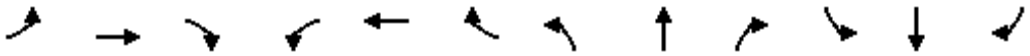
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	604	27	16	776	124	80	482	28	121	363	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92		1.00	*0.92		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	0.99		1.00	0.98		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3393		1761	3333		1769	3496		1760	3378	
Flt Permitted	0.17	1.00		0.17	1.00		0.40	1.00		0.42	1.00	
Satd. Flow (perm)	308	3393		306	3333		747	3496		779	3378	
Peak-hour factor, PHF	0.64	0.80	0.61	0.57	0.92	0.85	0.87	0.85	0.64	0.87	0.95	0.72
Adj. Flow (vph)	36	755	44	28	843	146	92	567	44	139	382	124
RTOR Reduction (vph)	0	5	0	0	16	0	0	7	0	0	31	0
Lane Group Flow (vph)	36	794	0	28	973	0	92	604	0	139	475	0
Confl. Peds. (#/hr)	12		12	18		18	3		3	12		12
Confl. Bikes (#/hr)			8			6			10			28
Turn Type	Perm			Perm			pm+pt			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4			4			2			6		
Actuated Green, G (s)	24.2	24.2		24.2	24.2		50.3	50.3		40.4	40.4	
Effective Green, g (s)	24.2	24.2		24.2	24.2		50.3	50.3		40.4	40.4	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.59	0.59		0.48	0.48	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	88	966		87	949		507	2069		370	1606	
v/s Ratio Prot		0.23			c0.29		0.01	c0.17			0.14	
v/s Ratio Perm	0.12			0.09			0.10			c0.18		
v/c Ratio	0.41	0.82		0.32	1.03		0.18	0.29		0.38	0.30	
Uniform Delay, d1	24.6	28.4		23.9	30.4		7.7	8.6		14.2	13.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.12	1.15	
Incremental Delay, d2	13.5	7.8		9.5	35.9		0.1	0.4		2.7	0.4	
Delay (s)	38.1	36.2		33.5	66.3		7.8	8.9		18.6	16.0	
Level of Service	D	D		C	E		A	A		B	B	
Approach Delay (s)		36.3			65.4			8.8			16.6	
Approach LOS		D			E			A			B	

Intersection Summary			
HCM Average Control Delay	35.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



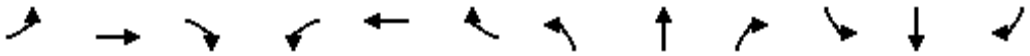
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	414	37	90	306	30	303	580	146	50	427	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	*0.92			*0.92		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	1.00	0.99	1.00	
Frt	1.00	0.98			0.98		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1764	3361			3321		1764	3539	1551	1748	3408	
Flt Permitted	0.31	1.00			0.63		0.41	1.00	1.00	0.39	1.00	
Satd. Flow (perm)	583	3361			2105		761	3539	1551	727	3408	
Peak-hour factor, PHF	0.72	0.91	0.65	0.63	0.90	0.52	0.87	0.95	0.79	0.57	0.90	0.84
Adj. Flow (vph)	97	455	57	143	340	58	348	611	185	88	474	108
RTOR Reduction (vph)	0	15	0	0	15	0	0	0	74	0	18	0
Lane Group Flow (vph)	97	497	0	0	526	0	348	611	111	88	564	0
Confl. Peds. (#/hr)	8		8	2		2	8		8	32		32
Confl. Bikes (#/hr)			6			6			4			28
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	23.9	23.9			23.9		48.1	48.1	48.1	48.1	48.1	
Effective Green, g (s)	23.9	23.9			23.9		48.1	48.1	48.1	48.1	48.1	
Actuated g/C Ratio	0.30	0.30			0.30		0.60	0.60	0.60	0.60	0.60	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	174	1004			629		458	2128	933	437	2049	
v/s Ratio Prot		0.15						0.17			0.17	
v/s Ratio Perm	0.17				c0.25		c0.46		0.07	0.12		
v/c Ratio	0.56	0.49			0.84		0.76	0.29	0.12	0.20	0.28	
Uniform Delay, d1	23.6	23.1			26.2		11.7	7.7	6.9	7.2	7.6	
Progression Factor	1.00	1.00			1.07		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.2	0.1			9.0		11.3	0.3	0.3	1.0	0.3	
Delay (s)	25.8	23.2			36.9		23.0	8.0	7.1	8.3	8.0	
Level of Service	C	C			D		C	A	A	A	A	
Approach Delay (s)		23.6			36.9			12.4			8.0	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



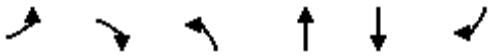
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	574	192	102	328	2	0	0	0	70	197	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						3.0	
Lane Util. Factor		*0.92		1.00	*0.92						0.95	
Frpb, ped/bikes		0.95		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.96		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		3101		1770	3413						3352	
Flt Permitted		0.95		0.19	1.00						0.99	
Satd. Flow (perm)		2941		362	3413						3352	
Peak-hour factor, PHF	0.42	0.99	0.87	0.93	0.88	0.25	0.25	0.25	0.25	0.74	0.94	0.69
Adj. Flow (vph)	12	580	221	110	373	8	0	0	0	95	210	86
RTOR Reduction (vph)	0	41	0	0	2	0	0	0	0	0	33	0
Lane Group Flow (vph)	0	772	0	110	379	0	0	0	0	0	358	0
Confl. Peds. (#/hr)	106		106	8		8	36		36	11		11
Confl. Bikes (#/hr)			18			14			2			8
Turn Type	Perm			pm+pt						Perm		
Protected Phases		2		1	6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)		32.0		43.0	43.0						29.0	
Effective Green, g (s)		32.0		43.0	43.0						29.0	
Actuated g/C Ratio		0.40		0.54	0.54						0.36	
Clearance Time (s)		5.0		5.0	5.0						3.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		1176		300	1834						1215	
v/s Ratio Prot				c0.03	0.11							
v/s Ratio Perm		c0.26		0.17							0.11	
v/c Ratio		0.66		0.37	0.21						0.30	
Uniform Delay, d1		19.5		11.0	9.6						18.2	
Progression Factor		1.66		1.00	1.00						1.00	
Incremental Delay, d2		2.8		0.3	0.3						0.6	
Delay (s)		35.1		11.3	9.9						18.8	
Level of Service		D		B	A						B	
Approach Delay (s)		35.1			10.2			0.0			18.8	
Approach LOS		D			B			A			B	

Intersection Summary			
HCM Average Control Delay	24.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	546	113	326	724	36	9	1431	839	2	545	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	0.92		1.00	0.93		0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	
Satd. Flow (prot)	3433	3539	1484	3433	3539	1459		5082	1466		4918	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.93	1.00		0.93	
Satd. Flow (perm)	3433	3539	1484	3433	3539	1459		4721	1466		4564	
Peak-hour factor, PHF	0.63	0.92	0.83	0.98	0.93	0.75	0.56	0.92	0.86	0.50	0.96	0.50
Adj. Flow (vph)	195	593	136	333	778	48	16	1555	976	4	568	104
RTOR Reduction (vph)	0	0	61	0	0	29	0	0	261	0	26	0
Lane Group Flow (vph)	195	593	75	333	778	19	0	1571	715	0	650	0
Confl. Peds. (#/hr)	31		31	48		48	42		42	34		34
Confl. Bikes (#/hr)			22			15			22			20
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		
Protected Phases	1	6		5	2			4			4	
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	10.0	35.4	35.4	13.6	40.0	40.0		36.0	36.0		36.0	
Effective Green, g (s)	10.0	35.4	35.4	13.6	40.0	40.0		36.0	36.0		36.0	
Actuated g/C Ratio	0.10	0.35	0.35	0.14	0.40	0.40		0.36	0.36		0.36	
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	343	1253	525	467	1416	584		1700	528		1643	
v/s Ratio Prot	0.06	0.17		c0.10	c0.22							
v/s Ratio Perm			0.05			0.01		0.33	c0.49		0.14	
v/c Ratio	0.57	0.47	0.14	0.71	0.55	0.03		0.92	1.35		0.40	
Uniform Delay, d1	42.9	25.1	22.0	41.3	23.1	18.2		30.7	32.0		23.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	1.3	1.3	0.6	4.3	1.5	0.1		10.0	171.4		0.7	
Delay (s)	44.2	26.3	22.6	45.6	24.6	18.3		40.7	203.4		24.6	
Level of Service	D	C	C	D	C	B		D	F		C	
Approach Delay (s)		29.6			30.4			103.0			24.6	
Approach LOS		C			C			F			C	

Intersection Summary			
HCM Average Control Delay	64.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	108.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	705	109	86	1293	779	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.5	4.5	
Lane Util. Factor	0.97		1.00	*0.50	0.86	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		0.99	1.00	1.00	
Frt	0.95		1.00	1.00	0.97	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	3270		1759	3725	6247	
Flt Permitted	0.97		0.19	1.00	1.00	
Satd. Flow (perm)	3270		360	3725	6247	
Peak-hour factor, PHF	0.90	0.25	0.91	0.96	0.90	0.88
Adj. Flow (vph)	783	436	95	1347	866	174
RTOR Reduction (vph)	107	0	0	0	42	0
Lane Group Flow (vph)	1112	0	95	1347	998	0
Confl. Peds. (#/hr)	30	30	106			
Confl. Bikes (#/hr)		2				
Turn Type			pm+pt			
Protected Phases	4		1	2	2	
Permitted Phases			2			
Actuated Green, G (s)	31.9		34.6	28.1	28.1	
Effective Green, g (s)	31.9		34.6	28.1	28.1	
Actuated g/C Ratio	0.40		0.43	0.35	0.35	
Clearance Time (s)	5.0		4.0	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1304		269	1308	2194	
v/s Ratio Prot	c0.34		c0.03	c0.36	0.16	
v/s Ratio Perm			0.12			
v/c Ratio	0.85		0.35	1.03	0.46	
Uniform Delay, d1	21.9		13.9	25.9	20.0	
Progression Factor	1.00		0.81	0.99	1.00	
Incremental Delay, d2	5.6		0.8	32.4	0.7	
Delay (s)	27.5		12.0	58.0	20.7	
Level of Service	C		B	E	C	
Approach Delay (s)	27.5			55.0	20.7	
Approach LOS	C			D	C	

Intersection Summary			
HCM Average Control Delay	36.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	475	10	27	214	11	298
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.63	0.66	0.91	0.69	0.84
Hourly flow rate (vph)	505	16	41	235	16	355
Pedestrians	18			18		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	533			360		
pX, platoon unblocked						
vC, conflicting volume			521		848	531
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			521		848	531
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		95	34
cM capacity (veh/h)			1045		314	540

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	521	276	371
Volume Left	0	41	16
Volume Right	16	0	355
cSH	1700	1045	524
Volume to Capacity	0.31	0.04	0.71
Queue Length 95th (ft)	0	3	141
Control Delay (s)	0.0	1.6	26.8
Lane LOS		A	D
Approach Delay (s)	0.0	1.6	26.8
Approach LOS			D

Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	266	41	66	160	29	219
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.75	0.31	0.83	0.73	0.75
Hourly flow rate (vph)	296	55	213	193	40	292
Pedestrians	27			27		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	470			423		
pX, platoon unblocked						
vC, conflicting volume			350		968	350
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			350		968	350
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			82		82	57
cM capacity (veh/h)			1209		227	678

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	350	406	332
Volume Left	0	213	40
Volume Right	55	0	292
cSH	1700	1209	547
Volume to Capacity	0.21	0.18	0.61
Queue Length 95th (ft)	0	16	100
Control Delay (s)	0.0	5.3	21.2
Lane LOS		A	C
Approach Delay (s)	0.0	5.3	21.2
Approach LOS			C

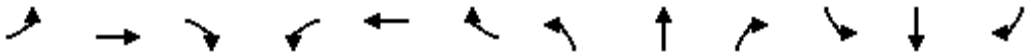
Intersection Summary			
Average Delay	8.4		
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	314	32	34	116	113	205
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.38	0.63	0.94	0.80	0.82
Hourly flow rate (vph)	324	84	54	123	141	250
Pedestrians	20			20		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	80			813		
pX, platoon unblocked			0.91		0.91	0.91
vC, conflicting volume			408		617	386
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			300		530	275
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		67	63
cM capacity (veh/h)			1148		435	683

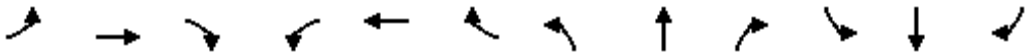
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	408	177	71	71	125	125
Volume Left	0	54	71	71	0	0
Volume Right	84	0	0	0	125	125
cSH	1700	1148	435	435	683	683
Volume to Capacity	0.24	0.05	0.16	0.16	0.18	0.18
Queue Length 95th (ft)	0	4	14	14	17	17
Control Delay (s)	0.0	2.8	14.9	14.9	11.4	11.4
Lane LOS		A	B	B	B	B
Approach Delay (s)	0.0	2.8	12.7			
Approach LOS			B			

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		



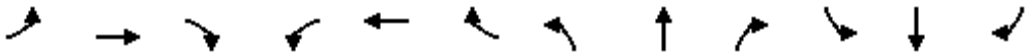
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	191	80	58	199	0	0	0	0	66	410	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.91	
Frpb, ped/bikes		1.00	0.91		1.00						0.98	
Flpb, ped/bikes		1.00	1.00		0.98						0.96	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.99						0.99	
Satd. Flow (prot)		1863	1436		1800						4739	
Flt Permitted		1.00	1.00		0.85						0.99	
Satd. Flow (perm)		1863	1436		1545						4739	
Peak-hour factor, PHF	0.92	0.91	0.79	0.76	0.84	0.92	0.25	0.25	0.25	0.75	0.97	0.69
Adj. Flow (vph)	0	210	101	76	237	0	0	0	0	88	423	32
RTOR Reduction (vph)	0	0	36	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	210	65	0	313	0	0	0	0	0	538	0
Confl. Peds. (#/hr)	58		58	100		100	50		50	104		104
Confl. Bikes (#/hr)			8			6			10			28
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		22.9	22.9		22.9						49.1	
Effective Green, g (s)		22.9	22.9		22.9						49.1	
Actuated g/C Ratio		0.29	0.29		0.29						0.61	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		533	411		442						2909	
v/s Ratio Prot		0.11										
v/s Ratio Perm			0.05		c0.20						0.11	
v/c Ratio		0.39	0.16		0.71						0.19	
Uniform Delay, d1		23.0	21.3		25.6						6.7	
Progression Factor		1.00	1.00		1.00						1.32	
Incremental Delay, d2		0.5	0.2		5.1						0.1	
Delay (s)		23.5	21.5		30.7						9.0	
Level of Service		C	C		C						A	
Approach Delay (s)		22.8			30.7			0.0			9.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	18.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



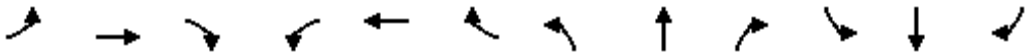
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	106	1	0	119	98	16	303	159	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.97			1.00	0.81			
Flpb, ped/bikes		1.00			1.00			0.99	1.00			
Frt		1.00			0.94			1.00	0.85			
Flt Protected		0.99			1.00			1.00	1.00			
Satd. Flow (prot)		1833			1686			3507	1277			
Flt Permitted		0.97			1.00			1.00	1.00			
Satd. Flow (perm)		1782			1686			3507	1277			
Peak-hour factor, PHF	0.69	0.84	0.25	0.25	0.87	0.82	0.80	0.93	0.88	0.25	0.25	0.25
Adj. Flow (vph)	16	126	4	0	137	120	20	326	181	0	0	0
RTOR Reduction (vph)	0	2	0	0	44	0	0	0	145	0	0	0
Lane Group Flow (vph)	0	144	0	0	213	0	0	346	36	0	0	0
Confl. Peds. (#/hr)	71		71	82		82	88		88	75		75
Confl. Bikes (#/hr)			8			2			40			1
Turn Type	Perm						Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2						1		1			
Actuated Green, G (s)		28.0			28.0			9.0	9.0			
Effective Green, g (s)		28.0			28.0			9.0	9.0			
Actuated g/C Ratio		0.62			0.62			0.20	0.20			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)		1109			1049			701	255			
v/s Ratio Prot					c0.13							
v/s Ratio Perm		0.08						0.10	0.03			
v/c Ratio		0.13			0.20			0.49	0.14			
Uniform Delay, d1		3.5			3.7			16.0	14.8			
Progression Factor		0.44			1.00			1.00	1.00			
Incremental Delay, d2		0.2			0.4			0.2	0.1			
Delay (s)		1.8			4.1			16.2	14.9			
Level of Service		A			A			B	B			
Approach Delay (s)		1.8			4.1			15.7			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	10.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



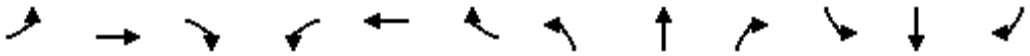
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	39	17	63	0	67	0	446	35	37	369	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frpb, ped/bikes	1.00	0.99			0.98			0.99			1.00	
Flpb, ped/bikes	0.99	1.00			0.99			1.00			1.00	
Frt	1.00	0.96			0.93			0.99			1.00	
Flt Protected	0.95	1.00			0.98			1.00			0.99	
Satd. Flow (prot)	1748	1765			1649			3477			3511	
Flt Permitted	0.72	1.00			0.86			1.00			0.87	
Satd. Flow (perm)	1326	1765			1457			3477			3056	
Peak-hour factor, PHF	0.69	0.82	0.85	0.88	0.92	0.77	0.25	0.89	0.88	0.89	0.99	0.92
Adj. Flow (vph)	16	48	20	72	0	87	0	501	40	42	373	0
RTOR Reduction (vph)	0	12	0	0	50	0	0	13	0	0	0	0
Lane Group Flow (vph)	16	56	0	0	109	0	0	528	0	0	415	0
Confl. Peds. (#/hr)	22		22	24		24	40		40	48		48
Confl. Bikes (#/hr)			3						17			7
Turn Type	Perm			Perm						Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2						4		
Actuated Green, G (s)	19.0	19.0			19.0			17.0			17.0	
Effective Green, g (s)	19.0	19.0			19.0			17.0			17.0	
Actuated g/C Ratio	0.42	0.42			0.42			0.38			0.38	
Clearance Time (s)	4.0	4.0			4.0			5.0			5.0	
Vehicle Extension (s)	2.0	2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)	560	745			615			1314			1154	
v/s Ratio Prot		0.03						c0.15				
v/s Ratio Perm	0.01				c0.07						0.14	
v/c Ratio	0.03	0.08			0.18			0.40			0.36	
Uniform Delay, d1	7.6	7.8			8.1			10.3			10.1	
Progression Factor	1.00	1.00			1.12			1.00			1.00	
Incremental Delay, d2	0.1	0.2			0.6			0.9			0.9	
Delay (s)	7.7	8.0			9.7			11.2			11.0	
Level of Service	A	A			A			B			B	
Approach Delay (s)		7.9			9.7			11.2			11.0	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	131	23	9	173	183	20	507	25	32	139	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5		4.5	4.5	
Lane Util. Factor		0.95			0.95			0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.98			1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00			1.00		1.00	1.00	
Frt		0.97			0.92			0.99		1.00	0.94	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3379			3197			3489		1766	3281	
Flt Permitted		0.73			0.94			0.93		0.34	1.00	
Satd. Flow (perm)		2470			3012			3267		639	3281	
Peak-hour factor, PHF	0.55	0.84	0.52	0.56	0.70	0.65	0.71	0.91	0.66	0.97	0.85	0.44
Adj. Flow (vph)	40	156	44	16	247	282	28	557	38	33	164	111
RTOR Reduction (vph)	0	35	0	0	225	0	0	6	0	0	39	0
Lane Group Flow (vph)	0	205	0	0	320	0	0	617	0	33	236	0
Confl. Peds. (#/hr)	32		32	24		24	16		16	19		19
Confl. Bikes (#/hr)			6			4			25			3
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		12.1			12.1			31.8		38.9	38.9	
Effective Green, g (s)		12.1			12.1			31.8		38.9	38.9	
Actuated g/C Ratio		0.20			0.20			0.53		0.65	0.65	
Clearance Time (s)		4.5			4.5			4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		498			607			1732		463	2127	
v/s Ratio Prot										0.00	c0.07	
v/s Ratio Perm		0.08			c0.11			c0.19		0.04		
v/c Ratio		0.41			0.53			0.36		0.07	0.11	
Uniform Delay, d1		20.8			21.4			8.2		4.1	4.0	
Progression Factor		1.00			0.75			1.00		1.00	1.00	
Incremental Delay, d2		0.6			0.8			0.6		0.1	0.1	
Delay (s)		21.4			16.7			8.7		4.2	4.1	
Level of Service		C			B			A		A	A	
Approach Delay (s)		21.4			16.7			8.7			4.1	
Approach LOS		C			B			A			A	

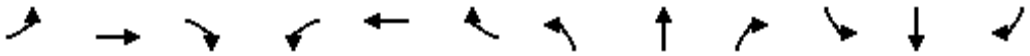
Intersection Summary			
HCM Average Control Delay	12.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	138	80	51	256	108	92	676	99	38	480	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.97			0.96			0.99			0.99	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.95			0.96			0.98			0.99	
Flt Protected		1.00			0.99			0.99			1.00	
Satd. Flow (prot)		3231			3218			3408			4958	
Flt Permitted		0.90			0.89			0.77			0.81	
Satd. Flow (perm)		2930			2866			2651			4009	
Peak-hour factor, PHF	0.79	0.82	0.83	0.91	0.89	0.80	0.92	0.92	0.95	0.71	0.88	0.63
Adj. Flow (vph)	24	168	96	56	288	135	100	735	104	54	545	52
RTOR Reduction (vph)	0	61	0	0	65	0	0	16	0	0	17	0
Lane Group Flow (vph)	0	227	0	0	414	0	0	923	0	0	634	0
Confl. Peds. (#/hr)	74		74	120		120	85		85	65		65
Confl. Bikes (#/hr)			30			13			10			6
Turn Type	Perm			Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						6		
Actuated Green, G (s)		22.0			22.0			29.0			18.0	
Effective Green, g (s)		22.0			22.0			29.0			18.0	
Actuated g/C Ratio		0.37			0.37			0.48			0.30	
Clearance Time (s)		4.0			4.0			5.0			5.0	
Lane Grp Cap (vph)		1074			1051			1370			1203	
v/s Ratio Prot								c0.08				
v/s Ratio Perm		0.08			c0.14			c0.25			0.16	
v/c Ratio		0.21			0.39			0.67			0.53	
Uniform Delay, d1		13.0			14.1			11.9			17.5	
Progression Factor		1.85			1.00			1.00			1.00	
Incremental Delay, d2		0.4			1.1			2.7			1.7	
Delay (s)		24.6			15.2			14.5			19.1	
Level of Service		C			B			B			B	
Approach Delay (s)		24.6			15.2			14.5			19.1	
Approach LOS		C			B			B			B	

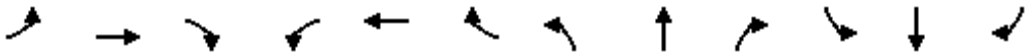
Intersection Summary			
HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



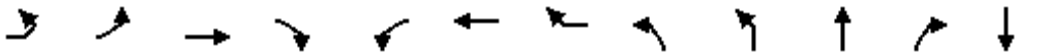
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	270	0	0	364	108	65	327	239	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.91	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3503			3367	1319		4983	1457			
Flt Permitted		0.87			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3079			3367	1319		4983	1457			
Peak-hour factor, PHF	0.66	0.87	0.92	0.92	0.92	0.94	0.83	0.91	0.93	0.92	0.92	0.92
Adj. Flow (vph)	44	310	0	0	396	115	78	359	257	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	26	0	0	215	0	0	0
Lane Group Flow (vph)	0	354	0	0	407	77	0	437	42	0	0	0
Confl. Peds. (#/hr)	42		42	54		54	58		58	194		194
Confl. Bikes (#/hr)			12			7			5			8
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		59.8			59.8	59.8		13.2	13.2			
Effective Green, g (s)		59.8			59.8	59.8		13.2	13.2			
Actuated g/C Ratio		0.75			0.75	0.75		0.16	0.16			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2302			2517	986		822	240			
v/s Ratio Prot					c0.12							
v/s Ratio Perm		0.11				0.06		0.09	0.03			
v/c Ratio		0.15			0.16	0.08		0.53	0.18			
Uniform Delay, d1		2.9			2.9	2.7		30.6	28.7			
Progression Factor		1.00			0.49	0.69		1.00	1.00			
Incremental Delay, d2		0.1			0.1	0.1		0.7	0.4			
Delay (s)		3.0			1.5	2.0		31.2	29.1			
Level of Service		A			A	A		C	C			
Approach Delay (s)		3.0			1.6			30.4			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	357	151	125	379	0	0	0	0	63	412	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	0.91	0.91						0.91	
Frpb, ped/bikes		1.00	0.91	1.00	1.00						0.95	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						0.96	
Frt		1.00	0.85	1.00	1.00						0.98	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		3539	1439	1610	3376						4496	
Flt Permitted		1.00	1.00	0.95	0.95						0.99	
Satd. Flow (perm)		3539	1439	1610	3199						4496	
Peak-hour factor, PHF	0.92	0.88	0.90	0.83	0.92	0.25	0.25	0.25	0.25	0.72	0.92	0.92
Adj. Flow (vph)	0	406	168	151	412	0	0	0	0	88	448	100
RTOR Reduction (vph)	0	0	49	0	0	0	0	0	0	0	34	0
Lane Group Flow (vph)	0	406	119	136	427	0	0	0	0	0	602	0
Confl. Peds. (#/hr)	51		51	114		114	115		115	333		333
Confl. Bikes (#/hr)			8			3			17			6
Turn Type			Perm	Prot						Perm		
Protected Phases		2		1	6						4	
Permitted Phases			2							4		
Actuated Green, G (s)		28.0	28.0	10.0	42.0						30.0	
Effective Green, g (s)		28.0	28.0	10.0	42.0						30.0	
Actuated g/C Ratio		0.35	0.35	0.12	0.52						0.38	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		1239	504	201	1702						1686	
v/s Ratio Prot		c0.11		c0.08	0.03							
v/s Ratio Perm			0.08		0.10						0.13	
v/c Ratio		0.33	0.24	0.68	0.25						0.36	
Uniform Delay, d1		19.1	18.4	33.5	10.4						18.0	
Progression Factor		1.15	1.23	0.93	1.44						1.35	
Incremental Delay, d2		0.7	1.1	6.2	0.0						0.0	
Delay (s)		22.7	23.8	37.2	15.0						24.4	
Level of Service		C	C	D	B						C	
Approach Delay (s)		23.0			20.3			0.0			24.4	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM Average Control Delay	22.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



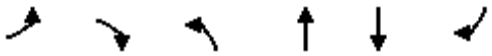
Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBT	NBR	SBT
Lane Configurations												
Volume (vph)	14	283	89	35	7	112	16	75	31	629	20	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0				4.0		4.0
Lane Util. Factor	1.00	0.91	0.91		1.00	0.95				0.95		0.91
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00				1.00		1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00				1.00		1.00
Frt	1.00	1.00	0.96		1.00	0.98				1.00		0.98
Flt Protected	0.95	0.95	0.99		0.95	1.00				0.99		1.00
Satd. Flow (prot)	1770	3221	1614		1770	3472				3493		3328
Flt Permitted	0.95	0.95	0.99		0.95	1.00				0.99		1.00
Satd. Flow (perm)	1770	3221	1614		1770	3472				3493		3328
Peak-hour factor, PHF	0.89	0.91	0.86	0.73	0.63	0.86	0.86	0.71	0.71	0.88	0.71	0.78
Adj. Flow (vph)	16	311	103	48	11	130	19	106	44	715	28	179
RTOR Reduction (vph)	0	0	16	0	0	0	0	0	0	3	0	0
Lane Group Flow (vph)	16	280	166	0	11	149	0	0	0	890	0	204
Confl. Peds. (#/hr)	22											
Confl. Bikes (#/hr)			12							7		
Turn Type	Prot	custom			Split			Split	Split			
Protected Phases	5	1	1		7	7		8	8	8		2
Permitted Phases		1										
Actuated Green, G (s)	16.0	15.0	15.0		7.8	7.8				18.2		11.0
Effective Green, g (s)	16.0	15.0	15.0		7.8	7.8				18.2		11.0
Actuated g/C Ratio	0.20	0.19	0.19		0.10	0.10				0.23		0.14
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0				4.0		4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0				2.0		2.0
Lane Grp Cap (vph)	354	604	303		173	339				795		458
v/s Ratio Prot	0.01	0.09	c0.10		0.01	c0.04				c0.25		c0.06
v/s Ratio Perm												
v/c Ratio	0.05	0.46	0.55		0.06	0.44				1.12		0.45
Uniform Delay, d1	25.8	28.9	29.4		32.8	34.0				30.9		31.7
Progression Factor	1.79	1.73	1.81		0.76	0.85				1.00		0.82
Incremental Delay, d2	0.0	2.4	6.7		0.1	0.3				70.0		0.3
Delay (s)	46.2	52.4	59.9		25.1	29.1				100.9		26.1
Level of Service	D	D	E		C	C				F		C
Approach Delay (s)			55.0			28.8				100.9		27.9
Approach LOS			E			C				F		C

Intersection Summary			
HCM Average Control Delay	81.2	HCM Level of Service	F
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBR	SBR2	SEL	SER	SER2
Lane Configurations					
Volume (vph)	100	36	92	101	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0
Lane Util. Factor	0.91	1.00	1.00		0.95
Frpb, ped/bikes	1.00	1.00	0.98		0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00
Frt	0.85	0.85	0.92		0.85
Flt Protected	1.00	1.00	0.98		1.00
Satd. Flow (prot)	1441	1583	1646		1469
Flt Permitted	1.00	1.00	0.98		1.00
Satd. Flow (perm)	1441	1583	1646		1469
Peak-hour factor, PHF	0.89	0.89	0.95	0.95	0.95
Adj. Flow (vph)	112	40	97	106	115
RTOR Reduction (vph)	0	35	3	0	68
Lane Group Flow (vph)	87	5	212	0	35
Confl. Peds. (#/hr)		74			
Confl. Bikes (#/hr)		8			7
Turn Type	custom	custom			custom
Protected Phases	6	6	9		
Permitted Phases	6				2
Actuated Green, G (s)	10.0	10.0	8.0		11.0
Effective Green, g (s)	10.0	10.0	8.0		11.0
Actuated g/C Ratio	0.12	0.12	0.10		0.14
Clearance Time (s)	4.0	4.0	4.0		4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0
Lane Grp Cap (vph)	180	198	165		202
v/s Ratio Prot	0.06	0.00	c0.13		
v/s Ratio Perm					0.02
v/c Ratio	0.48	0.03	1.29		0.17
Uniform Delay, d1	32.6	30.7	36.0		30.5
Progression Factor	0.80	0.68	1.00		1.00
Incremental Delay, d2	9.0	0.2	166.9		0.1
Delay (s)	35.1	21.1	202.9		30.6
Level of Service	D	C	F		C
Approach Delay (s)			147.1		
Approach LOS			F		

Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	923	0	0	705	671	278
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			4.0	4.0	4.0
Lane Util. Factor	0.94			0.91	0.95	0.76
Frpb, ped/bikes	1.00			1.00	1.00	0.96
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	0.95			1.00	1.00	1.00
Satd. Flow (prot)	4990			5085	3539	3481
Flt Permitted	0.95			1.00	1.00	1.00
Satd. Flow (perm)	4990			5085	3539	3481
Peak-hour factor, PHF	0.95	0.95	0.25	0.93	0.99	0.84
Adj. Flow (vph)	972	0	0	758	678	331
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	972	0	0	758	678	331
Confl. Peds. (#/hr)						20
Confl. Bikes (#/hr)						16
Turn Type						Free
Protected Phases	1			2	2	
Permitted Phases						Free
Actuated Green, G (s)	22.6			48.4	48.4	80.0
Effective Green, g (s)	22.6			48.4	48.4	80.0
Actuated g/C Ratio	0.28			0.60	0.60	1.00
Clearance Time (s)	5.0			4.0	4.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1410			3076	2141	3481
v/s Ratio Prot	c0.19			0.15	c0.19	
v/s Ratio Perm						0.10
v/c Ratio	0.69			0.25	0.32	0.10
Uniform Delay, d1	25.6			7.3	7.7	0.0
Progression Factor	1.76			1.00	0.77	1.00
Incremental Delay, d2	0.5			0.2	0.3	0.0
Delay (s)	45.5			7.5	6.3	0.0
Level of Service	D			A	A	A
Approach Delay (s)	45.5			7.5	4.2	
Approach LOS	D			A	A	

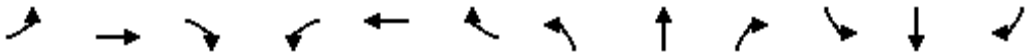
Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Volume (vph)	135	705	671	0	0	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0			3.0
Lane Util. Factor	0.94	0.95	0.95			0.88
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	4990	3539	3539			2787
Flt Permitted	0.94	1.00	1.00			1.00
Satd. Flow (perm)	4938	3539	3539			2787
Peak-hour factor, PHF	0.69	0.88	0.92	0.92	0.92	0.71
Adj. Flow (vph)	196	801	729	0	0	230
RTOR Reduction (vph)	0	0	0	0	0	63
Lane Group Flow (vph)	196	801	729	0	0	167
Confl. Bikes (#/hr)				2		
Turn Type	Perm					custom
Protected Phases		2	1			2
Permitted Phases	2	1				2
Actuated Green, G (s)	50.3	74.0	23.7			50.3
Effective Green, g (s)	50.3	74.0	23.7			50.3
Actuated g/C Ratio	0.63	0.92	0.30			0.63
Clearance Time (s)	3.0	3.0	3.0			3.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	3105	3539	1048			1752
v/s Ratio Prot		c0.14	c0.21			0.06
v/s Ratio Perm	0.04	0.08				
v/c Ratio	0.06	0.23	0.70			0.10
Uniform Delay, d1	5.7	0.3	25.0			5.9
Progression Factor	1.00	1.00	1.42			0.04
Incremental Delay, d2	0.0	0.0	2.0			0.0
Delay (s)	5.8	0.3	37.5			0.3
Level of Service	A	A	D			A
Approach Delay (s)		1.4	37.5		0.3	
Approach LOS		A	D		A	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	3.0
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	150	168	0	0	0	0	0	986	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0						6.0	
Lane Util. Factor				1.00	0.95						0.86	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				1.00	1.00						1.00	
Frt				1.00	1.00						0.98	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1766	3539						6289	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1766	3539						6289	
Peak-hour factor, PHF	0.25	0.95	0.92	0.91	0.90	0.25	0.25	0.25	0.25	0.92	0.97	0.89
Adj. Flow (vph)	0	0	0	165	187	0	0	0	0	0	1016	128
RTOR Reduction (vph)	0	0	0	10	0	0	0	0	0	0	24	0
Lane Group Flow (vph)	0	0	0	155	187	0	0	0	0	0	1120	0
Confl. Peds. (#/hr)	15		15	2		2				2		2
Confl. Bikes (#/hr)			4									2
Turn Type				Perm								
Protected Phases					4						6	
Permitted Phases				4								
Actuated Green, G (s)				31.1	31.1						34.9	
Effective Green, g (s)				31.1	31.1						34.9	
Actuated g/C Ratio				0.41	0.41						0.47	
Clearance Time (s)				3.0	3.0						6.0	
Vehicle Extension (s)				3.0	3.0						4.0	
Lane Grp Cap (vph)				732	1468						2926	
v/s Ratio Prot					0.05						c0.18	
v/s Ratio Perm				c0.09								
v/c Ratio				0.21	0.13						0.38	
Uniform Delay, d1				14.1	13.6						13.0	
Progression Factor				1.00	1.00						0.62	
Incremental Delay, d2				0.7	0.2						0.1	
Delay (s)				14.7	13.7						8.2	
Level of Service				B	B						A	
Approach Delay (s)		0.0			14.2			0.0			8.2	
Approach LOS		A			B			A			A	

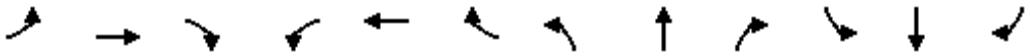
Intersection Summary			
HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	200	397	947	61	269	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0		5.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.98	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	5085	5021		3403	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1770	5085	5021		3403	
Peak-hour factor, PHF	0.82	0.93	0.93	0.82	0.91	0.89
Adj. Flow (vph)	244	427	1018	74	296	36
RTOR Reduction (vph)	7	0	11	0	0	0
Lane Group Flow (vph)	237	427	1081	0	332	0
Confl. Peds. (#/hr)				17		
Confl. Bikes (#/hr)				6		
Turn Type	Perm					
Protected Phases		4	2		1	
Permitted Phases	4					
Actuated Green, G (s)	23.6	23.6	22.4		17.0	
Effective Green, g (s)	23.6	23.6	22.4		17.0	
Actuated g/C Ratio	0.31	0.31	0.30		0.23	
Clearance Time (s)	3.0	3.0	4.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	557	1600	1500		771	
v/s Ratio Prot		0.08	c0.22		c0.10	
v/s Ratio Perm	c0.13					
v/c Ratio	0.43	0.27	0.72		0.43	
Uniform Delay, d1	20.3	19.2	23.5		24.9	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	2.4	0.4	1.7		0.4	
Delay (s)	22.7	19.6	25.2		25.2	
Level of Service	C	B	C		C	
Approach Delay (s)		20.8	25.2		25.2	
Approach LOS		C	C		C	

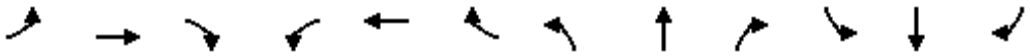
Intersection Summary			
HCM Average Control Delay	23.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



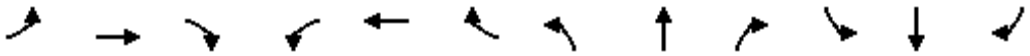
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	238	756	876	452	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	5.0	5.0				
Lane Util. Factor					0.91	0.91	0.81	0.81				
Frpb, ped/bikes					0.99	0.98	1.00	1.00				
Flpb, ped/bikes					1.00	1.00	0.98	0.99				
Frt					0.91	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	0.98				
Satd. Flow (prot)					3057	1417	1403	5826				
Flt Permitted					1.00	1.00	0.95	0.98				
Satd. Flow (perm)					3057	1417	1403	5826				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.77	0.83	0.90	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	309	911	973	486	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	75	75	346	291	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	690	380	140	682	0	0	0	0
Confl. Peds. (#/hr)	1		1	4		4	14		14			
Confl. Bikes (#/hr)						1						4
Turn Type						Perm	Perm					
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					45.6	45.6	19.4	19.4				
Effective Green, g (s)					45.6	45.6	19.4	19.4				
Actuated g/C Ratio					0.61	0.61	0.26	0.26				
Clearance Time (s)					5.0	5.0	5.0	5.0				
Vehicle Extension (s)					3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)					1859	862	363	1507				
v/s Ratio Prot					0.23							
v/s Ratio Perm						c0.27	0.10	0.12				
v/c Ratio					0.37	0.44	0.39	0.45				
Uniform Delay, d1					7.4	7.9	22.9	23.3				
Progression Factor					1.00	1.00	1.00	1.00				
Incremental Delay, d2					0.6	1.6	0.7	0.2				
Delay (s)					8.0	9.5	23.6	23.6				
Level of Service					A	A	C	C				
Approach Delay (s)		0.0			8.6			23.6			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	16.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	216	62	0	0	0	0	0	0	480	777	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		0.95								0.86	0.86	
Frpb, ped/bikes		1.00								1.00	1.00	
Flpb, ped/bikes		1.00								1.00	1.00	
Frt		0.96								1.00	0.99	
Flt Protected		1.00								0.95	0.99	
Satd. Flow (prot)		3397								1522	4735	
Flt Permitted		1.00								0.95	0.99	
Satd. Flow (perm)		3397								1522	4735	
Peak-hour factor, PHF	0.92	0.89	0.82	0.25	0.25	0.25	0.25	0.25	0.25	0.89	0.82	0.84
Adj. Flow (vph)	0	243	76	0	0	0	0	0	0	539	948	56
RTOR Reduction (vph)	0	30	0	0	0	0	0	0	0	216	34	0
Lane Group Flow (vph)	0	289	0	0	0	0	0	0	0	161	1132	0
Confl. Peds. (#/hr)	5		5									
Confl. Bikes (#/hr)			2									2
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		35.0								32.0	32.0	
Effective Green, g (s)		35.0								32.0	32.0	
Actuated g/C Ratio		0.47								0.43	0.43	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		1585								649	2020	
v/s Ratio Prot		c0.09										
v/s Ratio Perm										0.11	0.24	
v/c Ratio		0.18								0.25	0.56	
Uniform Delay, d1		11.7								13.8	16.2	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.3								0.9	1.1	
Delay (s)		11.9								14.7	17.3	
Level of Service		B								B	B	
Approach Delay (s)		11.9			0.0			0.0			16.7	
Approach LOS		B			A			A			B	

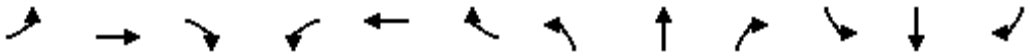
Intersection Summary			
HCM Average Control Delay	15.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	767	0	0	355	218	171	533	35	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Util. Factor		0.95			0.95	1.00		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.96			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3518			3539	1461		3468	1520			
Flt Permitted		0.87			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3078			3539	1461		3468	1520			
Peak-hour factor, PHF	0.63	0.86	0.25	0.99	0.96	0.96	0.84	0.92	0.73	0.25	0.25	0.25
Adj. Flow (vph)	84	892	0	0	370	227	204	579	48	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	155	0	0	6	0	0	0
Lane Group Flow (vph)	0	976	0	0	370	72	0	783	42	0	0	0
Confl. Peds. (#/hr)	36		36	52		52	35		35	10		10
Confl. Bikes (#/hr)			5			21						22
Turn Type	Perm			Perm		Perm	Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4			8		8	2		2			
Actuated Green, G (s)		18.0			18.0	18.0		32.0	32.0			
Effective Green, g (s)		18.0			18.0	18.0		32.0	32.0			
Actuated g/C Ratio		0.30			0.30	0.30		0.53	0.53			
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Grp Cap (vph)		923			1062	438		1850	811			
v/s Ratio Prot					0.10							
v/s Ratio Perm		c0.32				0.05		0.23	0.03			
v/c Ratio		1.06			0.35	0.16		0.42	0.05			
Uniform Delay, d1		21.0			16.4	15.5		8.4	6.7			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		46.0			0.9	0.8		0.7	0.1			
Delay (s)		67.0			17.3	16.3		9.2	6.8			
Level of Service		E			B	B		A	A			
Approach Delay (s)		67.0			16.9			9.0			0.0	
Approach LOS		E			B			A			A	

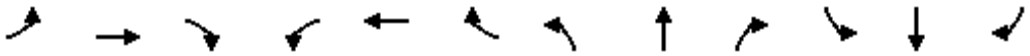
Intersection Summary			
HCM Average Control Delay	34.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



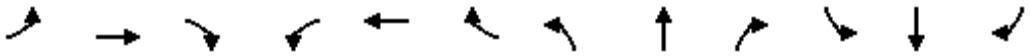
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	538	61	22	468	0	0	0	0	287	584	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0					4.0	4.0	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frpb, ped/bikes		0.99			1.00					1.00	1.00	
Flpb, ped/bikes		1.00			1.00					0.98	1.00	
Frt		0.98			1.00					1.00	0.99	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		3451			3529					1734	3515	
Flt Permitted		1.00			0.91					0.95	1.00	
Satd. Flow (perm)		3451			3233					1734	3515	
Peak-hour factor, PHF	0.25	0.91	0.76	0.79	0.91	0.25	0.25	0.25	0.25	0.94	0.96	0.67
Adj. Flow (vph)	0	591	80	28	514	0	0	0	0	305	608	24
RTOR Reduction (vph)	0	24	0	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	647	0	0	542	0	0	0	0	305	626	0
Confl. Peds. (#/hr)	50		50	25		25	17		17	24		24
Confl. Bikes (#/hr)			16			17			2			
Turn Type				Perm						Perm		
Protected Phases		8			4						6	
Permitted Phases				4						6		
Actuated Green, G (s)		19.0			19.0					19.0	19.0	
Effective Green, g (s)		19.0			19.0					19.0	19.0	
Actuated g/C Ratio		0.42			0.42					0.42	0.42	
Clearance Time (s)		3.0			3.0					4.0	4.0	
Vehicle Extension (s)		2.0			2.0					2.0	2.0	
Lane Grp Cap (vph)		1457			1365					732	1484	
v/s Ratio Prot		c0.19									c0.18	
v/s Ratio Perm					0.17					0.18		
v/c Ratio		0.44			0.40					0.42	0.42	
Uniform Delay, d1		9.2			9.0					9.1	9.1	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		1.0			0.9					1.7	0.9	
Delay (s)		10.2			9.9					10.9	10.0	
Level of Service		B			A					B	B	
Approach Delay (s)		10.2			9.9			0.0			10.3	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	61	359	7	16	335	37	58	376	21	95	149	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		0.99			1.00			1.00			0.99	
Frt		1.00			0.98			0.99			0.98	
Flt Protected		0.99			1.00			0.99			0.98	
Satd. Flow (prot)		3471			3446			3459			3347	
Flt Permitted		0.84			0.93			0.87			0.66	
Satd. Flow (perm)		2935			3223			3032			2254	
Peak-hour factor, PHF	0.80	0.92	0.58	0.80	0.83	0.71	0.85	0.86	0.58	0.82	0.97	0.81
Adj. Flow (vph)	76	390	12	20	404	52	68	437	36	116	154	52
RTOR Reduction (vph)	0	3	0	0	18	0	0	13	0	0	36	0
Lane Group Flow (vph)	0	475	0	0	458	0	0	528	0	0	286	0
Confl. Peds. (#/hr)	80		80	58		58	44		44	41		41
Confl. Bikes (#/hr)			14			10			7			4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		23.4			23.4			14.1			14.1	
Effective Green, g (s)		23.4			23.4			14.1			14.1	
Actuated g/C Ratio		0.52			0.52			0.31			0.31	
Clearance Time (s)		3.5			3.5			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1526			1676			950			706	
v/s Ratio Prot												
v/s Ratio Perm		c0.16			0.14			c0.17			0.13	
v/c Ratio		0.31			0.27			0.56			0.41	
Uniform Delay, d1		6.2			6.0			12.8			12.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.5			0.4			0.7			0.4	
Delay (s)		6.7			6.4			13.6			12.5	
Level of Service		A			A			B			B	
Approach Delay (s)		6.7			6.4			13.6			12.5	
Approach LOS		A			A			B			B	

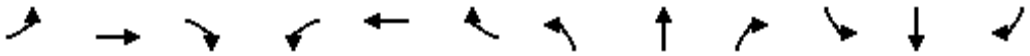
Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	208	786	0	0	0	0	0	665	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.86						0.91	
Frpb, ped/bikes					1.00						1.00	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.99	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					6268						5032	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					6268						5032	
Peak-hour factor, PHF	0.25	0.25	0.25	0.91	0.97	0.25	0.25	0.25	0.25	0.25	0.86	0.86
Adj. Flow (vph)	0	0	0	229	810	0	0	0	0	0	773	44
RTOR Reduction (vph)	0	0	0	0	51	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	0	988	0	0	0	0	0	806	0
Confl. Peds. (#/hr)	32		32	47		47	36		36	29		29
Confl. Bikes (#/hr)			3			13			9			2
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2716						2222	
v/s Ratio Prot											c0.16	
v/s Ratio Perm					0.16							
v/c Ratio					0.36						0.36	
Uniform Delay, d1					11.4						11.1	
Progression Factor					0.47						1.00	
Incremental Delay, d2					0.4						0.5	
Delay (s)					5.7						11.6	
Level of Service					A						B	
Approach Delay (s)		0.0			5.7			0.0			11.6	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	8.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

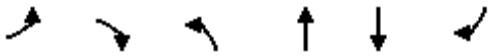
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	848	50	149	827	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5			4.0				
Lane Util. Factor					0.86			0.86				
Frpb, ped/bikes					1.00			1.00				
Flpb, ped/bikes					1.00			0.98				
Frt					0.99			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6317			6223				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6317			6223				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.95	0.78	0.83	0.96	0.25	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	893	64	180	861	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	45	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	950	0	0	996	0	0	0	0
Confl. Peds. (#/hr)	121		121	69		69	118		118	84		84
Confl. Bikes (#/hr)			3									15
Turn Type							Perm					
Protected Phases					6			4				
Permitted Phases							4					
Actuated Green, G (s)					29.9			20.6				
Effective Green, g (s)					29.9			20.6				
Actuated g/C Ratio					0.50			0.34				
Clearance Time (s)					5.5			4.0				
Lane Grp Cap (vph)					3148			2137				
v/s Ratio Prot					c0.15							
v/s Ratio Perm								0.16				
v/c Ratio					0.30			0.47				
Uniform Delay, d1					8.9			15.4				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.2			0.7				
Delay (s)					9.1			16.1				
Level of Service					A			B				
Approach Delay (s)		0.0			9.1			16.1			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		

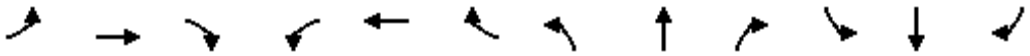
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	57	0	0	907	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.71	0.92	0.25	0.92	0.25	0.25
Hourly flow rate (vph)	80	0	0	986	0	0
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1055	320	
pX, platoon unblocked						
vC, conflicting volume	252	6	6			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	252	6	6			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	100	100			
cM capacity (veh/h)	711	1069	1605			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	80	246	246	246	246
Volume Left	80	0	0	0	0
Volume Right	0	0	0	0	0
cSH	711	1700	1700	1700	1700
Volume to Capacity	0.11	0.14	0.14	0.14	0.14
Queue Length 95th (ft)	10	0	0	0	0
Control Delay (s)	10.7	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.7	0.0			
Approach LOS	B				

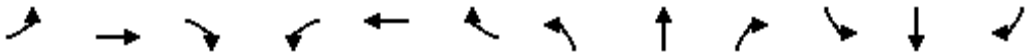
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	23.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	760	162	0	0	0	0	0	0	43	812	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5									5.5	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.97									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		6181									5063	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		6181									5063	
Peak-hour factor, PHF	0.25	0.96	0.86	0.25	0.25	0.25	0.25	0.25	0.25	0.72	0.93	0.25
Adj. Flow (vph)	0	792	188	0	0	0	0	0	0	60	873	0
RTOR Reduction (vph)	0	41	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	939	0	0	0	0	0	0	0	0	920	0
Confl. Peds. (#/hr)	20		20	30		30	12		12	17		17
Confl. Bikes (#/hr)			5			7			3			
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		23.0									26.0	
Effective Green, g (s)		23.0									26.0	
Actuated g/C Ratio		0.38									0.43	
Clearance Time (s)		5.5									5.5	
Lane Grp Cap (vph)		2369									2194	
v/s Ratio Prot		c0.15										
v/s Ratio Perm											0.18	
v/c Ratio		0.40									0.42	
Uniform Delay, d1		13.5									11.8	
Progression Factor		0.84									0.56	
Incremental Delay, d2		0.5									0.6	
Delay (s)		11.8									7.2	
Level of Service		B									A	
Approach Delay (s)		11.8			0.0			0.0			7.2	
Approach LOS		B			A			A			A	

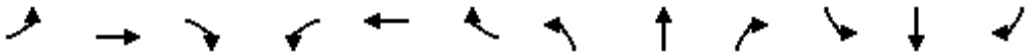
Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	605	0	0	0	0	0	282	112	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.86						0.86				
Frpb, ped/bikes		1.00						0.98				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		6374						6065				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		6374						6065				
Peak-hour factor, PHF	0.63	0.87	0.25	0.25	0.25	0.25	0.25	0.86	0.97	0.25	0.25	0.25
Adj. Flow (vph)	43	695	0	0	0	0	0	328	115	0	0	0
RTOR Reduction (vph)	0	20	0	0	0	0	0	26	0	0	0	0
Lane Group Flow (vph)	0	718	0	0	0	0	0	417	0	0	0	0
Confl. Peds. (#/hr)	46		46	17		17	53		53	68		68
Confl. Bikes (#/hr)			1			1			6			2
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		12.4						40.6				
Effective Green, g (s)		12.4						40.6				
Actuated g/C Ratio		0.21						0.68				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		1317						4104				
v/s Ratio Prot								c0.07				
v/s Ratio Perm		0.11										
v/c Ratio		0.55						0.10				
Uniform Delay, d1		21.3						3.4				
Progression Factor		1.00						1.00				
Incremental Delay, d2		0.2						0.0				
Delay (s)		21.5						3.4				
Level of Service		C						A				
Approach Delay (s)		21.5			0.0			3.4			0.0	
Approach LOS		C			A			A			A	

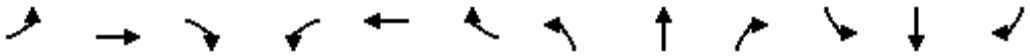
Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	39.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	149	940	0	0	0	0	0	792	329	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		0.86						0.91				
Frpb, ped/bikes		1.00						0.99				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6343						4832				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6343						4832				
Peak-hour factor, PHF	0.85	0.98	0.25	0.25	0.25	0.25	0.25	0.94	0.96	0.25	0.25	0.25
Adj. Flow (vph)	175	959	0	0	0	0	0	843	343	0	0	0
RTOR Reduction (vph)	0	35	0	0	0	0	0	22	0	0	0	0
Lane Group Flow (vph)	0	1099	0	0	0	0	0	1164	0	0	0	0
Confl. Peds. (#/hr)	22		22	50		50	14		14	6		6
Confl. Bikes (#/hr)			16			1			2			2
Turn Type	Perm											
Protected Phases		1						2				
Permitted Phases	1											
Actuated Green, G (s)		18.0						18.0				
Effective Green, g (s)		18.0						18.0				
Actuated g/C Ratio		0.40						0.40				
Clearance Time (s)		4.5						4.5				
Lane Grp Cap (vph)		2537						1933				
v/s Ratio Prot								c0.24				
v/s Ratio Perm		0.17										
v/c Ratio		0.43						0.60				
Uniform Delay, d1		9.8						10.7				
Progression Factor		1.03						1.58				
Incremental Delay, d2		0.4						1.2				
Delay (s)		10.5						18.0				
Level of Service		B						B				
Approach Delay (s)		10.5			0.0			18.0			0.0	
Approach LOS		B			A			B			A	

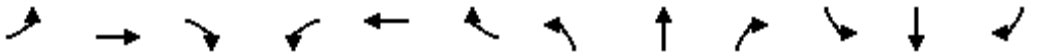
Intersection Summary			
HCM Average Control Delay	14.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



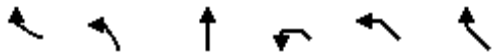
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	816	242	0	0	0	0	0	0	401	1271	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									3.0	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		1.00									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.96									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6151									5011	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6151									5011	
Peak-hour factor, PHF	0.25	0.99	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.87	0.95	0.25
Adj. Flow (vph)	0	824	263	0	0	0	0	0	0	461	1338	0
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	0	0	38	0
Lane Group Flow (vph)	0	1077	0	0	0	0	0	0	0	0	1761	0
Confl. Peds. (#/hr)	4		4	8		8	2		2	12		12
Confl. Bikes (#/hr)			2			2			2			
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		18.0									20.0	
Effective Green, g (s)		18.0									20.0	
Actuated g/C Ratio		0.40									0.44	
Clearance Time (s)		4.0									3.0	
Vehicle Extension (s)		2.0									2.0	
Lane Grp Cap (vph)		2460									2227	
v/s Ratio Prot		c0.18										
v/s Ratio Perm											0.35	
v/c Ratio		0.44									0.79	
Uniform Delay, d1		9.8									10.7	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.6									3.0	
Delay (s)		10.4									13.7	
Level of Service		B									B	
Approach Delay (s)		10.4			0.0			0.0			13.7	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	6	308	47	293	294	0	0	180	1379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.93		1.00			1.00	0.98
Flpb, ped/bikes				0.98	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.97			1.00	1.00
Satd. Flow (prot)				1726	1863	1471		1815			1863	1559
Flt Permitted				0.95	1.00	1.00		0.74			1.00	1.00
Satd. Flow (perm)				1726	1863	1471		1373			1863	1559
Peak-hour factor, PHF	0.25	0.25	0.25	0.50	0.78	0.84	0.84	0.90	0.92	0.92	0.92	0.98
Adj. Flow (vph)	0	0	0	12	395	56	349	327	0	0	196	1407
RTOR Reduction (vph)	0	0	0	0	0	43	0	0	0	0	0	42
Lane Group Flow (vph)	0	0	0	12	395	13	0	676	0	0	196	1365
Confl. Peds. (#/hr)	4		4	20		20	1		1	6		6
Confl. Bikes (#/hr)			10			7						
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					1			2			2	
Permitted Phases				1		1	2					2
Actuated Green, G (s)				14.3	14.3	14.3		34.7			34.7	34.7
Effective Green, g (s)				14.3	14.3	14.3		34.7			34.7	34.7
Actuated g/C Ratio				0.24	0.24	0.24		0.58			0.58	0.58
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				411	444	351		794			1077	902
v/s Ratio Prot					c0.21						0.11	
v/s Ratio Perm				0.01		0.01		0.49				c0.88
v/c Ratio				0.03	0.89	0.04		0.85			0.18	1.51
Uniform Delay, d1				17.5	22.1	17.6		10.5			6.0	12.6
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.0	19.1	0.0		11.1			0.4	236.6
Delay (s)				17.6	41.2	17.6		21.6			6.3	249.3
Level of Service				B	D	B		C			A	F
Approach Delay (s)		0.0			37.7			21.6			219.6	
Approach LOS		A			D			C			F	

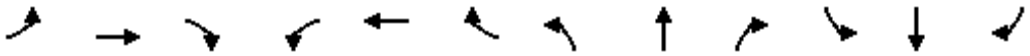
Intersection Summary			
HCM Average Control Delay	140.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	147.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBR	NBL	NBT	NWL2	NWL	NWR
Lane Configurations						
Volume (vph)	0	154	524	55	47	615
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5		2.0	2.0
Lane Util. Factor			0.95		0.97	0.91
Frpb, ped/bikes			1.00		1.00	1.00
Flpb, ped/bikes			1.00		1.00	1.00
Frt			1.00		0.90	0.85
Flt Protected			0.99		0.98	1.00
Satd. Flow (prot)			3501		3191	1441
Flt Permitted			0.99		0.98	1.00
Satd. Flow (perm)			3501		3191	1441
Peak-hour factor, PHF	0.92	0.90	0.86	0.60	0.84	0.94
Adj. Flow (vph)	0	171	609	92	56	654
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	780	0	475	327
Confl. Peds. (#/hr)	46					
Confl. Bikes (#/hr)	3					
Turn Type	custom	Perm		Perm		Perm
Protected Phases			3		1	
Permitted Phases	2	3		1		1
Actuated Green, G (s)			16.3		16.2	16.2
Effective Green, g (s)			16.3		16.2	16.2
Actuated g/C Ratio			0.36		0.36	0.36
Clearance Time (s)			3.5		2.0	2.0
Lane Grp Cap (vph)			1268		1149	519
v/s Ratio Prot						
v/s Ratio Perm			0.22		0.15	c0.23
v/c Ratio			0.62		0.41	0.63
Uniform Delay, d1			11.8		10.8	11.9
Progression Factor			0.68		1.00	1.00
Incremental Delay, d2			0.2		1.1	5.7
Delay (s)			8.2		11.9	17.6
Level of Service			A		B	B
Approach Delay (s)			8.2		14.3	
Approach LOS			A		B	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	243	523	69	0	0	0	0	446	62	1	58	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5			3.5	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						1.00			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		0.98						0.98			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4907						1830			1858	
Flt Permitted		0.99						1.00			0.71	
Satd. Flow (perm)		1000						1300			1300	
Peak-hour factor, PHF	0.86	0.93	0.72	0.25	0.25	0.25	0.25	0.75	0.70	0.25	0.76	0.25
Adj. Flow (vph)	283	562	96	0	0	0	0	595	89	4	76	0
RTOR Reduction (vph)	0	31	0	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	910	0	0	0	0	0	672	0	0	80	0
Confl. Peds. (#/hr)	9		9	38		38				2		2
Confl. Bikes (#/hr)			11			4						2
Turn Type	Perm									Perm		
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		22.5						15.5			15.5	
Effective Green, g (s)		22.5						15.5			15.5	
Actuated g/C Ratio		0.50						0.34			0.34	
Clearance Time (s)		3.5						3.5			3.5	
Lane Grp Cap (vph)		500						630			448	
v/s Ratio Prot								c0.37				
v/s Ratio Perm		c0.91									0.06	
v/c Ratio		1.82						1.07			0.18	
Uniform Delay, d1		11.2						14.8			10.3	
Progression Factor		1.00						1.00			0.03	
Incremental Delay, d2		376.8						55.1			0.8	
Delay (s)		388.1						69.8			1.2	
Level of Service		F						E			A	
Approach Delay (s)		388.1			0.0			69.8			1.2	
Approach LOS		F			A			E			A	

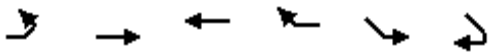
Intersection Summary			
HCM Average Control Delay	242.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.51		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	245	255	1069	772	235	770
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.93		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3302		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3302		1770	3539
Peak-hour factor, PHF	0.91	0.78	0.94	0.84	0.92	0.88
Adj. Flow (vph)	269	327	1137	919	255	875
RTOR Reduction (vph)	0	97	159	0	0	0
Lane Group Flow (vph)	269	230	1897	0	255	875
Turn Type		custom			Prot	
Protected Phases	4		6		5	2
Permitted Phases		2				
Actuated Green, G (s)	18.8	63.2	37.1		22.1	63.2
Effective Green, g (s)	18.8	63.2	37.1		22.1	63.2
Actuated g/C Ratio	0.21	0.70	0.41		0.25	0.70
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	370	1112	1361		435	2485
v/s Ratio Prot	c0.15		c0.57		c0.14	0.25
v/s Ratio Perm		0.15				
v/c Ratio	0.73	0.21	1.39		0.59	0.35
Uniform Delay, d1	33.2	4.7	26.4		29.9	5.3
Progression Factor	1.00	1.00	1.00		0.77	1.12
Incremental Delay, d2	7.0	0.4	181.9		4.9	0.3
Delay (s)	40.2	5.1	208.3		27.9	6.3
Level of Service	D	A	F		C	A
Approach Delay (s)	20.9		208.3			11.1
Approach LOS	C		F			B

Intersection Summary			
HCM Average Control Delay	119.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	350	665	466	148	383	623
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3403		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3403		1770	1583
Peak-hour factor, PHF	0.84	0.86	0.87	0.80	0.91	0.85
Adj. Flow (vph)	417	773	536	185	421	733
RTOR Reduction (vph)	0	0	52	0	0	371
Lane Group Flow (vph)	417	773	669	0	421	362
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	14.1	32.6	14.5		19.8	19.8
Effective Green, g (s)	14.1	32.6	14.5		19.8	19.8
Actuated g/C Ratio	0.23	0.54	0.24		0.33	0.33
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	413	1910	817		580	519
v/s Ratio Prot	c0.24	0.22	c0.20		c0.24	
v/s Ratio Perm						0.23
v/c Ratio	1.01	0.40	0.82		0.73	0.70
Uniform Delay, d1	23.1	8.2	21.7		17.9	17.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	46.7	0.1	6.4		4.5	4.1
Delay (s)	69.9	8.3	28.1		22.4	21.8
Level of Service	E	A	C		C	C
Approach Delay (s)		29.9	28.1		22.0	
Approach LOS		C	C		C	

Intersection Summary			
HCM Average Control Delay	26.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	60.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	298	768	224	0	696	629	350	785	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.97			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4906			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4906			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.96	0.91	0.84	0.92	0.93	0.84	0.90	0.91	0.92
Adj. Flow (vph)	0	0	310	844	267	0	748	749	389	863	0
RTOR Reduction (vph)	0	0	0	46	0	0	0	102	0	0	0
Lane Group Flow (vph)	0	0	0	1375	0	0	748	647	389	863	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				29.4			20.7	20.7	26.9	51.6	
Effective Green, g (s)				29.4			20.7	20.7	26.9	51.6	
Actuated g/C Ratio				0.33			0.23	0.23	0.30	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1603			814	364	529	2029	
v/s Ratio Prot				c0.28			0.21		c0.22	0.24	
v/s Ratio Perm								c0.41			
v/c Ratio				0.86			0.92	1.78	0.74	0.43	
Uniform Delay, d1				28.3			33.8	34.6	28.4	10.8	
Progression Factor				1.00			1.39	1.56	1.00	1.00	
Incremental Delay, d2				4.8			2.1	350.4	5.3	0.1	
Delay (s)				33.1			49.1	404.6	33.6	11.0	
Level of Service				C			D	F	C	B	
Approach Delay (s)	0.0			33.1			227.0			18.0	
Approach LOS	A			C			F			B	

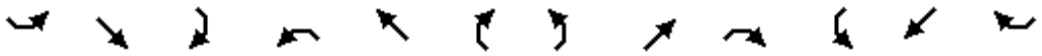
Intersection Summary			
HCM Average Control Delay	98.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	329	830	424	163	444	483	144	263	19	456
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	4.0				4.0	4.0
Lane Util. Factor	0.91	0.86	0.91	1.00	0.95				1.00	0.95
Frt	1.00	0.99	0.85	0.85	0.91				1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00				0.95	1.00
Satd. Flow (prot)	1610	3166	1441	1583	3235				1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	1.00				0.95	1.00
Satd. Flow (perm)	1610	3166	1441	1583	3235				1770	3539
Peak-hour factor, PHF	0.70	0.94	0.87	0.74	0.81	0.84	0.90	0.83	0.68	0.91
Adj. Flow (vph)	470	883	487	220	548	575	160	317	28	501
RTOR Reduction (vph)	0	0	0	41	12	0	0	0	0	0
Lane Group Flow (vph)	423	993	424	179	1271	0	0	0	345	501
Turn Type	Split		Prot	Perm				Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases				4						
Actuated Green, G (s)	28.0	28.0	28.0	28.0	37.0				12.0	53.0
Effective Green, g (s)	28.0	28.0	28.0	28.0	37.0				12.0	53.0
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.41				0.13	0.59
Clearance Time (s)	5.0	5.0	5.0	5.0	4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0				3.0	3.0
Lane Grp Cap (vph)	501	985	448	492	1330				236	2084
v/s Ratio Prot	0.26	c0.31	0.29		c0.39				c0.19	0.14
v/s Ratio Perm				0.11						
v/c Ratio	0.84	1.01	0.95	0.36	1.09dr				1.46	0.24
Uniform Delay, d1	29.0	31.0	30.3	24.1	25.7				39.0	8.9
Progression Factor	0.80	0.82	0.81	0.70	1.00				1.00	1.00
Incremental Delay, d2	1.7	10.7	5.2	0.2	16.1				229.7	0.3
Delay (s)	24.9	36.0	29.7	17.0	41.8				268.7	9.1
Level of Service	C	D	C	B	D				F	A
Approach Delay (s)		30.4			41.8					115.0
Approach LOS		C			D					F

Intersection Summary			
HCM Average Control Delay	51.0	HCM Level of Service	D
HCM Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

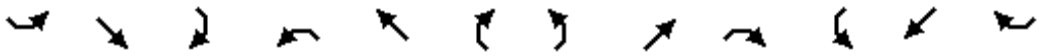
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	1240	172	242	820	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.91	1.00		*0.88				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1583		4864				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1583		4864				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.91	0.98	0.94	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1292	189	247	872	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	23	0	21	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1292	167	0	1098	0	0	0	0
Turn Type						Perm	Perm					
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					30.0	30.0		22.0				
Effective Green, g (s)					30.0	30.0		22.0				
Actuated g/C Ratio					0.50	0.50		0.37				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					2543	792		1783				
v/s Ratio Prot					c0.25							
v/s Ratio Perm						0.11		0.23				
v/c Ratio					0.51	0.21		0.62				
Uniform Delay, d1					10.1	8.4		15.5				
Progression Factor					1.00	1.00		1.30				
Incremental Delay, d2					0.7	0.6		1.2				
Delay (s)					10.8	9.0		21.4				
Level of Service					B	A		C				
Approach Delay (s)		0.0			10.6			21.4			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

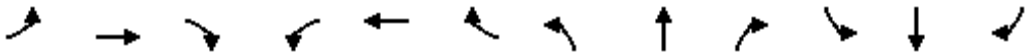
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	502	1008	0	0	0	0	0	533	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4772						3500	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4772						3500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.90	0.97	0.92	0.92	0.92	0.92	0.92	0.75	0.86
Adj. Flow (vph)	0	0	0	558	1039	0	0	0	0	0	711	56
RTOR Reduction (vph)	0	0	0	48	35	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	0	0	337	1177	0	0	0	0	0	757	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				29.0	29.0						23.0	
Effective Green, g (s)				29.0	29.0						23.0	
Actuated g/C Ratio				0.48	0.48						0.38	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				736	2306						1342	
v/s Ratio Prot											c0.22	
v/s Ratio Perm				0.22	0.25							
v/c Ratio				0.46	0.51						0.56	
Uniform Delay, d1				10.3	10.6						14.6	
Progression Factor				1.64	1.44						1.00	
Incremental Delay, d2				1.8	0.7						1.7	
Delay (s)				18.6	16.0						16.3	
Level of Service				B	B						B	
Approach Delay (s)		0.0			16.6			0.0			16.3	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	16.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	169	437	8	13	185	15	12	18	22	50	37	33
Peak Hour Factor	0.90	0.94	0.67	0.81	0.84	0.63	0.75	0.75	0.79	0.74	0.77	0.69
Hourly flow rate (vph)	188	465	12	16	220	24	16	24	28	68	48	48

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	188	477	260	68	163
Volume Left (vph)	188	0	16	16	68
Volume Right (vph)	0	12	24	28	48
Hadj (s)	0.53	0.02	-0.01	-0.17	-0.06
Departure Headway (s)	6.1	5.6	5.6	6.3	6.1
Degree Utilization, x	0.32	0.74	0.40	0.12	0.28
Capacity (veh/h)	571	628	615	506	531
Control Delay (s)	10.8	21.7	12.3	10.2	11.5
Approach Delay (s)	18.6		12.3	10.2	11.5
Approach LOS	C		B	B	B

Intersection Summary			
Delay	15.7		
HCM Level of Service	C		
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp

Average Delay (sec/veh): 9.0 Worst Case Level Of Service: D[28.3]

Street Name:	Harrison Street						Stanley Place / I-580 EB Off-Ramp					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Yield Sign			Yield Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 3 0 0			0 0 0 0 1			0 0 0 0 0		
Volume Module:												
Base Vol:	0	0	0	0	1060	0	0	0	491	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	1060	0	0	0	491	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	1060	0	0	0	491	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.92	1.00	1.00	1.00	0.92	1.00	1.00	1.00
PHF Volume:	0	0	0	0	1152	0	0	0	534	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	1152	0	0	0	534	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	384	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	668	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	668	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.80	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	8.1	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	28.3	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	D	*	*	*

Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			28.3			xxxxxx		
ApproachLOS:	*			*			D			*		

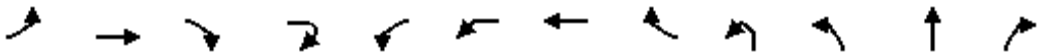
Note: Queue reported is the number of cars per lane.

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Movement	SEL2	SET	NET	NER	NER2
Lane Configurations					
Volume (vph)	468	165	1004	422	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	3.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	
Flt Protected	0.95	0.98	1.00	1.00	
Satd. Flow (prot)	1681	1730	3539	1583	
Flt Permitted	0.95	0.98	1.00	1.00	
Satd. Flow (perm)	1681	1730	3539	1583	
Peak-hour factor, PHF	0.97	0.92	0.92	0.92	0.92
Adj. Flow (vph)	482	179	1091	459	30
RTOR Reduction (vph)	79	55	0	0	0
Lane Group Flow (vph)	249	278	1091	489	0
Confl. Peds. (#/hr)					2
Confl. Bikes (#/hr)					
Turn Type	Perm			custom	
Protected Phases		4	5	1	
Permitted Phases	4			1	
Actuated Green, G (s)	12.9	12.9	39.6	16.6	
Effective Green, g (s)	12.9	12.9	39.6	16.6	
Actuated g/C Ratio	0.22	0.22	0.66	0.28	
Clearance Time (s)	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	361	372	2336	438	
v/s Ratio Prot			c0.31	c0.31	
v/s Ratio Perm	0.15	0.16			
v/c Ratio	0.69	0.75	0.47	1.12	
Uniform Delay, d1	21.7	22.0	5.0	21.7	
Progression Factor	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.3	7.0	0.7	78.6	
Delay (s)	26.0	29.0	5.7	100.3	
Level of Service	C	C	A	F	
Approach Delay (s)		27.5	35.0		
Approach LOS		C	C		

Intersection Summary			
HCM Average Control Delay	32.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



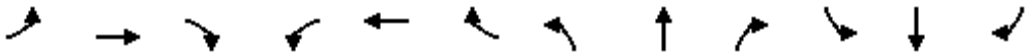
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	38	110	74	20	45	15	150	134	14	235	307	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00			1.00	1.00	1.00		0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.93			1.00	1.00	0.91		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85			1.00	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1477			1770	1863	1442		3433	3494	
Flt Permitted	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1477			1770	1863	1442		3433	3494	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	120	80	22	49	16	163	141	15	255	334	28
RTOR Reduction (vph)	0	0	13	0	0	0	0	118	0	0	5	0
Lane Group Flow (vph)	41	120	89	0	0	65	163	23	0	270	357	0
Confl. Peds. (#/hr)	21		21					27		9		8
Confl. Bikes (#/hr)			8					24				1
Turn Type	Prot		Perm		Prot	Prot		Perm	Prot	Prot		
Protected Phases	3	8			7	7	4		1	1	6	
Permitted Phases			8					4				
Actuated Green, G (s)	5.2	12.7	12.7			7.4	14.9	14.9		12.3	44.6	
Effective Green, g (s)	5.2	12.7	12.7			7.4	14.9	14.9		12.3	44.6	
Actuated g/C Ratio	0.06	0.14	0.14			0.08	0.17	0.17		0.14	0.50	
Clearance Time (s)	4.0	4.0	4.0			4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	102	499	208			146	308	239		469	1731	
v/s Ratio Prot	0.02	0.03				0.04	c0.09			c0.08	c0.10	
v/s Ratio Perm			c0.06					0.02				
v/c Ratio	0.40	0.24	0.43			0.45	0.53	0.10		0.58	0.21	
Uniform Delay, d1	40.9	34.4	35.3			39.3	34.3	31.8		36.4	12.8	
Progression Factor	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.3	1.4			2.2	1.6	0.2		1.7	0.3	
Delay (s)	43.5	34.6	36.8			41.5	36.0	32.0		38.1	13.0	
Level of Service	D	C	D			D	D	C		D	B	
Approach Delay (s)		36.8					35.4				23.7	
Approach LOS		D					D				C	

Intersection Summary			
HCM Average Control Delay	27.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Volume (vph)	96	939	95	94
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.97		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3450		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3450		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	104	1021	103	102
RTOR Reduction (vph)	0	5	0	0
Lane Group Flow (vph)	104	1221	0	0
Confl. Peds. (#/hr)	18			
Confl. Bikes (#/hr)				
Turn Type	Prot			
Protected Phases	5	2		
Permitted Phases				
Actuated Green, G (s)	9.3	41.6		
Effective Green, g (s)	9.3	41.6		
Actuated g/C Ratio	0.10	0.46		
Clearance Time (s)	4.0	4.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	183	1595		
v/s Ratio Prot	0.06	c0.35		
v/s Ratio Perm				
v/c Ratio	0.57	0.77		
Uniform Delay, d1	38.4	20.1		
Progression Factor	1.00	1.00		
Incremental Delay, d2	4.0	3.6		
Delay (s)	42.4	23.7		
Level of Service	D	C		
Approach Delay (s)		25.2		
Approach LOS		C		

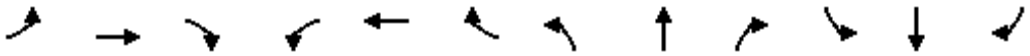
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	161	77	33	280	289	48	457	37	94	511	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.95			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1746	3321			3516	1543	1759	3484		1766	3492	
Flt Permitted	0.55	1.00			0.90	1.00	0.37	1.00		0.43	1.00	
Satd. Flow (perm)	1014	3321			3169	1543	692	3484		799	3492	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.95	0.92	0.92	0.97	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	173	84	36	295	314	52	471	40	102	555	47
RTOR Reduction (vph)	0	48	0	0	0	148	0	7	0	0	7	0
Lane Group Flow (vph)	61	209	0	0	331	166	52	504	0	102	595	0
Confl. Peds. (#/hr)	25		25	18		13	19		13	6		6
Confl. Bikes (#/hr)		16	16	59		5		5	59			6
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			2	
Permitted Phases	4			8		8	2			2		
Actuated Green, G (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Effective Green, g (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Actuated g/C Ratio	0.42	0.42			0.42	0.42	0.45	0.45		0.45	0.45	
Clearance Time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	429	1407			1342	654	309	1558		357	1561	
v/s Ratio Prot		0.06						0.14			c0.17	
v/s Ratio Perm	0.06				0.10	c0.11	0.08			0.13		
v/c Ratio	0.14	0.15			0.25	0.25	0.17	0.32		0.29	0.38	
Uniform Delay, d1	15.0	15.1			15.8	15.8	14.1	15.2		14.9	15.7	
Progression Factor	1.00	0.95			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.2			0.4	0.9	1.2	0.6		2.0	0.7	
Delay (s)	15.7	14.5			16.2	16.8	15.2	15.7		16.9	16.4	
Level of Service	B	B			B	B	B	B		B	B	
Approach Delay (s)		14.8			16.5			15.7			16.4	
Approach LOS		B			B			B			B	

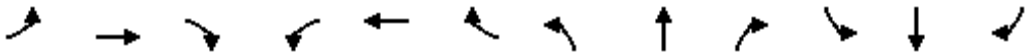
Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	343	354	134	43	244	107	81	360	22	46	327	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	1863	1561	1765	1863	1547	1761	3498		1764	3361	
Flt Permitted	0.49	1.00	1.00	0.53	1.00	1.00	0.29	1.00		0.38	1.00	
Satd. Flow (perm)	916	1863	1561	992	1863	1547	529	3498		710	3361	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	373	385	146	47	265	116	84	391	24	50	355	145
RTOR Reduction (vph)	0	0	57	0	0	57	0	7	0	0	69	0
Lane Group Flow (vph)	373	385	89	47	265	59	84	408	0	50	431	0
Confl. Peds. (#/hr)	1		1	8		8	12		12	6		6
Confl. Bikes (#/hr)			2			5			27			6
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	59.9	52.0	52.0	46.3	42.9	42.9	16.1	16.1		16.1	16.1	
Effective Green, g (s)	59.9	52.0	52.0	46.3	42.9	42.9	16.1	16.1		16.1	16.1	
Actuated g/C Ratio	0.70	0.61	0.61	0.54	0.50	0.50	0.19	0.19		0.19	0.19	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	771	1140	955	571	940	781	100	663		134	637	
v/s Ratio Prot	c0.07	0.21		0.00	0.14			0.12			0.13	
v/s Ratio Perm	c0.27		0.06	0.04		0.04	c0.16			0.07		
v/c Ratio	0.48	0.34	0.09	0.08	0.28	0.07	0.84	0.61		0.37	0.68	
Uniform Delay, d1	5.3	8.1	6.8	9.1	12.2	10.8	33.2	31.6		30.0	32.0	
Progression Factor	1.00	1.00	1.00	0.65	0.68	0.36	0.91	0.89		1.00	1.00	
Incremental Delay, d2	0.2	0.8	0.2	0.0	0.7	0.2	41.3	1.2		0.6	2.2	
Delay (s)	5.5	8.9	7.0	5.9	9.0	4.1	71.5	29.4		30.7	34.3	
Level of Service	A	A	A	A	A	A	E	C		C	C	
Approach Delay (s)		7.2			7.4			36.5			34.0	
Approach LOS		A			A			D			C	

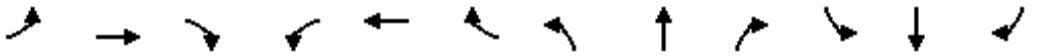
Intersection Summary			
HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	823	0	0	149	286	5	259	25	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1608	3387			3539	2787		5007				
Flt Permitted	0.65	0.95			1.00	1.00		1.00				
Satd. Flow (perm)	1099	3219			3539	2787		5007				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	895	0	0	162	311	5	282	27	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	187	0	16	0	0	0	0
Lane Group Flow (vph)	151	912	0	0	162	124	0	298	0	0	0	0
Confl. Peds. (#/hr)	2		2				6		6	4		4
Confl. Bikes (#/hr)									4			3
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	16.0	16.0			16.0	16.0		16.0				
Effective Green, g (s)	16.0	16.0			16.0	16.0		16.0				
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.40				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)	440	1288			1416	1115		2003				
v/s Ratio Prot					0.05							
v/s Ratio Perm	0.14	c0.28				0.04		0.06				
v/c Ratio	0.34	0.71			0.11	0.11		0.15				
Uniform Delay, d1	8.3	10.0			7.5	7.5		7.7				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	2.1	3.3			0.2	0.2		0.2				
Delay (s)	10.5	13.4			7.7	7.7		7.8				
Level of Service	B	B			A	A		A				
Approach Delay (s)		12.9			7.7			7.8			0.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

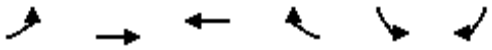
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	280	27	11	158	0	0	0	0	681	990	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00		0.95					0.91	0.91	1.00
Frpb, ped/bikes		1.00	0.98		1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00					1.00	1.00	1.00
Frt		1.00	0.85		1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00					0.95	0.99	1.00
Satd. Flow (prot)		3539	1558		3526					1610	3369	1583
Flt Permitted		1.00	1.00		0.93					0.95	0.99	1.00
Satd. Flow (perm)		3539	1558		3296					1610	3369	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92
Adj. Flow (vph)	0	304	29	12	172	0	0	0	0	740	1065	382
RTOR Reduction (vph)	0	0	19	0	0	0	0	0	0	0	0	185
Lane Group Flow (vph)	0	304	10	0	184	0	0	0	0	585	1220	197
Confl. Peds. (#/hr)	2		2	10		10	6		6			
Confl. Bikes (#/hr)			3			4			1			
Turn Type			Perm	Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases			4	8						6		6
Actuated Green, G (s)		21.0	21.0		21.0					31.0	31.0	31.0
Effective Green, g (s)		21.0	21.0		21.0					31.0	31.0	31.0
Actuated g/C Ratio		0.35	0.35		0.35					0.52	0.52	0.52
Clearance Time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Grp Cap (vph)		1239	545		1154					832	1741	818
v/s Ratio Prot		c0.09										
v/s Ratio Perm			0.01		0.06					c0.36	0.36	0.12
v/c Ratio		0.25	0.02		0.16					0.70	0.70	0.24
Uniform Delay, d1		13.9	12.8		13.4					11.0	11.0	8.0
Progression Factor		1.00	1.00		1.00					1.00	1.00	1.00
Incremental Delay, d2		0.5	0.1		0.3					4.9	2.4	0.7
Delay (s)		14.3	12.8		13.7					15.9	13.4	8.7
Level of Service		B	B		B					B	B	A
Approach Delay (s)		14.2			13.7			0.0			13.2	
Approach LOS		B			B			A			B	

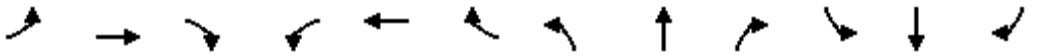
Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



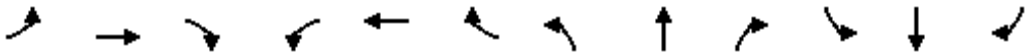
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	195	568	669	122	765	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3441		3431	1414
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3441		3431	1414
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	212	617	727	133	832	214
RTOR Reduction (vph)	0	0	17	0	2	136
Lane Group Flow (vph)	212	617	843	0	851	57
Confl. Peds. (#/hr)	14			11	6	6
Confl. Bikes (#/hr)				10		1
Turn Type	Prot					Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	12.8	48.2	31.4		23.8	23.8
Effective Green, g (s)	12.8	48.2	31.4		23.8	23.8
Actuated g/C Ratio	0.16	0.60	0.39		0.30	0.30
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	283	2132	1351		1021	421
v/s Ratio Prot	c0.12	0.17	c0.24		c0.25	
v/s Ratio Perm						0.04
v/c Ratio	0.75	0.29	0.62		0.83	0.14
Uniform Delay, d1	32.1	7.7	19.6		26.2	20.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	9.1	0.3	2.2		5.7	0.1
Delay (s)	41.2	8.0	21.7		31.9	20.6
Level of Service	D	A	C		C	C
Approach Delay (s)		16.5	21.7		29.9	
Approach LOS		B	C		C	

Intersection Summary			
HCM Average Control Delay	23.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



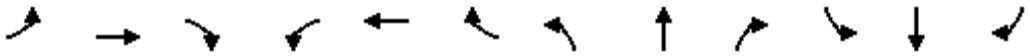
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	108	776	357	68	419	65	201	256	31	86	354	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1766	3427	1553	1768	3348		1768	3470		1757	3430	
Flt Permitted	0.32	1.00	1.00	0.16	1.00		0.41	1.00		0.57	1.00	
Satd. Flow (perm)	599	3427	1553	304	3348		761	3470		1049	3430	
Peak-hour factor, PHF	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	808	388	74	455	71	218	269	34	93	385	84
RTOR Reduction (vph)	0	0	276	0	14	0	0	11	0	0	20	0
Lane Group Flow (vph)	117	808	112	74	512	0	218	292	0	93	449	0
Confl. Peds. (#/hr)	4		4	4		4	4		4	11		11
Confl. Bikes (#/hr)			3			7			21			1
Turn Type	Perm		Perm	Perm			pm+pt			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	24.5	24.5	24.5	24.5	24.5		50.0	50.0		36.2	36.2	
Effective Green, g (s)	24.5	24.5	24.5	24.5	24.5		50.0	50.0		36.2	36.2	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29		0.59	0.59		0.43	0.43	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	173	988	448	88	965		558	2041		447	1461	
v/s Ratio Prot		0.24			0.15		c0.04	0.08			0.13	
v/s Ratio Perm	0.20		0.07	c0.24			c0.19			0.09		
v/c Ratio	0.68	0.82	0.25	0.84	0.53		0.39	0.14		0.21	0.31	
Uniform Delay, d1	26.7	28.2	23.2	28.4	25.4		8.5	7.9		15.4	16.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.14	1.17	
Incremental Delay, d2	19.2	7.5	1.3	59.2	2.1		0.2	0.1		1.0	0.5	
Delay (s)	46.0	35.7	24.5	87.6	27.5		8.7	8.0		18.5	19.4	
Level of Service	D	D	C	F	C		A	A		B	B	
Approach Delay (s)		33.3			34.9			8.3			19.3	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	26.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



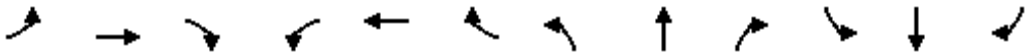
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	87	653	62	94	484	72	100	416	90	60	360	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	*0.92			*0.92		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99			0.98		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1753	3369			3324		1763	3539	1530	1761	3430	
Flt Permitted	0.25	1.00			0.64		0.46	1.00	1.00	0.47	1.00	
Satd. Flow (perm)	467	3369			2128		846	3539	1530	873	3430	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	710	67	102	526	78	109	452	98	65	391	85
RTOR Reduction (vph)	0	10	0	0	13	0	0	0	46	0	19	0
Lane Group Flow (vph)	95	767	0	0	693	0	109	452	52	65	457	0
Confl. Peds. (#/hr)	34		34	37		37	8		8	10		10
Confl. Bikes (#/hr)			11			8			35			7
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	29.7	29.7			29.7		42.3	42.3	42.3	42.3	42.3	
Effective Green, g (s)	29.7	29.7			29.7		42.3	42.3	42.3	42.3	42.3	
Actuated g/C Ratio	0.37	0.37			0.37		0.53	0.53	0.53	0.53	0.53	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	173	1251			790		447	1871	809	462	1814	
v/s Ratio Prot		0.23						0.13			c0.13	
v/s Ratio Perm	0.20				c0.33		0.13		0.03	0.07		
v/c Ratio	0.55	0.61			0.88		0.24	0.24	0.06	0.14	0.25	
Uniform Delay, d1	19.9	20.5			23.4		10.2	10.2	9.2	9.6	10.2	
Progression Factor	1.00	1.00			1.18		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.9	0.6			10.4		1.3	0.3	0.2	0.6	0.3	
Delay (s)	21.8	21.1			38.2		11.5	10.5	9.3	10.2	10.6	
Level of Service	C	C			D		B	B	A	B	B	
Approach Delay (s)		21.2			38.2			10.5			10.5	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



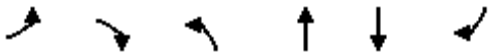
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	386	312	119	439	0	0	0	0	10	158	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						3.0	
Lane Util. Factor		*0.92		1.00	*0.92						0.95	
Frpb, ped/bikes		0.97		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						0.99	
Frt		0.93		1.00	1.00						0.98	
Flt Protected		1.00		0.95	1.00						1.00	
Satd. Flow (prot)		3113		1770	3427						3416	
Flt Permitted		1.00		0.22	1.00						1.00	
Satd. Flow (perm)		3113		406	3427						3416	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	415	339	129	477	0	0	0	0	11	172	21
RTOR Reduction (vph)	0	171	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	583	0	129	477	0	0	0	0	0	193	0
Confl. Peds. (#/hr)	26		26	28		28	21		21	101		101
Confl. Bikes (#/hr)			4			4			3			6
Turn Type	Perm			pm+pt						Perm		
Protected Phases		2		1	6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)		31.6		43.0	43.0						29.0	
Effective Green, g (s)		31.6		43.0	43.0						29.0	
Actuated g/C Ratio		0.40		0.54	0.54						0.36	
Clearance Time (s)		5.0		5.0	5.0						3.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		1230		327	1842						1238	
v/s Ratio Prot		c0.19		c0.03	0.14							
v/s Ratio Perm				0.18							0.06	
v/c Ratio		0.47		0.39	0.26						0.16	
Uniform Delay, d1		18.0		10.8	9.9						17.2	
Progression Factor		2.64		1.00	1.00						1.00	
Incremental Delay, d2		1.2		0.3	0.3						0.3	
Delay (s)		48.7		11.1	10.3						17.5	
Level of Service		D		B	B						B	
Approach Delay (s)		48.7			10.5			0.0			17.5	
Approach LOS		D			B			A			B	

Intersection Summary			
HCM Average Control Delay	29.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	148	77	406	547	119	121	741	341	33	686	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	
Frpb, ped/bikes	1.00	1.00	0.93	1.00	1.00	0.94		1.00	0.90		0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	
Satd. Flow (prot)	3433	3539	1479	3433	3539	1485		5037	1419		4961	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.68	1.00		0.86	
Satd. Flow (perm)	3433	3539	1479	3433	3539	1485		3435	1419		4256	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92
Adj. Flow (vph)	67	161	84	441	595	129	132	805	371	36	738	97
RTOR Reduction (vph)	0	0	31	0	0	72	0	0	237	0	16	0
Lane Group Flow (vph)	67	161	53	441	595	57	0	937	134	0	855	0
Confl. Peds. (#/hr)	38		38	34		34	60		60	28		28
Confl. Bikes (#/hr)			12			18			39			9
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		
Protected Phases	1	6		5	2			4			4	
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	5.5	33.7	33.7	15.3	44.5	44.5		36.0	36.0		36.0	
Effective Green, g (s)	5.5	33.7	33.7	15.3	44.5	44.5		36.0	36.0		36.0	
Actuated g/C Ratio	0.06	0.34	0.34	0.15	0.44	0.44		0.36	0.36		0.36	
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	189	1193	498	525	1575	661		1237	511		1532	
v/s Ratio Prot	0.02	0.05		c0.13	c0.17							
v/s Ratio Perm			0.04			0.04		c0.27	0.09		0.20	
v/c Ratio	0.35	0.13	0.11	0.84	0.38	0.09		0.76	0.26		0.56	
Uniform Delay, d1	45.5	23.0	22.8	41.2	18.5	16.0		28.2	22.6		25.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.2	0.4	11.1	0.7	0.3		4.4	1.2		1.5	
Delay (s)	46.0	23.3	23.2	52.3	19.2	16.3		32.5	23.8		27.1	
Level of Service	D	C	C	D	B	B		C	C		C	
Approach Delay (s)		28.1			31.4			30.1			27.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	29.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	59	38	99	947	1088	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.5	4.5	
Lane Util. Factor	0.97		1.00	*0.50	0.86	
Frpb, ped/bikes	0.97		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.94		1.00	1.00	0.97	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	3199		1766	3725	6191	
Flt Permitted	0.97		0.14	1.00	1.00	
Satd. Flow (perm)	3199		253	3725	6191	
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.93	0.92
Adj. Flow (vph)	64	41	108	986	1170	340
RTOR Reduction (vph)	38	0	0	0	30	0
Lane Group Flow (vph)	67	0	108	986	1480	0
Confl. Peds. (#/hr)	36	36	109			
Confl. Bikes (#/hr)		14				
Turn Type			pm+pt			
Protected Phases	4		1	2	2	
Permitted Phases			2			
Actuated Green, G (s)	6.0		60.5	54.5	54.5	
Effective Green, g (s)	6.0		60.5	54.5	54.5	
Actuated g/C Ratio	0.08		0.76	0.68	0.68	
Clearance Time (s)	5.0		4.0	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	240		305	2538	4218	
v/s Ratio Prot	c0.02		c0.03	c0.26	0.24	
v/s Ratio Perm			0.24			
v/c Ratio	0.28		0.35	0.39	0.35	
Uniform Delay, d1	35.0		2.7	5.5	5.3	
Progression Factor	1.00		1.49	1.17	1.00	
Incremental Delay, d2	0.6		0.6	0.4	0.2	
Delay (s)	35.6		4.6	6.9	5.6	
Level of Service	D		A	A	A	
Approach Delay (s)	35.6			6.7	5.6	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	7.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	101	30	87	326	1	1
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	110	33	95	354	1	1
Pedestrians	7			7	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	533			360		
pX, platoon unblocked						
vC, conflicting volume			144		679	135
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			144		679	135
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		100	100
cM capacity (veh/h)			1436		387	907

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	142	449	2
Volume Left	0	95	1
Volume Right	33	0	1
cSH	1700	1436	542
Volume to Capacity	0.08	0.07	0.00
Queue Length 95th (ft)	0	5	0
Control Delay (s)	0.0	2.1	11.7
Lane LOS		A	B
Approach Delay (s)	0.0	2.1	11.7
Approach LOS			B

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	128	103	138	190	2	2
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	139	112	150	207	2	2
Pedestrians	24			24	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	2			2	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	470			423		
pX, platoon unblocked						
vC, conflicting volume			253		728	221
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			253		728	221
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			89		99	100
cM capacity (veh/h)			1310		338	801

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	251	357	4
Volume Left	0	150	2
Volume Right	112	0	2
cSH	1700	1310	476
Volume to Capacity	0.15	0.11	0.01
Queue Length 95th (ft)	0	10	1
Control Delay (s)	0.0	4.0	12.6
Lane LOS		A	B
Approach Delay (s)	0.0	4.0	12.6
Approach LOS			B

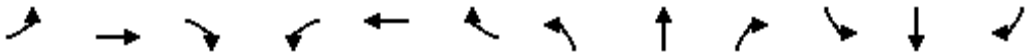
Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	93	8	39	396	25	15
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	1.00	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	101	8	42	430	27	16
Pedestrians	16			16	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	80			813		
pX, platoon unblocked						
vC, conflicting volume			111		638	123
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			111		638	123
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		94	98
cM capacity (veh/h)			1476		422	914

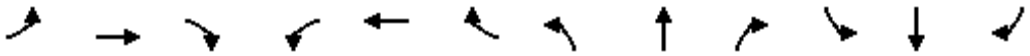
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	109	473	14	14	8	8
Volume Left	0	42	14	14	0	0
Volume Right	8	0	0	0	8	8
cSH	1700	1476	422	422	914	914
Volume to Capacity	0.06	0.03	0.03	0.03	0.01	0.01
Queue Length 95th (ft)	0	2	2	2	1	1
Control Delay (s)	0.0	0.9	13.8	13.8	9.0	9.0
Lane LOS		A	B	B	A	A
Approach Delay (s)	0.0	0.9	12.0			
Approach LOS			B			

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		



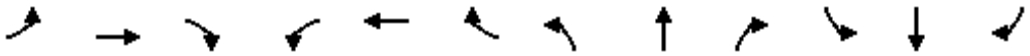
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	190	56	50	51	0	0	0	0	154	400	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.91	
Frpb, ped/bikes		1.00	0.85		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.94						0.97	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.98						0.99	
Satd. Flow (prot)		1863	1341		1712						4795	
Flt Permitted		1.00	1.00		0.63						0.99	
Satd. Flow (perm)		1863	1341		1100						4795	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	207	61	54	55	0	0	0	0	167	435	33
RTOR Reduction (vph)	0	0	50	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	207	11	0	109	0	0	0	0	0	632	0
Confl. Peds. (#/hr)	106		106	134		134	73		73	52		52
Confl. Bikes (#/hr)			3			7			21			1
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		14.8	14.8		14.8						57.2	
Effective Green, g (s)		14.8	14.8		14.8						57.2	
Actuated g/C Ratio		0.18	0.18		0.18						0.72	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		345	248		204						3428	
v/s Ratio Prot		c0.11										
v/s Ratio Perm			0.01		0.10						0.13	
v/c Ratio		0.60	0.05		0.53						0.18	
Uniform Delay, d1		29.9	26.8		29.5						3.7	
Progression Factor		1.00	1.00		1.00						0.71	
Incremental Delay, d2		2.9	0.1		2.7						0.1	
Delay (s)		32.8	26.9		32.2						2.8	
Level of Service		C	C		C						A	
Approach Delay (s)		31.5			32.2			0.0			2.8	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



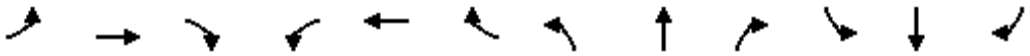
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	172	4	0	39	34	10	202	81	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.94			1.00	0.87			
Flpb, ped/bikes		1.00			1.00			1.00	1.00			
Frt		1.00			0.94			1.00	0.85			
Flt Protected		1.00			1.00			1.00	1.00			
Satd. Flow (prot)		1847			1643			3514	1376			
Flt Permitted		0.99			1.00			1.00	1.00			
Satd. Flow (perm)		1839			1643			3514	1376			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	187	4	0	42	37	11	220	88	0	0	0
RTOR Reduction (vph)	0	1	0	0	13	0	0	0	74	0	0	0
Lane Group Flow (vph)	0	198	0	0	66	0	0	231	14	0	0	0
Confl. Peds. (#/hr)	58		58	134		134	73		73	87		87
Confl. Bikes (#/hr)						5			5			2
Turn Type	Perm						Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2						1		1			
Actuated Green, G (s)		29.7			29.7			7.3	7.3			
Effective Green, g (s)		29.7			29.7			7.3	7.3			
Actuated g/C Ratio		0.66			0.66			0.16	0.16			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)		1214			1084			570	223			
v/s Ratio Prot					0.04							
v/s Ratio Perm		c0.11						0.07	0.01			
v/c Ratio		0.16			0.06			0.41	0.06			
Uniform Delay, d1		2.9			2.7			16.9	16.0			
Progression Factor		0.89			1.00			1.00	1.00			
Incremental Delay, d2		0.3			0.1			0.2	0.0			
Delay (s)		2.9			2.8			17.1	16.0			
Level of Service		A			A			B	B			
Approach Delay (s)		2.9			2.8			16.8			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	10.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	34.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



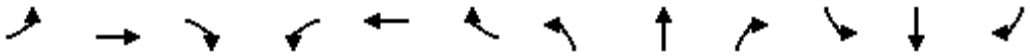
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	114	17	24	0	35	0	319	38	42	354	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	
Flpb, ped/bikes	0.99	1.00			1.00			1.00			1.00	
Frt	1.00	0.98			0.92			0.98			1.00	
Flt Protected	0.95	1.00			0.98			1.00			0.99	
Satd. Flow (prot)	1751	1822			1649			3455			3508	
Flt Permitted	0.72	1.00			0.89			1.00			0.88	
Satd. Flow (perm)	1319	1822			1499			3455			3103	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	124	18	26	0	38	0	347	41	46	385	0
RTOR Reduction (vph)	0	10	0	0	22	0	0	20	0	0	0	0
Lane Group Flow (vph)	12	132	0	0	42	0	0	368	0	0	431	0
Confl. Peds. (#/hr)	16		16	17		17	43		43	44		44
Confl. Bikes (#/hr)			2						2			16
Turn Type	Perm			Perm						Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2						4		
Actuated Green, G (s)	19.0	19.0			19.0			17.0			17.0	
Effective Green, g (s)	19.0	19.0			19.0			17.0			17.0	
Actuated g/C Ratio	0.42	0.42			0.42			0.38			0.38	
Clearance Time (s)	4.0	4.0			4.0			5.0			5.0	
Vehicle Extension (s)	2.0	2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)	557	769			633			1305			1172	
v/s Ratio Prot		c0.07						0.11				
v/s Ratio Perm	0.01				0.03						c0.14	
v/c Ratio	0.02	0.17			0.07			0.28			0.37	
Uniform Delay, d1	7.6	8.1			7.7			9.8			10.1	
Progression Factor	1.00	1.00			1.22			1.00			1.00	
Incremental Delay, d2	0.1	0.5			0.2			0.5			0.9	
Delay (s)	7.7	8.6			9.6			10.3			11.0	
Level of Service	A	A			A			B			B	
Approach Delay (s)		8.5			9.6			10.3			11.0	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	10.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	77	20	12	196	99	34	458	24	158	163	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5		4.5	4.5	
Lane Util. Factor		0.95			0.95			0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99			1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00			1.00		1.00	1.00	
Frt		0.97			0.95			0.99		1.00	0.96	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3401			3325			3497		1769	3383	
Flt Permitted		0.86			0.94			0.92		0.38	1.00	
Satd. Flow (perm)		2947			3133			3237		712	3383	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	84	22	13	209	108	37	467	26	172	177	63
RTOR Reduction (vph)	0	18	0	0	90	0	0	5	0	0	20	0
Lane Group Flow (vph)	0	109	0	0	240	0	0	526	0	172	220	0
Confl. Peds. (#/hr)	10		10	19		19	5		5	4		4
Confl. Bikes (#/hr)			4			1			3			9
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		9.9			9.9			30.0		41.1	41.1	
Effective Green, g (s)		9.9			9.9			30.0		41.1	41.1	
Actuated g/C Ratio		0.16			0.16			0.50		0.68	0.68	
Clearance Time (s)		4.5			4.5			4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		486			517			1619		604	2317	
v/s Ratio Prot										c0.03	0.07	
v/s Ratio Perm		0.04			c0.08			c0.16		0.16		
v/c Ratio		0.22			0.46			0.32		0.28	0.10	
Uniform Delay, d1		21.7			22.7			9.0		3.6	3.2	
Progression Factor		1.00			0.99			1.00		1.00	1.00	
Incremental Delay, d2		0.2			0.6			0.5		0.3	0.1	
Delay (s)		22.0			23.1			9.5		3.9	3.3	
Level of Service		C			C			A		A	A	
Approach Delay (s)		22.0			23.1			9.5			3.5	
Approach LOS		C			C			A			A	

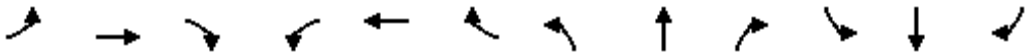
Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	152	61	48	154	111	60	478	68	63	413	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.98			0.96			0.99			1.00	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.96			0.95			0.98			0.99	
Flt Protected		1.00			0.99			1.00			0.99	
Satd. Flow (prot)		3318			3149			3412			4981	
Flt Permitted		0.94			0.88			0.86			0.80	
Satd. Flow (perm)		3130			2791			2958			4009	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	165	66	52	167	121	65	514	74	68	449	28
RTOR Reduction (vph)	0	42	0	0	77	0	0	17	0	0	10	0
Lane Group Flow (vph)	0	198	0	0	263	0	0	636	0	0	535	0
Confl. Peds. (#/hr)	58		58	99		99	72		72	49		49
Confl. Bikes (#/hr)			7			33			10			6
Turn Type	Perm			Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						6		
Actuated Green, G (s)		22.0			22.0			29.0			18.0	
Effective Green, g (s)		22.0			22.0			29.0			18.0	
Actuated g/C Ratio		0.37			0.37			0.48			0.30	
Clearance Time (s)		4.0			4.0			5.0			5.0	
Lane Grp Cap (vph)		1148			1023			1483			1203	
v/s Ratio Prot								c0.05				
v/s Ratio Perm		0.06			c0.09			c0.16			0.13	
v/c Ratio		0.17			0.26			0.43			0.44	
Uniform Delay, d1		12.8			13.3			10.1			17.0	
Progression Factor		0.85			1.00			1.00			1.00	
Incremental Delay, d2		0.3			0.6			0.9			1.2	
Delay (s)		11.2			13.9			11.0			18.2	
Level of Service		B			B			B			B	
Approach Delay (s)		11.2			13.9			11.0			18.2	
Approach LOS		B			B			B			B	

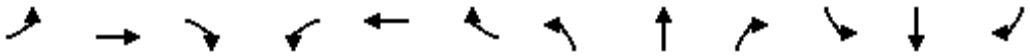
Intersection Summary			
HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



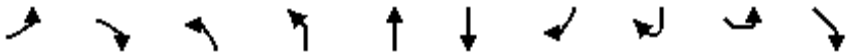
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	277	0	0	252	86	32	190	94	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.91	1.00			
Frpb, ped/bikes		1.00			1.00	0.93		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3512			3366	1337		5008	1456			
Flt Permitted		0.91			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3225			3366	1337		5008	1456			
Peak-hour factor, PHF	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	301	0	0	274	93	35	207	102	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	17	0	0	90	0	0	0
Lane Group Flow (vph)	0	331	0	0	282	67	0	242	12	0	0	0
Confl. Peds. (#/hr)	40		40	45		45	51		51	207		207
Confl. Bikes (#/hr)			5			6			8			12
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		63.8			63.8	63.8		9.2	9.2			
Effective Green, g (s)		63.8			63.8	63.8		9.2	9.2			
Actuated g/C Ratio		0.80			0.80	0.80		0.12	0.12			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2572			2684	1066		576	167			
v/s Ratio Prot					0.08							
v/s Ratio Perm		c0.10				0.05		0.05	0.01			
v/c Ratio		0.13			0.11	0.06		0.42	0.07			
Uniform Delay, d1		1.8			1.8	1.7		32.9	31.6			
Progression Factor		1.00			0.26	0.01		1.00	1.00			
Incremental Delay, d2		0.1			0.1	0.1		0.5	0.2			
Delay (s)		1.9			0.5	0.1		33.4	31.8			
Level of Service		A			A	A		C	C			
Approach Delay (s)		1.9			0.4			32.9			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



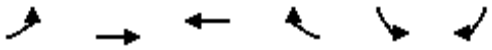
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	226	150	158	249	0	0	0	0	67	340	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	0.91	0.91						0.91	
Frpb, ped/bikes		1.00	0.90	1.00	1.00						0.94	
Flpb, ped/bikes		1.00	1.00	1.00	0.99						0.96	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		3539	1422	1610	3350						4452	
Flt Permitted		1.00	1.00	0.95	0.94						0.99	
Satd. Flow (perm)		3539	1422	1610	3148						4452	
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	246	158	172	271	0	0	0	0	73	370	97
RTOR Reduction (vph)	0	0	112	0	0	0	0	0	0	0	43	0
Lane Group Flow (vph)	0	246	46	143	300	0	0	0	0	0	497	0
Confl. Peds. (#/hr)	53		53	86		86	105		105	331		331
Confl. Bikes (#/hr)			16			2			1			14
Turn Type			Perm	Prot						Perm		
Protected Phases		2		1	6						4	
Permitted Phases			2							4		
Actuated Green, G (s)		21.0	21.0	16.0	41.0						31.0	
Effective Green, g (s)		21.0	21.0	16.0	41.0						31.0	
Actuated g/C Ratio		0.26	0.26	0.20	0.51						0.39	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		929	373	322	1654						1725	
v/s Ratio Prot		c0.07		c0.09	0.04							
v/s Ratio Perm			0.03		0.06						0.11	
v/c Ratio		0.26	0.12	0.44	0.18						0.29	
Uniform Delay, d1		23.4	22.5	28.1	10.5						16.9	
Progression Factor		1.09	1.76	1.26	1.75						1.12	
Incremental Delay, d2		0.7	0.7	0.3	0.0						0.0	
Delay (s)		26.3	40.2	35.7	18.3						18.9	
Level of Service		C	D	D	B						B	
Approach Delay (s)		31.7			23.9			0.0			18.9	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	24.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL2	NBL	NBT	SBT	SBR	SBR2	SEL	SER
Lane Configurations										
Volume (vph)	122	171	61	30	318	400	337	59	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0				4.0	4.0	4.0	4.0		
Lane Util. Factor	0.94				0.95	0.91	0.91	1.00		
Frpb, ped/bikes	1.00				1.00	1.00	1.00	1.00		
Flpb, ped/bikes	1.00				1.00	1.00	1.00	1.00		
Frt	0.91				1.00	0.97	0.85	0.85		
Flt Protected	0.98				0.99	1.00	1.00	1.00		
Satd. Flow (prot)	4696				3500	3286	1441	1583		
Flt Permitted	0.98				0.99	1.00	1.00	1.00		
Satd. Flow (perm)	4696				3500	3286	1441	1583		
Peak-hour factor, PHF	0.92	0.92	0.94	0.94	0.96	0.92	0.96	0.96	0.92	0.92
Adj. Flow (vph)	133	186	65	32	331	435	351	61	0	0
RTOR Reduction (vph)	142	0	0	0	0	0	0	24	0	0
Lane Group Flow (vph)	177	0	0	0	428	547	239	37	0	0
Confl. Peds. (#/hr)								102		
Confl. Bikes (#/hr)					6			10		
Turn Type			Split	Split			custom	custom		
Protected Phases	1		8	8	8	2	6	6		
Permitted Phases	1						6			
Actuated Green, G (s)	19.0				24.0	25.0	48.0	48.0		
Effective Green, g (s)	19.0				24.0	25.0	48.0	48.0		
Actuated g/C Ratio	0.24				0.30	0.31	0.60	0.60		
Clearance Time (s)	4.0				4.0	4.0	4.0	4.0		
Vehicle Extension (s)	2.0				2.0	2.0	2.0	2.0		
Lane Grp Cap (vph)	1115				1050	1027	865	950		
v/s Ratio Prot	0.04				c0.12	c0.17	c0.17	0.02		
v/s Ratio Perm										
v/c Ratio	0.16				0.41	0.53	0.28	0.04		
Uniform Delay, d1	24.2				22.3	22.7	7.7	6.6		
Progression Factor	2.93				1.00	0.66	0.69	0.36		
Incremental Delay, d2	0.3				0.1	0.3	0.8	0.1		
Delay (s)	71.1				22.4	15.3	6.1	2.4		
Level of Service	E				C	B	A	A		
Approach Delay (s)	71.1				22.4	11.8			0.0	
Approach LOS	E				C	B			A	

Intersection Summary			
HCM Average Control Delay	26.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	34	293	398	0	0	37
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	318	433	0	0	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		431	98			
pX, platoon unblocked						
vC, conflicting volume	433				613	216
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	433				613	216
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				100	95
cM capacity (veh/h)	1123				410	788

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	SB 1
Volume Total	37	106	106	106	216	216	40
Volume Left	37	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	40
cSH	1123	1700	1700	1700	1700	1700	788
Volume to Capacity	0.03	0.06	0.06	0.06	0.13	0.13	0.05
Queue Length 95th (ft)	3	0	0	0	0	0	4
Control Delay (s)	8.3	0.0	0.0	0.0	0.0	0.0	9.8
Lane LOS	A						A
Approach Delay (s)	0.9				0.0		9.8
Approach LOS							A

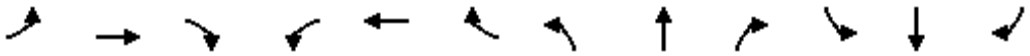
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	21.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	391	29	445	587	143	769
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.91		0.97	0.91	0.97	0.91
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	0.89	0.85
Flt Protected	1.00		0.95	1.00	0.99	1.00
Satd. Flow (prot)	5032		3433	5085	3179	1441
Flt Permitted	1.00		0.95	1.00	0.99	1.00
Satd. Flow (perm)	5032		3433	5085	3179	1441
Peak-hour factor, PHF	0.92	0.92	0.96	0.92	0.92	0.97
Adj. Flow (vph)	425	32	464	638	155	793
RTOR Reduction (vph)	11	0	0	0	331	330
Lane Group Flow (vph)	446	0	464	638	221	66
Confl. Bikes (#/hr)				2		
Turn Type			Prot			Perm
Protected Phases	8		7	4	6	
Permitted Phases						6
Actuated Green, G (s)	33.0		20.6	58.6	13.4	13.4
Effective Green, g (s)	33.0		20.6	58.6	13.4	13.4
Actuated g/C Ratio	0.41		0.26	0.73	0.17	0.17
Clearance Time (s)	5.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2076		884	3725	532	241
v/s Ratio Prot	c0.09		c0.14	0.13	c0.07	
v/s Ratio Perm						0.05
v/c Ratio	0.22		0.52	0.17	0.42	0.28
Uniform Delay, d1	15.2		25.5	3.3	29.8	29.1
Progression Factor	0.59		0.80	1.29	1.00	1.00
Incremental Delay, d2	0.2		2.1	0.1	0.5	0.6
Delay (s)	9.2		22.5	4.3	30.3	29.7
Level of Service	A		C	A	C	C
Approach Delay (s)	9.2			12.0	30.1	
Approach LOS	A			B	C	

Intersection Summary			
HCM Average Control Delay	18.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	82	110	0	0	0	0	0	2982	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0						6.0	
Lane Util. Factor				1.00	0.95						0.86	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				1.00	1.00						1.00	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1770	3539						6403	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1770	3539						6403	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92
Adj. Flow (vph)	0	0	0	88	120	0	0	0	0	0	3106	13
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	88	120	0	0	0	0	0	3119	0
Confl. Peds. (#/hr)												14
Confl. Bikes (#/hr)			1									
Turn Type				Perm								
Protected Phases					4						6	
Permitted Phases				4								
Actuated Green, G (s)				9.2	9.2						56.8	
Effective Green, g (s)				9.2	9.2						56.8	
Actuated g/C Ratio				0.12	0.12						0.76	
Clearance Time (s)				3.0	3.0						6.0	
Vehicle Extension (s)				3.0	3.0						4.0	
Lane Grp Cap (vph)				217	434						4849	
v/s Ratio Prot					0.03						c0.49	
v/s Ratio Perm				c0.05								
v/c Ratio				0.41	0.28						0.64	
Uniform Delay, d1				30.4	29.9						4.3	
Progression Factor				1.00	1.00						0.95	
Incremental Delay, d2				5.5	1.6						0.3	
Delay (s)				35.9	31.5						4.4	
Level of Service				D	C						A	
Approach Delay (s)		0.0			33.3			0.0			4.4	
Approach LOS		A			C			A			A	

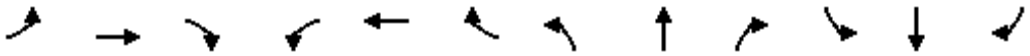
Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	219	1172	528	68	486	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0		5.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.98		0.97	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	5085	4971		3377	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1770	5085	4971		3377	
Peak-hour factor, PHF	0.92	0.96	0.95	0.92	0.94	0.92
Adj. Flow (vph)	238	1221	556	74	517	116
RTOR Reduction (vph)	50	0	26	0	0	0
Lane Group Flow (vph)	188	1221	604	0	633	0
Confl. Peds. (#/hr)				22		
Confl. Bikes (#/hr)				2		
Turn Type	Perm					
Protected Phases		4	2		1	
Permitted Phases	4					
Actuated Green, G (s)	33.7	33.7	15.0		14.3	
Effective Green, g (s)	33.7	33.7	15.0		14.3	
Actuated g/C Ratio	0.45	0.45	0.20		0.19	
Clearance Time (s)	3.0	3.0	4.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	795	2285	994		644	
v/s Ratio Prot		c0.24	c0.12		c0.19	
v/s Ratio Perm	0.11					
v/c Ratio	0.24	0.53	0.61		0.98	
Uniform Delay, d1	12.7	15.0	27.3		30.2	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.7	0.9	1.1		31.0	
Delay (s)	13.4	15.9	28.4		61.2	
Level of Service	B	B	C		E	
Approach Delay (s)		15.5	28.4		61.2	
Approach LOS		B	C		E	

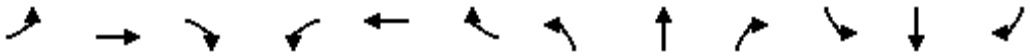
Intersection Summary			
HCM Average Control Delay	29.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



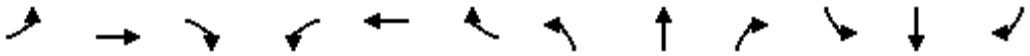
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	154	241	314	316	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	5.0	5.0				
Lane Util. Factor					0.91	0.91	0.81	0.81				
Frpb, ped/bikes					0.99	0.99	1.00	1.00				
Flpb, ped/bikes					1.00	1.00	0.99	1.00				
Frt					0.93	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	0.98				
Satd. Flow (prot)					3150	1423	1425	5925				
Flt Permitted					1.00	1.00	0.95	0.98				
Satd. Flow (perm)					3150	1423	1425	5925				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	164	262	341	343	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	48	50	135	136	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	244	84	35	378	0	0	0	0
Confl. Peds. (#/hr)							5		5			
Confl. Bikes (#/hr)			6			2			5			
Turn Type						Perm	Perm					
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					37.6	37.6	12.4	12.4				
Effective Green, g (s)					37.6	37.6	12.4	12.4				
Actuated g/C Ratio					0.63	0.63	0.21	0.21				
Clearance Time (s)					5.0	5.0	5.0	5.0				
Vehicle Extension (s)					3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)					1974	892	295	1225				
v/s Ratio Prot					c0.08							
v/s Ratio Perm						0.06	0.02	0.06				
v/c Ratio					0.12	0.09	0.12	0.31				
Uniform Delay, d1					4.5	4.4	19.4	20.2				
Progression Factor					4.13	7.37	1.00	1.00				
Incremental Delay, d2					0.1	0.2	0.2	0.1				
Delay (s)					18.8	32.9	19.5	20.3				
Level of Service					B	C	B	C				
Approach Delay (s)		0.0			23.3			20.1			0.0	
Approach LOS		A			C			C			A	

Intersection Summary			
HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	28.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	170	37	0	0	0	0	0	0	1085	1218	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		0.95								0.86	0.86	
Frpb, ped/bikes		1.00								1.00	1.00	
Flpb, ped/bikes		1.00								1.00	1.00	
Frt		0.97								1.00	1.00	
Flt Protected		1.00								0.95	0.99	
Satd. Flow (prot)		3429								1522	4722	
Flt Permitted		1.00								0.95	0.99	
Satd. Flow (perm)		3429								1522	4722	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	183	40	0	0	0	0	0	0	1179	1324	37
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	345	63	0
Lane Group Flow (vph)	0	216	0	0	0	0	0	0	0	280	1852	0
Confl. Peds. (#/hr)	6		6									
Confl. Bikes (#/hr)			1						1			1
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		62.0								50.0	50.0	
Effective Green, g (s)		62.0								50.0	50.0	
Actuated g/C Ratio		0.52								0.42	0.42	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		1772								634	1968	
v/s Ratio Prot		c0.06										
v/s Ratio Perm										0.18	0.39	
v/c Ratio		0.12								0.44	0.94	
Uniform Delay, d1		15.0								25.0	33.6	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.1								2.2	10.5	
Delay (s)		15.1								27.3	44.1	
Level of Service		B								C	D	
Approach Delay (s)		15.1			0.0			0.0			39.9	
Approach LOS		B			A			A			D	

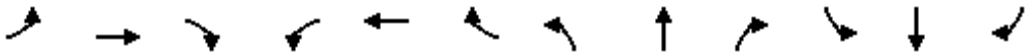
Intersection Summary			
HCM Average Control Delay	37.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	307	0	0	644	565	136	594	27	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Util. Factor		0.95			0.95	1.00		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.98		1.00	0.97			
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3515			3539	1548		3491	1531			
Flt Permitted		0.79			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		2782			3539	1548		3491	1531			
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	334	0	0	700	589	148	619	29	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	147	0	0	14	0	0	0
Lane Group Flow (vph)	0	377	0	0	700	442	0	767	15	0	0	0
Confl. Peds. (#/hr)	35		35	6		6	26		26	2		2
Confl. Bikes (#/hr)			33			6		10				5
Turn Type	Perm			Perm		Perm	Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4			8		8	2		2			
Actuated Green, G (s)		18.0			18.0	18.0		32.0	32.0			
Effective Green, g (s)		18.0			18.0	18.0		32.0	32.0			
Actuated g/C Ratio		0.30			0.30	0.30		0.53	0.53			
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Grp Cap (vph)		835			1062	464		1862	817			
v/s Ratio Prot					0.20							
v/s Ratio Perm		0.14				c0.29		0.22	0.01			
v/c Ratio		0.45			0.66	0.95		0.41	0.02			
Uniform Delay, d1		17.0			18.3	20.6		8.4	6.6			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		1.8			3.2	31.5		0.7	0.0			
Delay (s)		18.8			21.5	52.1		9.0	6.6			
Level of Service		B			C	D		A	A			
Approach Delay (s)		18.8			35.5			9.0			0.0	
Approach LOS		B			D			A			A	

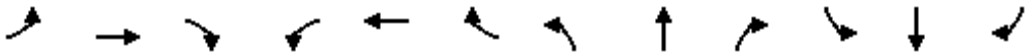
Intersection Summary			
HCM Average Control Delay	24.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



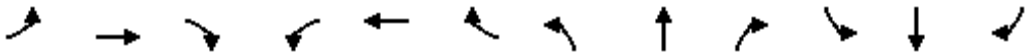
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	274	46	25	731	0	0	0	0	59	362	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0					4.0	4.0	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frpb, ped/bikes		0.99			1.00					1.00	1.00	
Flpb, ped/bikes		1.00			1.00					0.99	1.00	
Frt		0.98			1.00					1.00	0.99	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		3441			3531					1746	3505	
Flt Permitted		1.00			0.94					0.95	1.00	
Satd. Flow (perm)		3441			3321					1746	3505	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.96	0.92
Adj. Flow (vph)	0	298	50	27	761	0	0	0	0	64	377	22
RTOR Reduction (vph)	0	29	0	0	0	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	319	0	0	788	0	0	0	0	64	390	0
Confl. Peds. (#/hr)	36		36	28		28	18		18	16		16
Confl. Bikes (#/hr)			4			10			3			1
Turn Type				Perm						Perm		
Protected Phases		8			4						6	
Permitted Phases				4						6		
Actuated Green, G (s)		19.0			19.0					19.0	19.0	
Effective Green, g (s)		19.0			19.0					19.0	19.0	
Actuated g/C Ratio		0.42			0.42					0.42	0.42	
Clearance Time (s)		3.0			3.0					4.0	4.0	
Vehicle Extension (s)		2.0			2.0					2.0	2.0	
Lane Grp Cap (vph)		1453			1402					737	1480	
v/s Ratio Prot		0.09									c0.11	
v/s Ratio Perm					c0.24					0.04		
v/c Ratio		0.22			0.56					0.09	0.26	
Uniform Delay, d1		8.3			9.8					7.8	8.5	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		0.3			1.6					0.2	0.4	
Delay (s)		8.6			11.5					8.0	8.9	
Level of Service		A			B					A	A	
Approach Delay (s)		8.6			11.5			0.0			8.8	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	166	12	8	400	99	66	415	27	29	74	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.97			0.99			0.97	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		3460			3387			3467			3344	
Flt Permitted		0.83			0.95			0.90			0.82	
Satd. Flow (perm)		2907			3224			3129			2777	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	180	13	9	435	108	72	451	29	32	80	30
RTOR Reduction (vph)	0	6	0	0	40	0	0	10	0	0	20	0
Lane Group Flow (vph)	0	236	0	0	512	0	0	542	0	0	122	0
Confl. Peds. (#/hr)	30		30	55		55	41		41	40		40
Confl. Bikes (#/hr)			7			19			6			4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		23.2			23.2			14.3			14.3	
Effective Green, g (s)		23.2			23.2			14.3			14.3	
Actuated g/C Ratio		0.52			0.52			0.32			0.32	
Clearance Time (s)		3.5			3.5			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1499			1662			994			882	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.16			c0.17			0.04	
v/c Ratio		0.16			0.31			0.55			0.14	
Uniform Delay, d1		5.7			6.3			12.7			11.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			0.5			0.6			0.1	
Delay (s)		6.0			6.8			13.3			11.0	
Level of Service		A			A			B			B	
Approach Delay (s)		6.0			6.8			13.3			11.0	
Approach LOS		A			A			B			B	

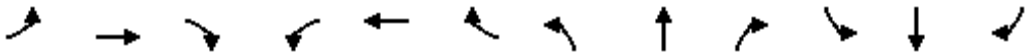
Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	415	1502	0	0	0	0	0	372	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.86						0.91	
Frpb, ped/bikes					1.00						0.99	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					6291						4912	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					6291						4912	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.98	0.92
Adj. Flow (vph)	0	0	0	451	1548	0	0	0	0	0	380	83
RTOR Reduction (vph)	0	0	0	0	88	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	0	1911	0	0	0	0	0	460	0
Confl. Peds. (#/hr)	48		48	30		30	54		54	27		27
Confl. Bikes (#/hr)			9			5			4			1
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2726						2169	
v/s Ratio Prot											c0.09	
v/s Ratio Perm					0.30							
v/c Ratio					0.70						0.21	
Uniform Delay, d1					13.8						10.3	
Progression Factor					0.48						1.00	
Incremental Delay, d2					1.3						0.2	
Delay (s)					7.9						10.5	
Level of Service					A						B	
Approach Delay (s)		0.0			7.9			0.0			10.5	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

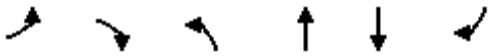
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1684	78	324	786	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5			4.0				
Lane Util. Factor					0.86			0.86				
Frpb, ped/bikes					1.00			1.00				
Flpb, ped/bikes					1.00			0.98				
Frt					0.99			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6341			6163				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6341			6163				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.93	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1736	85	348	854	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1811	0	0	1199	0	0	0	0
Confl. Peds. (#/hr)	102		102	84		84	84		84	168		168
Confl. Bikes (#/hr)			1									1
Turn Type							Perm					
Protected Phases					6			4				
Permitted Phases							4					
Actuated Green, G (s)					29.9			20.6				
Effective Green, g (s)					29.9			20.6				
Actuated g/C Ratio					0.50			0.34				
Clearance Time (s)					5.5			4.0				
Lane Grp Cap (vph)					3160			2116				
v/s Ratio Prot					c0.29							
v/s Ratio Perm								0.19				
v/c Ratio					0.57			0.57				
Uniform Delay, d1					10.6			16.1				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.8			1.1				
Delay (s)					11.3			17.2				
Level of Service					B			B				
Approach Delay (s)		0.0			11.3			17.2			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

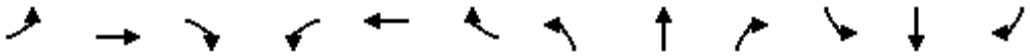
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	66	0	0	1062	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.99	0.92	0.92
Hourly flow rate (vph)	72	0	0	1073	0	0
Pedestrians	12					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1055	320	
pX, platoon unblocked						
vC, conflicting volume	280	12	12			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	280	12	12			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	100	100			
cM capacity (veh/h)	680	1055	1589			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	72	268	268	268	268
Volume Left	72	0	0	0	0
Volume Right	0	0	0	0	0
cSH	680	1700	1700	1700	1700
Volume to Capacity	0.11	0.16	0.16	0.16	0.16
Queue Length 95th (ft)	9	0	0	0	0
Control Delay (s)	10.9	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.9	0.0			
Approach LOS	B				

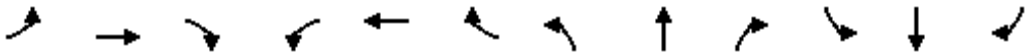
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	25.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	398	142	0	0	0	0	0	0	26	772	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5									5.5	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.96									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		6074									5074	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		6074									5074	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	0	433	154	0	0	0	0	0	0	28	813	0
RTOR Reduction (vph)	0	50	0	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	537	0	0	0	0	0	0	0	0	835	0
Confl. Peds. (#/hr)	32		32	21		21	23		23	17		17
Confl. Bikes (#/hr)			10			10			2			3
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		23.0									26.0	
Effective Green, g (s)		23.0									26.0	
Actuated g/C Ratio		0.38									0.43	
Clearance Time (s)		5.5									5.5	
Lane Grp Cap (vph)		2328									2199	
v/s Ratio Prot		c0.09										
v/s Ratio Perm											0.16	
v/c Ratio		0.23									0.38	
Uniform Delay, d1		12.5									11.5	
Progression Factor		0.77									1.16	
Incremental Delay, d2		0.2									0.4	
Delay (s)		9.9									13.9	
Level of Service		A									B	
Approach Delay (s)		9.9			0.0			0.0			13.9	
Approach LOS		A			A			A			B	

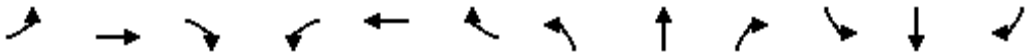
Intersection Summary			
HCM Average Control Delay	12.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	86	402	0	0	0	0	0	328	59	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.86						0.86				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6305						6232				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6305						6232				
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	432	0	0	0	0	0	357	64	0	0	0
RTOR Reduction (vph)	0	79	0	0	0	0	0	17	0	0	0	0
Lane Group Flow (vph)	0	446	0	0	0	0	0	404	0	0	0	0
Confl. Peds. (#/hr)	46		46	56		56	21		21	52		52
Confl. Bikes (#/hr)			2			2			5			
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		9.0						44.0				
Effective Green, g (s)		9.0						44.0				
Actuated g/C Ratio		0.15						0.73				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		946						4570				
v/s Ratio Prot								c0.06				
v/s Ratio Perm		0.07										
v/c Ratio		0.47						0.09				
Uniform Delay, d1		23.3						2.3				
Progression Factor		1.01						1.00				
Incremental Delay, d2		0.1						0.0				
Delay (s)		23.6						2.3				
Level of Service		C						A				
Approach Delay (s)		23.6			0.0			2.3			0.0	
Approach LOS		C			A			A			A	

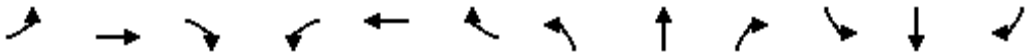
Intersection Summary			
HCM Average Control Delay	14.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.15		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	568	0	0	0	0	0	1104	291	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		0.86						0.91				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.97				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6328						4904				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6328						4904				
Peak-hour factor, PHF	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	145	617	0	0	0	0	0	1200	316	0	0	0
RTOR Reduction (vph)	0	10	0	0	0	0	0	74	0	0	0	0
Lane Group Flow (vph)	0	752	0	0	0	0	0	1442	0	0	0	0
Confl. Peds. (#/hr)	22		22	59		59	12		12	5		5
Confl. Bikes (#/hr)			6			4			2			1
Turn Type	Perm											
Protected Phases		1						2				
Permitted Phases	1											
Actuated Green, G (s)		18.0						18.0				
Effective Green, g (s)		18.0						18.0				
Actuated g/C Ratio		0.40						0.40				
Clearance Time (s)		4.5						4.5				
Lane Grp Cap (vph)		2531						1962				
v/s Ratio Prot								c0.29				
v/s Ratio Perm		0.12										
v/c Ratio		0.30						0.74				
Uniform Delay, d1		9.2						11.5				
Progression Factor		0.78						0.75				
Incremental Delay, d2		0.3						1.9				
Delay (s)		7.4						10.5				
Level of Service		A						B				
Approach Delay (s)		7.4			0.0			10.5			0.0	
Approach LOS		A			A			B			A	

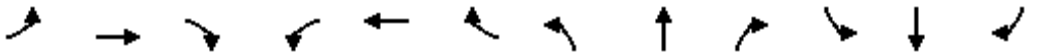
Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



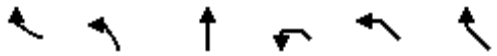
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	552	282	0	0	0	0	0	0	147	616	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									3.0	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.95									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6051									5027	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6051									5027	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.92
Adj. Flow (vph)	0	600	307	0	0	0	0	0	0	160	629	0
RTOR Reduction (vph)	0	95	0	0	0	0	0	0	0	0	82	0
Lane Group Flow (vph)	0	812	0	0	0	0	0	0	0	0	707	0
Confl. Peds. (#/hr)	4		4	10		10	8		8	11		11
Confl. Bikes (#/hr)			1						7			2
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		18.0									20.0	
Effective Green, g (s)		18.0									20.0	
Actuated g/C Ratio		0.40									0.44	
Clearance Time (s)		4.0									3.0	
Vehicle Extension (s)		2.0									2.0	
Lane Grp Cap (vph)		2420									2234	
v/s Ratio Prot		c0.13										
v/s Ratio Perm											0.14	
v/c Ratio		0.34									0.32	
Uniform Delay, d1		9.4									8.1	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.4									0.4	
Delay (s)		9.7									8.5	
Level of Service		A									A	
Approach Delay (s)		9.7			0.0			0.0			8.5	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	24	348	53	226	282	0	0	167	1777
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.95		1.00			1.00	0.98
Flpb, ped/bikes				0.98	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1736	1863	1503		1821			1863	1558
Flt Permitted				0.95	1.00	1.00		0.77			1.00	1.00
Satd. Flow (perm)				1736	1863	1503		1436			1863	1558
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.95
Adj. Flow (vph)	0	0	0	26	362	58	246	307	0	0	182	1871
RTOR Reduction (vph)	0	0	0	0	0	42	0	0	0	0	0	94
Lane Group Flow (vph)	0	0	0	26	362	16	0	553	0	0	182	1777
Confl. Peds. (#/hr)	1		1	23		23	2		2	5		5
Confl. Bikes (#/hr)			2									
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					1			2			2	
Permitted Phases				1		1	2					2
Actuated Green, G (s)				12.2	12.2	12.2		21.8			21.8	21.8
Effective Green, g (s)				12.2	12.2	12.2		21.8			21.8	21.8
Actuated g/C Ratio				0.27	0.27	0.27		0.48			0.48	0.48
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				471	505	407		696			903	755
v/s Ratio Prot					c0.19						0.10	
v/s Ratio Perm				0.01		0.01		0.39				c1.14
v/c Ratio				0.06	0.72	0.04		0.79			0.20	2.35
Uniform Delay, d1				12.1	14.8	12.1		9.7			6.6	11.6
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.0	4.8	0.0		9.1			0.5	613.1
Delay (s)				12.2	19.7	12.1		18.8			7.1	624.7
Level of Service				B	B	B		B			A	F
Approach Delay (s)		0.0			18.2			18.8			569.9	
Approach LOS		A			B			B			F	

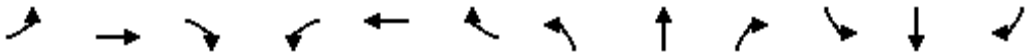
Intersection Summary			
HCM Average Control Delay	389.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.77		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	170.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBR	NBL	NBT	NWL2	NWL	NWR
Lane Configurations						
Volume (vph)	0	145	505	141	56	867
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5		2.0	2.0
Lane Util. Factor			0.95		0.97	0.91
Frpb, ped/bikes			1.00		1.00	1.00
Flpb, ped/bikes			1.00		1.00	1.00
Frt			1.00		0.90	0.85
Flt Protected			0.99		0.98	1.00
Satd. Flow (prot)			3497		3191	1441
Flt Permitted			0.99		0.98	1.00
Satd. Flow (perm)			3497		3191	1441
Peak-hour factor, PHF	0.92	0.92	0.96	0.92	0.92	0.92
Adj. Flow (vph)	0	158	526	153	61	942
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	684	0	685	471
Confl. Peds. (#/hr)	51	2				
Confl. Bikes (#/hr)	2					
Turn Type	custom	Perm		Perm		Perm
Protected Phases			3		1	
Permitted Phases	2	3		1		1
Actuated Green, G (s)			16.3		16.2	16.2
Effective Green, g (s)			16.3		16.2	16.2
Actuated g/C Ratio			0.36		0.36	0.36
Clearance Time (s)			3.5		2.0	2.0
Lane Grp Cap (vph)			1267		1149	519
v/s Ratio Prot						
v/s Ratio Perm			0.20		0.21	c0.33
v/c Ratio			0.54		0.60	0.91
Uniform Delay, d1			11.4		11.7	13.7
Progression Factor			0.81		1.00	1.00
Incremental Delay, d2			0.5		2.3	22.2
Delay (s)			9.7		14.0	35.9
Level of Service			A		B	D
Approach Delay (s)			9.7		22.9	
Approach LOS			A		C	

Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	356	648	179	0	0	0	0	271	80	4	138	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5			3.5	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		0.99						1.00			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		0.98						0.97			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4856						1800			1860	
Flt Permitted		0.99						1.00			0.99	
Satd. Flow (perm)		1850						1500			1600	
Peak-hour factor, PHF	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	375	704	195	0	0	0	0	295	87	4	150	0
RTOR Reduction (vph)	0	58	0	0	0	0	0	24	0	0	0	0
Lane Group Flow (vph)	0	1217	0	0	0	0	0	358	0	0	154	0
Confl. Peds. (#/hr)	14		14	52		52	1		1	4		4
Confl. Bikes (#/hr)			5			2						
Turn Type	Perm									Perm		
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		22.5						15.5			15.5	
Effective Green, g (s)		22.5						15.5			15.5	
Actuated g/C Ratio		0.50						0.34			0.34	
Clearance Time (s)		3.5						3.5			3.5	
Lane Grp Cap (vph)		925						620			551	
v/s Ratio Prot								c0.20				
v/s Ratio Perm		c0.66									0.10	
v/c Ratio		1.32						0.58			0.28	
Uniform Delay, d1		11.2						12.1			10.7	
Progression Factor		1.00						1.00			0.95	
Incremental Delay, d2		149.5						3.9			1.0	
Delay (s)		160.8						16.0			11.2	
Level of Service		F						B			B	
Approach Delay (s)		160.8			0.0			16.0			11.2	
Approach LOS		F			A			B			B	

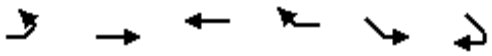
Intersection Summary			
HCM Average Control Delay	117.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	361	213	521	286	115	1094
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3351		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3351		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	392	232	566	311	125	1189
RTOR Reduction (vph)	0	171	75	0	0	0
Lane Group Flow (vph)	392	61	802	0	125	1189
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	23.5	23.5	40.6		13.9	58.5
Effective Green, g (s)	23.5	23.5	40.6		13.9	58.5
Actuated g/C Ratio	0.26	0.26	0.45		0.15	0.65
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	462	413	1512		273	2300
v/s Ratio Prot	c0.22		0.24		0.07	c0.34
v/s Ratio Perm		0.04				
v/c Ratio	0.85	0.15	0.53		0.46	0.52
Uniform Delay, d1	31.6	25.5	17.8		34.6	8.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	13.5	0.2	1.3		5.4	0.8
Delay (s)	45.1	25.7	19.2		40.1	9.1
Level of Service	D	C	B		D	A
Approach Delay (s)	37.9		19.2			12.1
Approach LOS	D		B			B

Intersection Summary			
HCM Average Control Delay	20.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	350	233	416	206	187	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3363		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3363		1770	1583
Peak-hour factor, PHF	0.94	0.96	0.92	0.92	0.92	0.92
Adj. Flow (vph)	372	243	452	224	203	216
RTOR Reduction (vph)	0	0	90	0	0	167
Lane Group Flow (vph)	372	243	586	0	203	49
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	14.2	31.5	13.3		11.7	11.7
Effective Green, g (s)	14.2	31.5	13.3		11.7	11.7
Actuated g/C Ratio	0.28	0.62	0.26		0.23	0.23
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	491	2177	874		404	362
v/s Ratio Prot	c0.21	0.07	c0.17		c0.11	
v/s Ratio Perm						0.03
v/c Ratio	0.76	0.11	0.67		0.50	0.14
Uniform Delay, d1	16.9	4.1	17.0		17.2	15.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.6	0.0	2.0		1.0	0.2
Delay (s)	23.5	4.1	19.0		18.2	15.9
Level of Service	C	A	B		B	B
Approach Delay (s)		15.8	19.0		17.0	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	51.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	671	706	221	0	424	213	282	1170	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.98			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4932			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4932			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	729	767	240	0	456	232	307	1272	0
RTOR Reduction (vph)	0	0	0	22	0	0	0	182	0	0	0
Lane Group Flow (vph)	0	0	0	1714	0	0	456	50	307	1272	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				36.5			17.5	17.5	39.0	60.5	
Effective Green, g (s)				36.5			17.5	17.5	39.0	60.5	
Actuated g/C Ratio				0.34			0.17	0.17	0.37	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1698			584	261	651	2020	
v/s Ratio Prot				c0.35			c0.13		0.17	c0.36	
v/s Ratio Perm								0.03			
v/c Ratio				1.16dl			0.78	0.19	0.47	0.63	
Uniform Delay, d1				34.8			42.4	38.2	25.6	15.2	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				24.2			10.0	1.6	2.4	1.5	
Delay (s)				59.0			52.4	39.8	28.1	16.7	
Level of Service				E			D	D	C	B	
Approach Delay (s)	0.0			59.0			48.1			18.9	
Approach LOS	A			E			D			B	

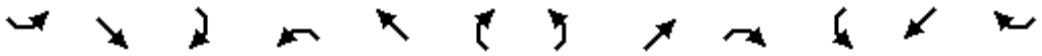
Intersection Summary			
HCM Average Control Delay	41.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	261	490	217	198	341	178	21	345	47	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.97	0.85		0.94				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3101	1441		3341				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3101	1441		3341				1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	284	533	236	215	363	193	23	375	51	500
RTOR Reduction (vph)	0	0	80	0	3	0	0	0	0	0
Lane Group Flow (vph)	256	703	229	0	576	0	0	0	426	500
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	30.6	30.6	30.6		34.1				28.8	66.4
Effective Green, g (s)	30.6	30.6	30.6		34.1				28.8	66.4
Actuated g/C Ratio	0.29	0.29	0.29		0.32				0.27	0.63
Clearance Time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	465	895	416		1075				481	2217
v/s Ratio Prot	0.16	c0.23	0.16		c0.17				c0.24	0.14
v/s Ratio Perm										
v/c Ratio	0.55	0.79	0.55		0.54				0.89	0.23
Uniform Delay, d1	31.9	34.7	31.9		29.5				37.0	8.6
Progression Factor	0.70	0.71	0.57		1.00				1.00	1.00
Incremental Delay, d2	0.8	2.7	0.9		1.9				17.5	0.2
Delay (s)	23.2	27.3	18.9		31.4				54.5	8.9
Level of Service	C	C	B		C				D	A
Approach Delay (s)		24.4			31.4					29.9
Approach LOS		C			C					C

Intersection Summary			
HCM Average Control Delay	27.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	2572	126	466	407	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.91	1.00		*0.88				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.97				
Satd. Flow (prot)					5085	1583		4789				
Flt Permitted					1.00	1.00		0.97				
Satd. Flow (perm)					5085	1583		4789				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.93	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2679	137	501	428	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	69	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2679	68	0	929	0	0	0	0
Turn Type						Perm	Perm					
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					38.0	38.0		34.0				
Effective Green, g (s)					38.0	38.0		34.0				
Actuated g/C Ratio					0.48	0.48		0.42				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					2415	752		2035				
v/s Ratio Prot					c0.53							
v/s Ratio Perm						0.04		0.19				
v/c Ratio					1.11	0.09		0.46				
Uniform Delay, d1					21.0	11.5		16.4				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					55.9	0.2		0.7				
Delay (s)					76.9	11.8		17.1				
Level of Service					E	B		B				
Approach Delay (s)		0.0			73.7			17.1			0.0	
Approach LOS		A			E			B			A	

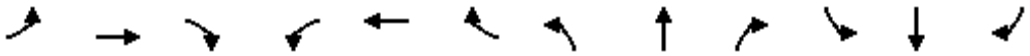
Intersection Summary			
HCM Average Control Delay	59.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	1189	1734	0	0	0	0	0	1210	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4759						3524	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4759						3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	0	0	1226	1885	0	0	0	0	0	1287	39
RTOR Reduction (vph)	0	0	0	2	2	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	758	2349	0	0	0	0	0	1323	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				46.0	46.0						26.0	
Effective Green, g (s)				46.0	46.0						26.0	
Actuated g/C Ratio				0.57	0.57						0.32	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				875	2736						1145	
v/s Ratio Prot											c0.38	
v/s Ratio Perm				c0.50	0.49							
v/c Ratio				0.87	0.86						1.16	
Uniform Delay, d1				14.4	14.3						27.0	
Progression Factor				1.41	1.41						1.00	
Incremental Delay, d2				1.2	0.4						80.3	
Delay (s)				21.4	20.5						107.3	
Level of Service				C	C						F	
Approach Delay (s)		0.0			20.8			0.0			107.3	
Approach LOS		A			C			A			F	

Intersection Summary			
HCM Average Control Delay	46.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	90	231	7	11	478	16	11	7	10	22	17	16
Peak Hour Factor	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	246	8	12	520	17	12	8	11	24	18	17

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	98	253	549	30	60
Volume Left (vph)	98	0	12	12	24
Volume Right (vph)	0	8	17	11	17
Hadj (s)	0.53	0.01	0.02	-0.10	-0.06
Departure Headway (s)	5.8	5.3	4.7	6.0	6.0
Degree Utilization, x	0.16	0.37	0.72	0.05	0.10
Capacity (veh/h)	607	665	752	531	534
Control Delay (s)	8.7	10.1	18.8	9.3	9.6
Approach Delay (s)	9.7		18.8	9.3	9.6
Approach LOS	A		C	A	A

Intersection Summary			
Delay	14.7		
HCM Level of Service	B		
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp

Average Delay (sec/veh): 4.3 Worst Case Level Of Service: B[14.2]

Street Name:	Harrison Street						Stanley Place / I-580 EB Off-Ramp					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Yield Sign			Yield Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 3 0 0			0 0 0 0 1			0 0 0 0 0		
Volume Module:												
Base Vol:	0	0	0	0	781	0	0	0	343	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	781	0	0	0	343	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	781	0	0	0	343	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.92	1.00	1.00	1.00	0.92	1.00	1.00	1.00
PHF Volume:	0	0	0	0	849	0	0	0	373	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	849	0	0	0	373	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	283	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	761	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	761	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.49	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	2.7	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	14.2	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	B	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			14.2			xxxxxx		
ApproachLOS:	*			*			B			*		

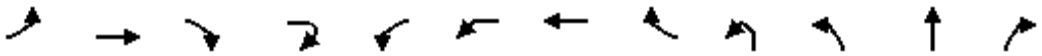
Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to DMJM HARRIS, OAKLAND, CA



Movement	SEL2	SET	NET	NER	NER2
Lane Configurations					
Volume (vph)	738	349	1244	597	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	3.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	
Flt Protected	0.95	0.98	1.00	1.00	
Satd. Flow (prot)	1681	1738	3539	1583	
Flt Permitted	0.95	0.98	1.00	1.00	
Satd. Flow (perm)	1681	1738	3539	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	802	379	1352	649	107
RTOR Reduction (vph)	41	34	0	0	0
Lane Group Flow (vph)	544	562	1352	756	0
Confl. Peds. (#/hr)				2	
Confl. Bikes (#/hr)					
Turn Type	Perm			custom	
Protected Phases		4	5	1	
Permitted Phases	4			1	
Actuated Green, G (s)	16.0	16.0	36.5	13.5	
Effective Green, g (s)	16.0	16.0	36.5	13.5	
Actuated g/C Ratio	0.27	0.27	0.61	0.22	
Clearance Time (s)	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	448	463	2153	356	
v/s Ratio Prot			c0.38	c0.48	
v/s Ratio Perm	c0.32	0.32			
v/c Ratio	1.21	1.21	0.63	2.12	
Uniform Delay, d1	22.0	22.0	7.4	23.2	
Progression Factor	1.00	1.00	1.00	1.00	
Incremental Delay, d2	115.4	114.3	1.4	515.0	
Delay (s)	137.4	136.3	8.8	538.3	
Level of Service	F	F	A	F	
Approach Delay (s)		136.9	198.7		
Approach LOS		F	F		

Intersection Summary			
HCM Average Control Delay	176.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



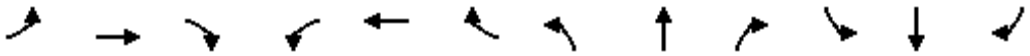
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	212	425	99	20	52	16	180	206	10	342	978	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0			4.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00			1.00	1.00	1.00		0.97	0.95	
Frpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	0.96		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85			1.00	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583			1770	1863	1522		3433	3476	
Flt Permitted	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583			1770	1863	1522		3433	3476	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	226	452	105	21	57	17	196	224	11	372	1063	112
RTOR Reduction (vph)	0	0	8	0	0	0	0	187	0	0	9	0
Lane Group Flow (vph)	226	452	118	0	0	74	196	37	0	383	1166	0
Confl. Peds. (#/hr)	26											20
Confl. Bikes (#/hr)								20				9
Turn Type	Prot		Perm		Prot	Prot		Perm	Prot	Prot		
Protected Phases	3	8			7	7	4		1	1	6	
Permitted Phases			8					4				
Actuated Green, G (s)	18.9	26.1	26.1			7.7	14.9	14.9		13.9	27.2	
Effective Green, g (s)	18.9	26.1	26.1			7.7	14.9	14.9		13.9	27.2	
Actuated g/C Ratio	0.21	0.29	0.29			0.09	0.17	0.17		0.15	0.30	
Clearance Time (s)	4.0	5.0	5.0			4.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	372	1026	459			151	308	252		530	1051	
v/s Ratio Prot	c0.13	0.13				0.04	c0.11			0.11	c0.34	
v/s Ratio Perm			0.07					0.02				
v/c Ratio	0.61	0.44	0.26			0.49	0.64	0.15		0.72	1.11	
Uniform Delay, d1	32.2	26.0	24.5			39.3	35.0	32.1		36.2	31.4	
Progression Factor	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.8	0.3	0.3			2.5	4.3	0.3		4.8	62.8	
Delay (s)	35.0	26.3	24.8			41.8	39.3	32.4		41.1	94.2	
Level of Service	C	C	C			D	D	C		D	F	
Approach Delay (s)		28.5					36.5				81.1	
Approach LOS		C					D				F	

Intersection Summary			
HCM Average Control Delay	59.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Volume (vph)	222	475	47	78
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.97		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3428		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3428		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93
Adj. Flow (vph)	239	511	51	84
RTOR Reduction (vph)	0	13	0	0
Lane Group Flow (vph)	239	633	0	0
Confl. Peds. (#/hr)	26			
Confl. Bikes (#/hr)				
Turn Type	Prot			
Protected Phases	5	2		
Permitted Phases				
Actuated Green, G (s)	11.0	23.3		
Effective Green, g (s)	11.0	23.3		
Actuated g/C Ratio	0.12	0.26		
Clearance Time (s)	4.0	5.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	216	887		
v/s Ratio Prot	c0.14	0.18		
v/s Ratio Perm				
v/c Ratio	1.11	0.71		
Uniform Delay, d1	39.5	30.3		
Progression Factor	1.00	1.00		
Incremental Delay, d2	92.7	4.9		
Delay (s)	132.2	35.2		
Level of Service	F	D		
Approach Delay (s)		61.4		
Approach LOS		E		

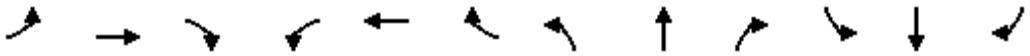
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	91	248	70	48	341	269	141	643	33	202	616	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.98	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97			1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	3386			3514	1536	1767	3509		1767	3446	
Flt Permitted	0.50	1.00			0.86	1.00	0.28	1.00		0.30	1.00	
Satd. Flow (perm)	912	3386			3048	1536	523	3509		559	3446	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	270	76	52	355	292	153	699	36	220	670	103
RTOR Reduction (vph)	0	31	0	0	0	77	0	4	0	0	14	0
Lane Group Flow (vph)	99	315	0	0	407	215	153	731	0	220	759	0
Confl. Peds. (#/hr)	32		32	10		10	6		6	5		5
Confl. Bikes (#/hr)			20			18			17			66
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			2	
Permitted Phases	4			8		8	2			2		
Actuated Green, G (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Effective Green, g (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Actuated g/C Ratio	0.42	0.42			0.42	0.42	0.45	0.45		0.45	0.45	
Clearance Time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	386	1434			1291	651	234	1569		250	1541	
v/s Ratio Prot		0.09						0.21			0.22	
v/s Ratio Perm	0.11				0.13	c0.14	0.29			c0.39		
v/c Ratio	0.26	0.22			0.32	0.33	0.65	0.47		0.88	0.49	
Uniform Delay, d1	15.8	15.6			16.3	16.4	18.4	16.4		21.4	16.7	
Progression Factor	0.86	0.84			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	0.3			0.6	1.4	13.4	1.0		32.8	1.1	
Delay (s)	15.0	13.4			16.9	17.8	31.7	17.4		54.3	17.8	
Level of Service	B	B			B	B	C	B		D	B	
Approach Delay (s)		13.8			17.3			19.9			25.9	
Approach LOS		B			B			B			C	

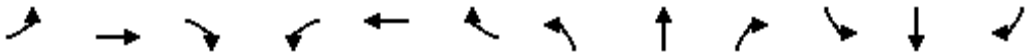
Intersection Summary			
HCM Average Control Delay	20.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	107.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	210	403	136	64	530	114	175	479	46	133	459	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1554	1769	1863	1552	1763	3481		1763	3257	
Flt Permitted	0.12	1.00	1.00	0.36	1.00	1.00	0.20	1.00		0.37	1.00	
Satd. Flow (perm)	226	1863	1554	664	1863	1552	373	3481		690	3257	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	228	438	148	70	576	124	190	521	50	145	499	380
RTOR Reduction (vph)	0	0	90	0	0	83	0	9	0	0	163	0
Lane Group Flow (vph)	228	438	58	70	576	41	190	562	0	145	716	0
Confl. Peds. (#/hr)	4		4	1		1	17		17	10		10
Confl. Bikes (#/hr)			4			10			17			28
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	43.0	33.1	33.1	33.8	28.4	28.4	33.0	33.0		33.0	33.0	
Effective Green, g (s)	43.0	33.1	33.1	33.8	28.4	28.4	33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.51	0.39	0.39	0.40	0.33	0.33	0.39	0.39		0.39	0.39	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	298	725	605	334	622	519	145	1351		268	1264	
v/s Ratio Prot	c0.09	0.24		0.01	c0.31			0.16			0.22	
v/s Ratio Perm	0.30		0.04	0.07		0.03	c0.51			0.21		
v/c Ratio	0.77	0.60	0.10	0.21	0.93	0.08	1.31	0.42		0.54	0.57	
Uniform Delay, d1	17.4	20.7	16.5	16.5	27.3	19.4	26.0	19.0		20.1	20.4	
Progression Factor	1.00	1.00	1.00	1.52	1.39	2.65	0.75	0.66		1.00	1.00	
Incremental Delay, d2	10.1	3.7	0.3	0.1	21.2	0.3	177.9	0.1		1.2	0.3	
Delay (s)	27.5	24.4	16.8	25.2	59.1	51.5	197.6	12.6		21.3	20.7	
Level of Service	C	C	B	C	E	D	F	B		C	C	
Approach Delay (s)		23.9			54.8			58.8			20.8	
Approach LOS		C			D			E			C	

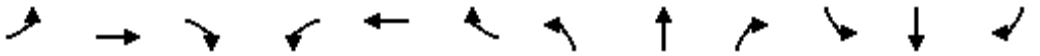
Intersection Summary			
HCM Average Control Delay	37.9	HCM Level of Service	D
HCM Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	89.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	246	653	0	0	257	904	21	811	75	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1609	3384			3539	2787		5008				
Flt Permitted	0.58	0.94			1.00	1.00		1.00				
Satd. Flow (perm)	983	3181			3539	2787		5008				
Peak-hour factor, PHF	0.93	0.92	0.25	0.25	0.92	0.97	0.92	0.92	0.92	0.25	0.25	0.25
Adj. Flow (vph)	265	710	0	0	279	932	23	882	82	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	59	0	26	0	0	0	0
Lane Group Flow (vph)	238	737	0	0	279	873	0	961	0	0	0	0
Confl. Peds. (#/hr)	2		2				4		4	3		3
Confl. Bikes (#/hr)			4						5			7
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	16.0	16.0			16.0	16.0		16.0				
Effective Green, g (s)	16.0	16.0			16.0	16.0		16.0				
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.40				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)	393	1272			1416	1115		2003				
v/s Ratio Prot					0.08							
v/s Ratio Perm	0.24	0.23				c0.31		0.19				
v/c Ratio	0.61	0.58			0.20	0.78		0.48				
Uniform Delay, d1	9.5	9.4			7.8	10.5		8.9				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	6.8	1.9			0.3	5.5		0.8				
Delay (s)	16.3	11.3			8.1	16.0		9.7				
Level of Service	B	B			A	B		A				
Approach Delay (s)		12.5			14.2			9.7			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.5%	ICU Level of Service	D
Analysis Period (min)	15		

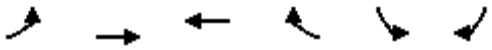
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	492	38	12	243	0	0	0	0	404	288	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00		0.95					0.91	0.91	1.00
Frpb, ped/bikes		1.00	0.98		1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00					1.00	1.00	1.00
Frt		1.00	0.85		1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00					0.95	0.98	1.00
Satd. Flow (prot)		3539	1552		3531					1605	3322	1558
Flt Permitted		1.00	1.00		0.93					0.95	0.98	1.00
Satd. Flow (perm)		3539	1552		3285					1605	3322	1558
Peak-hour factor, PHF	0.25	0.95	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	518	41	13	264	0	0	0	0	439	313	223
RTOR Reduction (vph)	0	0	27	0	0	0	0	0	0	0	0	108
Lane Group Flow (vph)	0	518	14	0	277	0	0	0	0	246	506	115
Confl. Peds. (#/hr)	4		4	4		4	1		1	3		3
Confl. Bikes (#/hr)			5			9			1			1
Turn Type			Perm	Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases			4	8						6		6
Actuated Green, G (s)		21.0	21.0		21.0					31.0	31.0	31.0
Effective Green, g (s)		21.0	21.0		21.0					31.0	31.0	31.0
Actuated g/C Ratio		0.35	0.35		0.35					0.52	0.52	0.52
Clearance Time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Grp Cap (vph)		1239	543		1150					829	1716	805
v/s Ratio Prot		c0.15										
v/s Ratio Perm			0.01		0.08					c0.15	0.15	0.07
v/c Ratio		0.42	0.03		0.24					0.30	0.29	0.14
Uniform Delay, d1		14.8	12.8		13.8					8.3	8.3	7.6
Progression Factor		1.00	1.00		1.00					1.00	1.00	1.00
Incremental Delay, d2		1.0	0.1		0.5					0.9	0.4	0.4
Delay (s)		15.9	12.9		14.3					9.2	8.7	7.9
Level of Service		B	B		B					A	A	A
Approach Delay (s)		15.7			14.3			0.0			8.7	
Approach LOS		B			B			A			A	

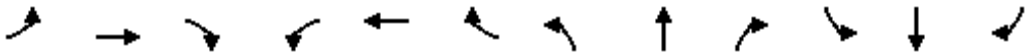
Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



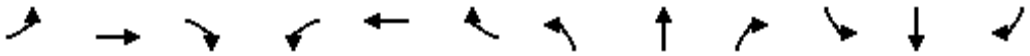
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	274	567	617	428	188	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.91
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.94		0.99	0.85
Flt Protected	0.95	1.00	1.00		0.96	1.00
Satd. Flow (prot)	1770	3539	3281		3412	1421
Flt Permitted	0.95	1.00	1.00		0.96	1.00
Satd. Flow (perm)	1770	3539	3281		3412	1421
Peak-hour factor, PHF	0.92	0.93	0.92	0.97	0.92	0.92
Adj. Flow (vph)	298	610	671	441	204	115
RTOR Reduction (vph)	0	0	103	0	10	87
Lane Group Flow (vph)	298	610	1009	0	210	12
Confl. Peds. (#/hr)	14			18		
Confl. Bikes (#/hr)				7		1
Turn Type	Prot					Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	18.9	62.7	39.8		9.3	9.3
Effective Green, g (s)	18.9	62.7	39.8		9.3	9.3
Actuated g/C Ratio	0.24	0.78	0.50		0.12	0.12
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	418	2774	1632		397	165
v/s Ratio Prot	c0.17	0.17	c0.31		c0.06	
v/s Ratio Perm						0.01
v/c Ratio	0.71	0.22	0.62		0.53	0.07
Uniform Delay, d1	28.1	2.3	14.6		33.3	31.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.7	0.2	1.8		0.6	0.1
Delay (s)	32.8	2.4	16.4		33.9	31.6
Level of Service	C	A	B		C	C
Approach Delay (s)		12.4	16.4		33.2	
Approach LOS		B	B		C	

Intersection Summary			
HCM Average Control Delay	17.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



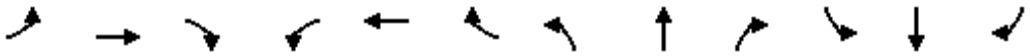
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	677	32	19	810	116	95	531	33	137	429	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3427	1532	1760	3347		1769	3504		1760	3406	
Flt Permitted	0.17	1.00	1.00	0.17	1.00		0.37	1.00		0.42	1.00	
Satd. Flow (perm)	308	3427	1532	315	3347		682	3504		778	3406	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	29	736	35	21	880	126	103	577	36	149	452	115
RTOR Reduction (vph)	0	0	25	0	13	0	0	5	0	0	23	0
Lane Group Flow (vph)	29	736	10	21	993	0	103	608	0	149	544	0
Confl. Peds. (#/hr)	12		12	18		18	3		3	12		12
Confl. Bikes (#/hr)			8			6			10			28
Turn Type	Perm		Perm	Perm			pm+pt			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	24.2	24.2	24.2	24.2	24.2		50.3	50.3		40.2	40.2	
Effective Green, g (s)	24.2	24.2	24.2	24.2	24.2		50.3	50.3		40.2	40.2	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28		0.59	0.59		0.47	0.47	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	88	976	436	90	953		475	2074		368	1611	
v/s Ratio Prot		0.21			c0.30		0.01	c0.17			0.16	
v/s Ratio Perm	0.09		0.01	0.07			0.11			c0.19		
v/c Ratio	0.33	0.75	0.02	0.23	1.04		0.22	0.29		0.40	0.34	
Uniform Delay, d1	24.0	27.7	21.9	23.3	30.4		7.9	8.6		14.6	14.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.27	1.29	
Incremental Delay, d2	9.7	5.4	0.1	6.0	40.7		0.1	0.4		2.9	0.5	
Delay (s)	33.7	33.1	22.0	29.3	71.1		8.0	8.9		21.4	18.6	
Level of Service	C	C	C	C	E		A	A		C	B	
Approach Delay (s)		32.6			70.3			8.8			19.2	
Approach LOS		C			E			A			B	

Intersection Summary			
HCM Average Control Delay	36.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



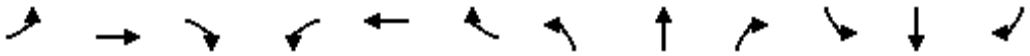
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	456	36	105	343	34	247	622	172	51	499	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	*0.92			*0.92		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	1.00	0.99	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1764	3384			3350		1765	3539	1551	1750	3414	
Flt Permitted	0.31	1.00			0.62		0.38	1.00	1.00	0.38	1.00	
Satd. Flow (perm)	579	3384			2110		697	3539	1551	695	3414	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	496	39	114	373	37	268	655	187	55	542	117
RTOR Reduction (vph)	0	9	0	0	9	0	0	0	71	0	16	0
Lane Group Flow (vph)	88	526	0	0	515	0	268	655	116	55	643	0
Confl. Peds. (#/hr)	8		8	2		2	8		8	32		32
Confl. Bikes (#/hr)			6			6			4			28
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	22.3	22.3			22.3		49.7	49.7	49.7	49.7	49.7	
Effective Green, g (s)	22.3	22.3			22.3		49.7	49.7	49.7	49.7	49.7	
Actuated g/C Ratio	0.28	0.28			0.28		0.62	0.62	0.62	0.62	0.62	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	161	943			588		433	2199	964	432	2121	
v/s Ratio Prot		0.16						0.19			0.19	
v/s Ratio Perm	0.15				c0.24		c0.38		0.07	0.08		
v/c Ratio	0.55	0.56			0.88		0.62	0.30	0.12	0.13	0.30	
Uniform Delay, d1	24.5	24.6			27.5		9.3	7.0	6.2	6.2	7.1	
Progression Factor	1.00	1.00			1.05		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.0	0.4			13.2		6.5	0.3	0.3	0.6	0.4	
Delay (s)	26.6	25.0			42.2		15.8	7.4	6.5	6.8	7.4	
Level of Service	C	C			D		B	A	A	A	A	
Approach Delay (s)		25.3			42.2			9.3			7.4	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



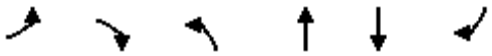
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	666	191	117	373	2	0	0	0	80	249	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						3.0	
Lane Util. Factor		*0.92		1.00	*0.92						0.95	
Frpb, ped/bikes		0.95		1.00	1.00						1.00	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.96		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		3149		1770	3424						3385	
Flt Permitted		0.95		0.16	1.00						0.99	
Satd. Flow (perm)		2998		300	3424						3385	
Peak-hour factor, PHF	0.92	0.99	0.92	0.93	0.92	0.92	0.25	0.25	0.25	0.92	0.94	0.92
Adj. Flow (vph)	7	673	208	126	405	2	0	0	0	87	265	77
RTOR Reduction (vph)	0	31	0	0	0	0	0	0	0	0	23	0
Lane Group Flow (vph)	0	857	0	126	407	0	0	0	0	0	406	0
Confl. Peds. (#/hr)	106		106	8		8	36		36	11		11
Confl. Bikes (#/hr)			18			14			2			8
Turn Type	Perm			pm+pt						Perm		
Protected Phases		2		1	6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)		31.7		43.0	43.0						29.0	
Effective Green, g (s)		31.7		43.0	43.0						29.0	
Actuated g/C Ratio		0.40		0.54	0.54						0.36	
Clearance Time (s)		5.0		5.0	5.0						3.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		1188		277	1840						1227	
v/s Ratio Prot				c0.04	0.12							
v/s Ratio Perm		c0.29		0.21							0.12	
v/c Ratio		0.72		0.45	0.22						0.33	
Uniform Delay, d1		20.4		11.7	9.7						18.5	
Progression Factor		1.66		1.00	1.00						1.00	
Incremental Delay, d2		3.7		0.4	0.3						0.7	
Delay (s)		37.7		12.1	10.0						19.2	
Level of Service		D		B	A						B	
Approach Delay (s)		37.7			10.5			0.0			19.2	
Approach LOS		D			B			A			B	

Intersection Summary			
HCM Average Control Delay	25.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	629	129	326	846	42	11	1150	997	2	604	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	0.92		1.00	0.93		0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	
Satd. Flow (prot)	3433	3539	1484	3433	3539	1460		5082	1466		4984	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.93	1.00		0.94	
Satd. Flow (perm)	3433	3539	1484	3433	3539	1460		4731	1466		4670	
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.93	0.92	0.92	0.92	0.92	0.92	0.96	0.92
Adj. Flow (vph)	145	684	140	333	910	46	12	1250	1084	2	629	65
RTOR Reduction (vph)	0	0	50	0	0	27	0	0	251	0	12	0
Lane Group Flow (vph)	145	684	90	333	910	19	0	1262	833	0	684	0
Confl. Peds. (#/hr)	31		31	48		48	42		42	34		34
Confl. Bikes (#/hr)			22			15			22			20
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		
Protected Phases	1	6		5	2			4			4	
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	8.6	35.4	35.4	13.6	41.4	41.4		36.0	36.0		36.0	
Effective Green, g (s)	8.6	35.4	35.4	13.6	41.4	41.4		36.0	36.0		36.0	
Actuated g/C Ratio	0.09	0.35	0.35	0.14	0.41	0.41		0.36	0.36		0.36	
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	295	1253	525	467	1465	604		1703	528		1681	
v/s Ratio Prot	0.04	0.19		c0.10	c0.26							
v/s Ratio Perm			0.06			0.01		0.27	c0.57		0.15	
v/c Ratio	0.49	0.55	0.17	0.71	0.62	0.03		0.74	1.58		0.41	
Uniform Delay, d1	43.6	25.9	22.2	41.3	23.1	17.4		27.9	32.0		24.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.5	1.7	0.7	4.3	2.0	0.1		2.9	269.0		0.7	
Delay (s)	44.1	27.6	22.9	45.6	25.1	17.5		30.9	301.0		24.7	
Level of Service	D	C	C	D	C	B		C	F		C	
Approach Delay (s)		29.4			30.1			155.7			24.7	
Approach LOS		C			C			F			C	

Intersection Summary			
HCM Average Control Delay	84.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	118.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	309	83	101	1512	917	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.5	4.5	
Lane Util. Factor	0.97		1.00	*0.50	0.86	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		0.99	1.00	1.00	
Frt	0.97		1.00	1.00	0.99	
Flt Protected	0.96		0.95	1.00	1.00	
Satd. Flow (prot)	3340		1757	3725	6323	
Flt Permitted	0.96		0.22	1.00	1.00	
Satd. Flow (perm)	3340		404	3725	6323	
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.92	0.92
Adj. Flow (vph)	336	90	110	1575	997	97
RTOR Reduction (vph)	44	0	0	0	12	0
Lane Group Flow (vph)	382	0	110	1575	1082	0
Confl. Peds. (#/hr)	30	30	106			
Confl. Bikes (#/hr)		2				
Turn Type			pm+pt			
Protected Phases	4		1	2	2	
Permitted Phases			2			
Actuated Green, G (s)	14.5		52.0	45.8	45.8	
Effective Green, g (s)	14.5		52.0	45.8	45.8	
Actuated g/C Ratio	0.18		0.65	0.57	0.57	
Clearance Time (s)	5.0		4.0	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	605		367	2133	3620	
v/s Ratio Prot	c0.11		c0.02	c0.42	0.17	
v/s Ratio Perm			0.17			
v/c Ratio	0.63		0.30	0.74	0.30	
Uniform Delay, d1	30.3		5.3	12.7	8.8	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	2.2		0.5	2.3	0.2	
Delay (s)	32.4		5.8	15.0	9.0	
Level of Service	C		A	B	A	
Approach Delay (s)	32.4			14.4	9.0	
Approach LOS	C			B	A	

Intersection Summary			
HCM Average Control Delay	15.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	51.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	301	10	22	180	11	55
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	320	11	24	196	12	60
Pedestrians	18			18		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	533			360		
pX, platoon unblocked						
vC, conflicting volume			331		587	344
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			331		587	344
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	91
cM capacity (veh/h)			1228		456	689

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	331	220	72
Volume Left	0	24	12
Volume Right	11	0	60
cSH	1700	1228	635
Volume to Capacity	0.19	0.02	0.11
Queue Length 95th (ft)	0	1	10
Control Delay (s)	0.0	1.0	11.4
Lane LOS		A	B
Approach Delay (s)	0.0	1.0	11.4
Approach LOS			B

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	249	9	9	183	30	62
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	271	10	10	199	33	67
Pedestrians	27			27		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	470			423		
pX, platoon unblocked						
vC, conflicting volume			280		521	303
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			280		521	303
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		93	91
cM capacity (veh/h)			1282		500	721

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	280	209	100
Volume Left	0	10	33
Volume Right	10	0	67
cSH	1700	1282	630
Volume to Capacity	0.16	0.01	0.16
Queue Length 95th (ft)	0	1	14
Control Delay (s)	0.0	0.4	11.8
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	11.8
Approach LOS			B

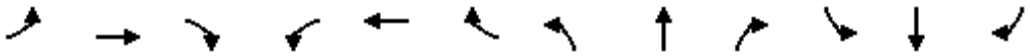
Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	34.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	366	3	15	150	46	84
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.92	0.92	0.94	0.92	0.92
Hourly flow rate (vph)	377	3	16	160	50	91
Pedestrians	20			20		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	80			813		
pX, platoon unblocked			0.90		0.90	0.90
vC, conflicting volume			381		591	399
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			257		491	277
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		89	86
cM capacity (veh/h)			1178		469	674

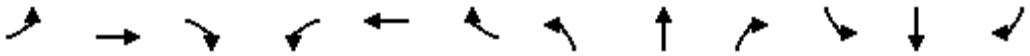
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	381	176	25	25	46	46
Volume Left	0	16	25	25	0	0
Volume Right	3	0	0	0	46	46
cSH	1700	1178	469	469	674	674
Volume to Capacity	0.22	0.01	0.05	0.05	0.07	0.07
Queue Length 95th (ft)	0	1	4	4	5	5
Control Delay (s)	0.0	0.9	13.1	13.1	10.7	10.7
Lane LOS		A	B	B	B	B
Approach Delay (s)	0.0	0.9	11.6			
Approach LOS			B			

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	35.2%	ICU Level of Service	A
Analysis Period (min)	15		



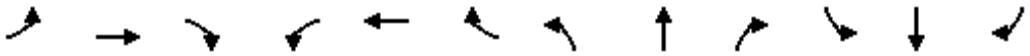
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	203	102	75	170	0	0	0	0	51	521	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.91	
Frpb, ped/bikes		1.00	0.91		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.97						0.98	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.98						1.00	
Satd. Flow (prot)		1863	1435		1786						4856	
Flt Permitted		1.00	1.00		0.74						1.00	
Satd. Flow (perm)		1863	1435		1339						4856	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.97	0.92
Adj. Flow (vph)	0	221	111	82	185	0	0	0	0	55	537	32
RTOR Reduction (vph)	0	0	21	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	221	90	0	267	0	0	0	0	0	620	0
Confl. Peds. (#/hr)	58		58	100		100	50		50	104		104
Confl. Bikes (#/hr)			8			6			10			28
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		20.7	20.7		20.7						51.3	
Effective Green, g (s)		20.7	20.7		20.7						51.3	
Actuated g/C Ratio		0.26	0.26		0.26						0.64	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		482	371		346						3114	
v/s Ratio Prot		0.12										
v/s Ratio Perm			0.06		c0.20						0.13	
v/c Ratio		0.46	0.24		0.77						0.20	
Uniform Delay, d1		24.9	23.5		27.5						5.9	
Progression Factor		1.00	1.00		1.00						1.20	
Incremental Delay, d2		0.7	0.3		10.2						0.1	
Delay (s)		25.6	23.8		37.7						7.2	
Level of Service		C	C		D						A	
Approach Delay (s)		25.0			37.7			0.0			7.2	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM Average Control Delay	18.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



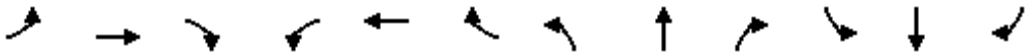
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	106	1	0	102	72	21	342	181	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.97			1.00	0.81			
Flpb, ped/bikes		1.00			1.00			0.99	1.00			
Frt		1.00			0.94			1.00	0.85			
Flt Protected		0.99			1.00			1.00	1.00			
Satd. Flow (prot)		1841			1706			3506	1283			
Flt Permitted		0.97			1.00			1.00	1.00			
Satd. Flow (perm)		1801			1706			3506	1283			
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	14	115	1	0	111	78	23	368	197	0	0	0
RTOR Reduction (vph)	0	0	0	0	31	0	0	0	155	0	0	0
Lane Group Flow (vph)	0	130	0	0	158	0	0	391	42	0	0	0
Confl. Peds. (#/hr)	71		71	82		82	88		88	75		75
Confl. Bikes (#/hr)			8			2			40			1
Turn Type	Perm						Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2						1		1			
Actuated Green, G (s)		27.4			27.4			9.6	9.6			
Effective Green, g (s)		27.4			27.4			9.6	9.6			
Actuated g/C Ratio		0.61			0.61			0.21	0.21			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)		1097			1039			748	274			
v/s Ratio Prot					c0.09							
v/s Ratio Perm		0.07						0.11	0.03			
v/c Ratio		0.12			0.15			0.52	0.15			
Uniform Delay, d1		3.7			3.8			15.7	14.4			
Progression Factor		0.39			1.00			1.00	1.00			
Incremental Delay, d2		0.2			0.3			0.3	0.1			
Delay (s)		1.7			4.1			16.0	14.5			
Level of Service		A			A			B	B			
Approach Delay (s)		1.7			4.1			15.5			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	11.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	38.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



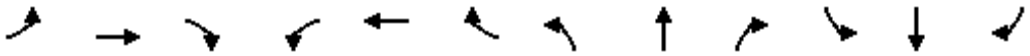
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	47	22	64	0	64	0	548	45	32	477	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frpb, ped/bikes	1.00	0.99			0.99			0.99			1.00	
Flpb, ped/bikes	0.99	1.00			0.99			1.00			1.00	
Frt	1.00	0.95			0.93			0.99			1.00	
Flt Protected	0.95	1.00			0.98			1.00			1.00	
Satd. Flow (prot)	1747	1757			1657			3476			3521	
Flt Permitted	0.74	1.00			0.85			1.00			0.88	
Satd. Flow (perm)	1358	1757			1446			3476			3125	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.99	0.92
Adj. Flow (vph)	15	51	24	70	0	70	0	596	49	35	482	0
RTOR Reduction (vph)	0	14	0	0	40	0	0	14	0	0	0	0
Lane Group Flow (vph)	15	61	0	0	100	0	0	631	0	0	517	0
Confl. Peds. (#/hr)	22		22	24		24	40		40	48		48
Confl. Bikes (#/hr)			3						17			7
Turn Type	Perm			Perm						Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2						4		
Actuated Green, G (s)	19.0	19.0			19.0			17.0			17.0	
Effective Green, g (s)	19.0	19.0			19.0			17.0			17.0	
Actuated g/C Ratio	0.42	0.42			0.42			0.38			0.38	
Clearance Time (s)	4.0	4.0			4.0			5.0			5.0	
Vehicle Extension (s)	2.0	2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)	573	742			611			1313			1181	
v/s Ratio Prot		0.03						c0.18				
v/s Ratio Perm	0.01				c0.07						0.17	
v/c Ratio	0.03	0.08			0.16			0.48			0.44	
Uniform Delay, d1	7.6	7.8			8.1			10.6			10.4	
Progression Factor	1.00	1.00			1.15			1.00			1.00	
Incremental Delay, d2	0.1	0.2			0.6			1.3			1.2	
Delay (s)	7.7	8.0			9.8			11.9			11.6	
Level of Service	A	A			A			B			B	
Approach Delay (s)		7.9			9.8			11.9			11.6	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	165	30	12	196	193	26	657	27	40	180	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5		4.5	4.5	
Lane Util. Factor		0.95			0.95			0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.98			1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00			1.00		1.00	1.00	
Frt		0.98			0.93			0.99		1.00	0.96	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3417			3219			3506		1767	3370	
Flt Permitted		0.81			0.94			0.94		0.28	1.00	
Satd. Flow (perm)		2783			3031			3297		529	3370	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92	0.92
Adj. Flow (vph)	32	179	33	13	213	210	28	714	29	41	196	70
RTOR Reduction (vph)	0	26	0	0	173	0	0	3	0	0	23	0
Lane Group Flow (vph)	0	218	0	0	263	0	0	768	0	41	243	0
Confl. Peds. (#/hr)	32		32	24		24	16		16	19		19
Confl. Bikes (#/hr)			6			4			25			3
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		10.7			10.7			33.1		40.3	40.3	
Effective Green, g (s)		10.7			10.7			33.1		40.3	40.3	
Actuated g/C Ratio		0.18			0.18			0.55		0.67	0.67	
Clearance Time (s)		4.5			4.5			4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		496			541			1819		411	2264	
v/s Ratio Prot										0.00	c0.07	
v/s Ratio Perm		0.08			c0.09			c0.23		0.06		
v/c Ratio		0.44			0.49			0.42		0.10	0.11	
Uniform Delay, d1		22.0			22.2			7.9		3.9	3.5	
Progression Factor		1.00			0.73			1.00		1.00	1.00	
Incremental Delay, d2		0.6			0.6			0.7		0.1	0.1	
Delay (s)		22.6			16.7			8.6		4.0	3.6	
Level of Service		C			B			A		A	A	
Approach Delay (s)		22.6			16.7			8.6			3.6	
Approach LOS		C			B			A			A	

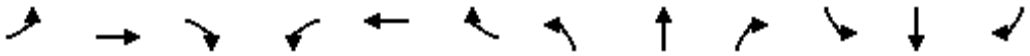
Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	152	95	61	237	102	109	803	113	44	554	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.97			0.97			0.99			0.99	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.95			0.96			0.98			0.99	
Flt Protected		1.00			0.99			0.99			1.00	
Satd. Flow (prot)		3215			3229			3413			4988	
Flt Permitted		0.91			0.86			0.73			0.81	
Satd. Flow (perm)		2922			2807			2494			4033	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	25	165	103	66	258	111	118	873	119	48	602	42
RTOR Reduction (vph)	0	65	0	0	46	0	0	16	0	0	12	0
Lane Group Flow (vph)	0	228	0	0	389	0	0	1095	0	0	680	0
Confl. Peds. (#/hr)	74		74	120		120	85		85	65		65
Confl. Bikes (#/hr)			30			13			10			6
Turn Type	Perm			Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						6		
Actuated Green, G (s)		22.0			22.0			29.0			18.0	
Effective Green, g (s)		22.0			22.0			29.0			18.0	
Actuated g/C Ratio		0.37			0.37			0.48			0.30	
Clearance Time (s)		4.0			4.0			5.0			5.0	
Lane Grp Cap (vph)		1071			1029			1313			1210	
v/s Ratio Prot								c0.10				
v/s Ratio Perm		0.08			c0.14			c0.31			0.17	
v/c Ratio		0.21			0.38			0.83			0.56	
Uniform Delay, d1		13.1			14.0			13.4			17.7	
Progression Factor		2.17			1.00			1.00			1.00	
Incremental Delay, d2		0.4			1.1			6.3			1.9	
Delay (s)		28.7			15.0			19.7			19.6	
Level of Service		C			B			B			B	
Approach Delay (s)		28.7			15.0			19.7			19.6	
Approach LOS		C			B			B			B	

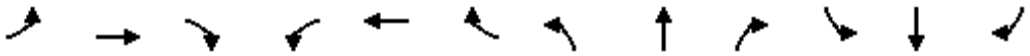
Intersection Summary			
HCM Average Control Delay	19.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



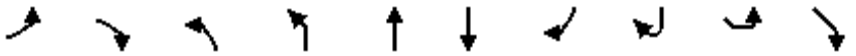
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	331	0	0	389	97	65	391	257	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.91	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3510			3372	1319		5003	1458			
Flt Permitted		0.88			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3119			3372	1319		5003	1458			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	41	360	0	0	423	103	71	425	276	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	25	0	0	226	0	0	0
Lane Group Flow (vph)	0	401	0	0	432	68	0	496	50	0	0	0
Confl. Peds. (#/hr)	42		42	54		54	58		58	194		194
Confl. Bikes (#/hr)			12			7			5			8
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		58.4			58.4	58.4		14.6	14.6			
Effective Green, g (s)		58.4			58.4	58.4		14.6	14.6			
Actuated g/C Ratio		0.73			0.73	0.73		0.18	0.18			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2277			2462	963		913	266			
v/s Ratio Prot					0.13							
v/s Ratio Perm		c0.13				0.05		0.10	0.03			
v/c Ratio		0.18			0.18	0.07		0.54	0.19			
Uniform Delay, d1		3.3			3.3	3.1		29.7	27.7			
Progression Factor		1.00			0.71	0.31		1.00	1.00			
Incremental Delay, d2		0.2			0.1	0.1		0.7	0.3			
Delay (s)		3.5			2.5	1.1		30.3	28.0			
Level of Service		A			A	A		C	C			
Approach Delay (s)		3.5			2.3			29.5			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



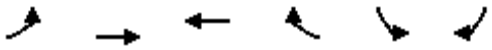
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	408	178	141	366	0	0	0	0	82	522	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	0.91	0.91						0.91	
Frpb, ped/bikes		1.00	0.91	1.00	1.00						0.95	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						0.97	
Frt		1.00	0.85	1.00	1.00						0.98	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		3539	1439	1610	3376						4521	
Flt Permitted		1.00	1.00	0.95	0.94						0.99	
Satd. Flow (perm)		3539	1439	1610	3196						4521	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	443	193	153	398	0	0	0	0	89	567	129
RTOR Reduction (vph)	0	0	46	0	0	0	0	0	0	0	36	0
Lane Group Flow (vph)	0	443	148	138	413	0	0	0	0	0	749	0
Confl. Peds. (#/hr)	51		51	114		114	115		115	333		333
Confl. Bikes (#/hr)			8			3			17			6
Turn Type			Perm	Prot						Perm		
Protected Phases		2		1	6						4	
Permitted Phases			2							4		
Actuated Green, G (s)		28.0	28.0	10.0	42.0						30.0	
Effective Green, g (s)		28.0	28.0	10.0	42.0						30.0	
Actuated g/C Ratio		0.35	0.35	0.12	0.52						0.38	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		1239	504	201	1700						1695	
v/s Ratio Prot		c0.13		c0.09	0.03							
v/s Ratio Perm			0.10		0.10						0.17	
v/c Ratio		0.36	0.29	0.69	0.24						0.44	
Uniform Delay, d1		19.3	18.8	33.5	10.3						18.7	
Progression Factor		1.11	1.16	1.00	1.00						1.37	
Incremental Delay, d2		0.8	1.4	7.5	0.0						0.1	
Delay (s)		22.2	23.3	41.0	10.4						25.7	
Level of Service		C	C	D	B						C	
Approach Delay (s)		22.6			18.0			0.0			25.7	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM Average Control Delay	22.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL2	NBL	NBT	SBT	SBR	SBR2	SEL	SER
Lane Configurations										
Volume (vph)	389	103	97	21	828	188	268	51	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0				4.0	4.0	4.0	4.0		
Lane Util. Factor	0.94				0.95	0.91	0.91	1.00		
Frpb, ped/bikes	1.00				1.00	1.00	1.00	1.00		
Flpb, ped/bikes	1.00				1.00	1.00	1.00	1.00		
Frt	0.97				1.00	0.94	0.85	0.85		
Flt Protected	0.96				0.99	1.00	1.00	1.00		
Satd. Flow (prot)	4894				3517	3186	1441	1583		
Flt Permitted	0.96				0.99	1.00	1.00	1.00		
Satd. Flow (perm)	4894				3517	3186	1441	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95
Adj. Flow (vph)	423	112	105	23	900	204	291	55	0	0
RTOR Reduction (vph)	66	0	0	0	0	0	0	27	0	0
Lane Group Flow (vph)	469	0	0	0	1028	341	154	28	0	0
Confl. Peds. (#/hr)								74		
Confl. Bikes (#/hr)					7			8		
Turn Type			Split	Split			custom	custom		
Protected Phases	1		8	8	8	2	6	6		
Permitted Phases	1						6			
Actuated Green, G (s)	18.1				25.9	14.0	36.1	36.1		
Effective Green, g (s)	18.1				25.9	14.0	36.1	36.1		
Actuated g/C Ratio	0.26				0.37	0.20	0.52	0.52		
Clearance Time (s)	4.0				4.0	4.0	4.0	4.0		
Vehicle Extension (s)	2.0				2.0	2.0	2.0	2.0		
Lane Grp Cap (vph)	1265				1301	637	743	816		
v/s Ratio Prot	c0.10				c0.29	c0.11	0.11	0.02		
v/s Ratio Perm										
v/c Ratio	0.37				0.79	0.54	0.21	0.03		
Uniform Delay, d1	21.3				19.6	25.1	9.2	8.4		
Progression Factor	1.00				1.00	0.84	0.88	0.74		
Incremental Delay, d2	0.8				3.1	0.4	0.6	0.1		
Delay (s)	22.1				22.8	21.5	8.7	6.3		
Level of Service	C				C	C	A	A		
Approach Delay (s)	22.1				22.8	16.4			0.0	
Approach LOS	C				C	B			A	

Intersection Summary			
HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	493	365	0	0	96
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	536	397	0	0	104
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		420	110			
pX, platoon unblocked					0.99	
vC, conflicting volume	397				575	198
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	397				541	198
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	87
cM capacity (veh/h)	1158				467	809

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	SB 1
Volume Total	0	179	179	179	198	198	104
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	104
cSH	1700	1700	1700	1700	1700	1700	809
Volume to Capacity	0.00	0.11	0.11	0.11	0.12	0.12	0.13
Queue Length 95th (ft)	0	0	0	0	0	0	11
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.1
Lane LOS							B
Approach Delay (s)	0.0				0.0		10.1
Approach LOS							B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	22.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1069	71	747	326	153	842
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.91		0.97	0.91	0.97	0.91
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	0.89	0.85
Flt Protected	1.00		0.95	1.00	0.99	1.00
Satd. Flow (prot)	5036		3433	5085	3174	1441
Flt Permitted	1.00		0.95	1.00	0.99	1.00
Satd. Flow (perm)	5036		3433	5085	3174	1441
Peak-hour factor, PHF	0.95	0.92	0.99	0.92	0.92	0.93
Adj. Flow (vph)	1125	77	755	354	166	905
RTOR Reduction (vph)	11	0	0	0	317	316
Lane Group Flow (vph)	1191	0	755	354	302	136
Confl. Bikes (#/hr)				16		
Turn Type			Prot			Perm
Protected Phases	8		7	4	6	
Permitted Phases						6
Actuated Green, G (s)	18.0		19.0	41.0	21.0	21.0
Effective Green, g (s)	18.0		19.0	41.0	21.0	21.0
Actuated g/C Ratio	0.26		0.27	0.59	0.30	0.30
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1295		932	2978	952	432
v/s Ratio Prot	c0.24		c0.22	0.07	c0.10	
v/s Ratio Perm						0.09
v/c Ratio	0.92		0.81	0.12	0.32	0.31
Uniform Delay, d1	25.3		23.8	6.5	19.0	18.9
Progression Factor	0.73		1.00	1.00	1.00	1.00
Incremental Delay, d2	9.8		7.6	0.1	0.9	1.9
Delay (s)	28.3		31.4	6.5	19.8	20.8
Level of Service	C		C	A	B	C
Approach Delay (s)	28.3			23.5	20.3	
Approach LOS	C			C	C	

Intersection Summary			
HCM Average Control Delay	24.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	146	151	0	0	0	0	0	1270	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0						6.0	
Lane Util. Factor				1.00	0.95						0.86	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				1.00	1.00						1.00	
Frt				1.00	1.00						0.98	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1766	3539						6292	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1766	3539						6292	
Peak-hour factor, PHF	0.25	0.95	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.92	0.97	0.92
Adj. Flow (vph)	0	0	0	159	164	0	0	0	0	0	1309	160
RTOR Reduction (vph)	0	0	0	3	0	0	0	0	0	0	19	0
Lane Group Flow (vph)	0	0	0	156	164	0	0	0	0	0	1450	0
Confl. Peds. (#/hr)	15		15	2		2				2		2
Confl. Bikes (#/hr)			4									2
Turn Type				Perm								
Protected Phases					4						6	
Permitted Phases				4								
Actuated Green, G (s)				23.5	23.5						42.5	
Effective Green, g (s)				23.5	23.5						42.5	
Actuated g/C Ratio				0.31	0.31						0.57	
Clearance Time (s)				3.0	3.0						6.0	
Vehicle Extension (s)				3.0	3.0						4.0	
Lane Grp Cap (vph)				553	1109						3565	
v/s Ratio Prot					0.05						c0.23	
v/s Ratio Perm				c0.09								
v/c Ratio				0.28	0.15						0.41	
Uniform Delay, d1				19.4	18.5						9.2	
Progression Factor				1.00	1.00						0.73	
Incremental Delay, d2				1.3	0.3						0.1	
Delay (s)				20.7	18.8						6.8	
Level of Service				C	B						A	
Approach Delay (s)		0.0			19.7			0.0			6.8	
Approach LOS		A			B			A			A	

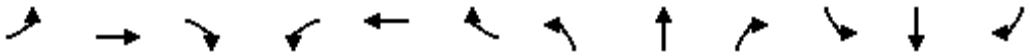
Intersection Summary			
HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	200	396	1220	76	346	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0		5.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.98	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	5085	5029		3404	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1770	5085	5029		3404	
Peak-hour factor, PHF	0.92	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	217	426	1312	83	376	45
RTOR Reduction (vph)	2	0	9	0	0	0
Lane Group Flow (vph)	215	426	1386	0	421	0
Confl. Peds. (#/hr)				17		
Confl. Bikes (#/hr)				6		
Turn Type	Perm					
Protected Phases		4	2		1	
Permitted Phases	4					
Actuated Green, G (s)	15.9	15.9	26.0		21.1	
Effective Green, g (s)	15.9	15.9	26.0		21.1	
Actuated g/C Ratio	0.21	0.21	0.35		0.28	
Clearance Time (s)	3.0	3.0	4.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	375	1078	1743		958	
v/s Ratio Prot		0.08	c0.28		c0.12	
v/s Ratio Perm	c0.12					
v/c Ratio	0.57	0.40	0.80		0.44	
Uniform Delay, d1	26.5	25.4	22.1		22.1	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	6.2	1.1	2.6		0.3	
Delay (s)	32.7	26.5	24.7		22.4	
Level of Service	C	C	C		C	
Approach Delay (s)		28.6	24.7		22.4	
Approach LOS		C	C		C	

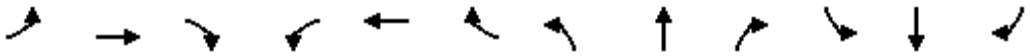
Intersection Summary			
HCM Average Control Delay	25.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



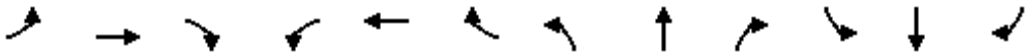
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	262	878	1024	528	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	5.0	5.0				
Lane Util. Factor					0.91	0.91	0.81	0.81				
Frpb, ped/bikes					0.99	0.98	1.00	1.00				
Flpb, ped/bikes					1.00	1.00	0.98	0.99				
Frt					0.91	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	0.98				
Satd. Flow (prot)					3041	1417	1403	5828				
Flt Permitted					1.00	1.00	0.95	0.98				
Satd. Flow (perm)					3041	1417	1403	5828				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.92	0.92	0.92	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	285	954	1113	568	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	61	61	351	272	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	701	416	205	853	0	0	0	0
Confl. Peds. (#/hr)	1		1	4		4	14		14			
Confl. Bikes (#/hr)						1						4
Turn Type						Perm	Perm					
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					42.8	42.8	22.2	22.2				
Effective Green, g (s)					42.8	42.8	22.2	22.2				
Actuated g/C Ratio					0.57	0.57	0.30	0.30				
Clearance Time (s)					5.0	5.0	5.0	5.0				
Vehicle Extension (s)					3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)					1735	809	415	1725				
v/s Ratio Prot					0.23							
v/s Ratio Perm						c0.29	0.15	0.15				
v/c Ratio					0.40	0.51	0.49	0.49				
Uniform Delay, d1					9.0	9.8	21.8	21.8				
Progression Factor					1.00	1.00	1.00	1.00				
Incremental Delay, d2					0.7	2.3	0.9	0.2				
Delay (s)					9.7	12.1	22.7	22.0				
Level of Service					A	B	C	C				
Approach Delay (s)		0.0			10.6			22.2			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM Average Control Delay	17.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	249	72	0	0	0	0	0	0	561	908	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		0.95								0.86	0.86	
Frpb, ped/bikes		1.00								1.00	1.00	
Flpb, ped/bikes		1.00								1.00	1.00	
Frt		0.97								1.00	0.99	
Flt Protected		1.00								0.95	0.99	
Satd. Flow (prot)		3406								1522	4729	
Flt Permitted		1.00								0.95	0.99	
Satd. Flow (perm)		3406								1522	4729	
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	271	78	0	0	0	0	0	0	610	987	60
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	0	231	42	0
Lane Group Flow (vph)	0	323	0	0	0	0	0	0	0	172	1212	0
Confl. Peds. (#/hr)	5		5									
Confl. Bikes (#/hr)			2									2
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		35.0								32.0	32.0	
Effective Green, g (s)		35.0								32.0	32.0	
Actuated g/C Ratio		0.47								0.43	0.43	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		1589								649	2018	
v/s Ratio Prot		c0.09										
v/s Ratio Perm										0.11	0.26	
v/c Ratio		0.20								0.26	0.60	
Uniform Delay, d1		11.8								13.9	16.6	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.3								1.0	1.3	
Delay (s)		12.1								14.9	17.9	
Level of Service		B								B	B	
Approach Delay (s)		12.1			0.0			0.0			17.2	
Approach LOS		B			A			A			B	

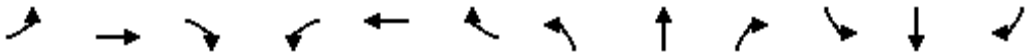
Intersection Summary			
HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	918	0	0	425	261	205	632	42	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Util. Factor		0.95			0.95	1.00		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.96			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3524			3539	1461		3472	1520			
Flt Permitted		0.89			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3130			3539	1461		3472	1520			
Peak-hour factor, PHF	0.92	0.92	0.25	0.99	0.96	0.96	0.92	0.92	0.92	0.25	0.25	0.25
Adj. Flow (vph)	68	998	0	0	443	272	223	687	46	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	118	0	0	4	0	0	0
Lane Group Flow (vph)	0	1066	0	0	443	154	0	910	42	0	0	0
Confl. Peds. (#/hr)	36		36	52		52	35		35	10		10
Confl. Bikes (#/hr)			5			21						22
Turn Type	Perm			Perm		Perm	Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4			8		8	2		2			
Actuated Green, G (s)		18.0			18.0	18.0		32.0	32.0			
Effective Green, g (s)		18.0			18.0	18.0		32.0	32.0			
Actuated g/C Ratio		0.30			0.30	0.30		0.53	0.53			
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Grp Cap (vph)		939			1062	438		1852	811			
v/s Ratio Prot					0.13							
v/s Ratio Perm		c0.34				0.11		0.26	0.03			
v/c Ratio		1.14			0.42	0.35		0.49	0.05			
Uniform Delay, d1		21.0			16.8	16.4		8.9	6.7			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		74.1			1.2	2.2		0.9	0.1			
Delay (s)		95.1			18.0	18.6		9.8	6.8			
Level of Service		F			B	B		A	A			
Approach Delay (s)		95.1			18.2			9.6			0.0	
Approach LOS		F			B			A			A	

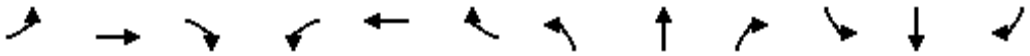
Intersection Summary			
HCM Average Control Delay	45.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



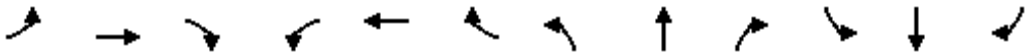
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	644	73	26	560	0	0	0	0	344	600	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0					4.0	4.0	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frpb, ped/bikes		0.99			1.00					1.00	1.00	
Flpb, ped/bikes		1.00			1.00					0.98	1.00	
Frt		0.98			1.00					1.00	1.00	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		3464			3531					1734	3518	
Flt Permitted		1.00			0.91					0.95	1.00	
Satd. Flow (perm)		3464			3232					1734	3518	
Peak-hour factor, PHF	0.25	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.94	0.96	0.92
Adj. Flow (vph)	0	700	79	28	609	0	0	0	0	366	625	21
RTOR Reduction (vph)	0	19	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	760	0	0	637	0	0	0	0	366	641	0
Confl. Peds. (#/hr)	50		50	25		25	17		17	24		24
Confl. Bikes (#/hr)			16			17			2			
Turn Type				Perm						Perm		
Protected Phases		8			4						6	
Permitted Phases				4						6		
Actuated Green, G (s)		19.0			19.0					19.0	19.0	
Effective Green, g (s)		19.0			19.0					19.0	19.0	
Actuated g/C Ratio		0.42			0.42					0.42	0.42	
Clearance Time (s)		3.0			3.0					4.0	4.0	
Vehicle Extension (s)		2.0			2.0					2.0	2.0	
Lane Grp Cap (vph)		1463			1365					732	1485	
v/s Ratio Prot		c0.22									0.18	
v/s Ratio Perm					0.20					c0.21		
v/c Ratio		0.52			0.47					0.50	0.43	
Uniform Delay, d1		9.6			9.4					9.5	9.2	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		1.3			1.1					2.4	0.9	
Delay (s)		10.9			10.5					12.0	10.1	
Level of Service		B			B					B	B	
Approach Delay (s)		10.9			10.5			0.0			10.8	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	430	8	19	401	44	69	445	25	114	178	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.99			0.98	
Flt Protected		0.99			1.00			0.99			0.98	
Satd. Flow (prot)		3484			3457			3474			3361	
Flt Permitted		0.84			0.93			0.86			0.64	
Satd. Flow (perm)		2949			3221			3009			2203	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92
Adj. Flow (vph)	79	467	9	21	436	48	75	484	27	124	184	54
RTOR Reduction (vph)	0	2	0	0	15	0	0	9	0	0	36	0
Lane Group Flow (vph)	0	553	0	0	490	0	0	577	0	0	326	0
Confl. Peds. (#/hr)	80		80	58		58	44		44	41		41
Confl. Bikes (#/hr)			14			10			7			4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		22.9			22.9			14.6			14.6	
Effective Green, g (s)		22.9			22.9			14.6			14.6	
Actuated g/C Ratio		0.51			0.51			0.32			0.32	
Clearance Time (s)		3.5			3.5			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1501			1639			976			715	
v/s Ratio Prot												
v/s Ratio Perm		c0.19			0.15			c0.19			0.15	
v/c Ratio		0.37			0.30			0.59			0.46	
Uniform Delay, d1		6.7			6.4			12.7			12.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.7			0.5			1.0			0.5	
Delay (s)		7.4			6.9			13.7			12.5	
Level of Service		A			A			B			B	
Approach Delay (s)		7.4			6.9			13.7			12.5	
Approach LOS		A			A			B			B	

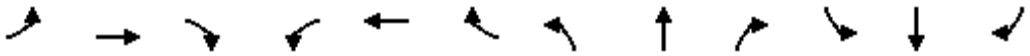
Intersection Summary			
HCM Average Control Delay	10.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	249	941	0	0	0	0	0	697	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.86						0.86	
Frpb, ped/bikes					1.00						1.00	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.99	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					6270						6331	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					6270						6331	
Peak-hour factor, PHF	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25	0.25	0.25	0.92	0.92
Adj. Flow (vph)	0	0	0	271	970	0	0	0	0	0	758	50
RTOR Reduction (vph)	0	0	0	0	53	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	0	0	0	1188	0	0	0	0	0	792	0
Confl. Peds. (#/hr)	32		32	47		47	36		36	29		29
Confl. Bikes (#/hr)			3			13			9			2
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2717						2796	
v/s Ratio Prot											c0.13	
v/s Ratio Perm					0.19							
v/c Ratio					0.44						0.28	
Uniform Delay, d1					11.9						10.7	
Progression Factor					0.44						1.00	
Incremental Delay, d2					0.5						0.3	
Delay (s)					5.7						10.9	
Level of Service					A						B	
Approach Delay (s)		0.0			5.7			0.0			10.9	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	7.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	40.9%	ICU Level of Service	A
Analysis Period (min)	15		

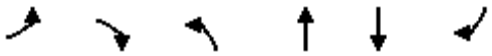
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1015	60	178	984	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5			4.0				
Lane Util. Factor					0.86			0.86				
Frpb, ped/bikes					1.00			1.00				
Flpb, ped/bikes					1.00			0.98				
Frt					0.99			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6330			6239				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6330			6239				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.95	0.92	0.92	0.96	0.25	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	1068	65	193	1025	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	28	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1129	0	0	1190	0	0	0	0
Confl. Peds. (#/hr)	121		121	69		69	118		118	84		84
Confl. Bikes (#/hr)			3									15
Turn Type							Perm					
Protected Phases					6			4				
Permitted Phases							4					
Actuated Green, G (s)					29.9			20.6				
Effective Green, g (s)					29.9			20.6				
Actuated g/C Ratio					0.50			0.34				
Clearance Time (s)					5.5			4.0				
Lane Grp Cap (vph)					3154			2142				
v/s Ratio Prot					c0.18							
v/s Ratio Perm								0.19				
v/c Ratio					0.36			0.56				
Uniform Delay, d1					9.2			16.0				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.3			1.0				
Delay (s)					9.5			17.0				
Level of Service					A			B				
Approach Delay (s)		0.0			9.5			17.0			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

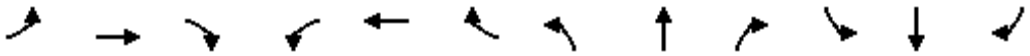
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	68	0	0	1079	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.25	0.92	0.25	0.25
Hourly flow rate (vph)	74	0	0	1173	0	0
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1055	320	
pX, platoon unblocked						
vC, conflicting volume	299	6	6			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	299	6	6			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	100	100			
cM capacity (veh/h)	665	1069	1605			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	74	293	293	293	293
Volume Left	74	0	0	0	0
Volume Right	0	0	0	0	0
cSH	665	1700	1700	1700	1700
Volume to Capacity	0.11	0.17	0.17	0.17	0.17
Queue Length 95th (ft)	9	0	0	0	0
Control Delay (s)	11.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.1	0.0			
Approach LOS	B				

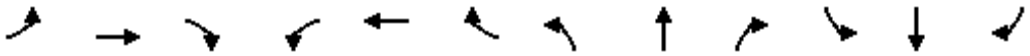
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	910	194	0	0	0	0	0	0	51	873	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5									5.5	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.97									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		6193									5066	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		6193									5066	
Peak-hour factor, PHF	0.25	0.96	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.93	0.25
Adj. Flow (vph)	0	948	211	0	0	0	0	0	0	55	939	0
RTOR Reduction (vph)	0	33	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	1126	0	0	0	0	0	0	0	0	983	0
Confl. Peds. (#/hr)	20		20	30		30	12		12	17		17
Confl. Bikes (#/hr)			5			7			3			
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		23.0									26.0	
Effective Green, g (s)		23.0									26.0	
Actuated g/C Ratio		0.38									0.43	
Clearance Time (s)		5.5									5.5	
Lane Grp Cap (vph)		2374									2195	
v/s Ratio Prot		c0.18										
v/s Ratio Perm											0.19	
v/c Ratio		0.47									0.45	
Uniform Delay, d1		13.9									12.0	
Progression Factor		0.83									0.62	
Incremental Delay, d2		0.7									0.6	
Delay (s)		12.2									8.0	
Level of Service		B									A	
Approach Delay (s)		12.2			0.0			0.0			8.0	
Approach LOS		B			A			A			A	

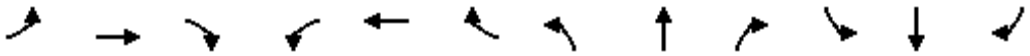
Intersection Summary			
HCM Average Control Delay	10.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	724	0	0	0	0	0	319	134	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.86						0.86				
Frpb, ped/bikes		1.00						0.98				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		6389						6032				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		6389						6032				
Peak-hour factor, PHF	0.92	0.92	0.25	0.25	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25
Adj. Flow (vph)	26	787	0	0	0	0	0	347	138	0	0	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	0	804	0	0	0	0	0	465	0	0	0	0
Confl. Peds. (#/hr)	46		46	17		17	53		53	68		68
Confl. Bikes (#/hr)			1			1			6			2
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		13.3						39.7				
Effective Green, g (s)		13.3						39.7				
Actuated g/C Ratio		0.22						0.66				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		1416						3991				
v/s Ratio Prot								c0.08				
v/s Ratio Perm		0.13										
v/c Ratio		0.57						0.12				
Uniform Delay, d1		20.8						3.7				
Progression Factor		1.00						1.00				
Incremental Delay, d2		0.3						0.1				
Delay (s)		21.1						3.8				
Level of Service		C						A				
Approach Delay (s)		21.1			0.0			3.8			0.0	
Approach LOS		C			A			A			A	

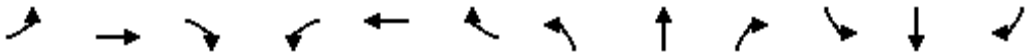
Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	178	1074	0	0	0	0	0	940	394	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		0.86						0.91				
Frpb, ped/bikes		1.00						0.99				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6345						4830				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6345						4830				
Peak-hour factor, PHF	0.92	0.98	0.25	0.25	0.25	0.25	0.25	0.94	0.96	0.25	0.25	0.25
Adj. Flow (vph)	193	1096	0	0	0	0	0	1000	410	0	0	0
RTOR Reduction (vph)	0	20	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	1269	0	0	0	0	0	1396	0	0	0	0
Confl. Peds. (#/hr)	22		22	50		50	14		14	6		6
Confl. Bikes (#/hr)			16			1			2			2
Turn Type	Perm											
Protected Phases		1						2				
Permitted Phases	1											
Actuated Green, G (s)		18.0						18.0				
Effective Green, g (s)		18.0						18.0				
Actuated g/C Ratio		0.40						0.40				
Clearance Time (s)		4.5						4.5				
Lane Grp Cap (vph)		2538						1932				
v/s Ratio Prot								c0.29				
v/s Ratio Perm		0.20										
v/c Ratio		0.50						0.72				
Uniform Delay, d1		10.1						11.4				
Progression Factor		0.95						1.56				
Incremental Delay, d2		0.5						1.8				
Delay (s)		10.1						19.6				
Level of Service		B						B				
Approach Delay (s)		10.1			0.0			19.6			0.0	
Approach LOS		B			A			B			A	

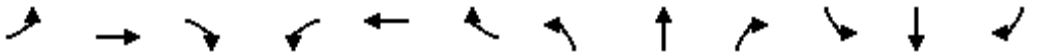
Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



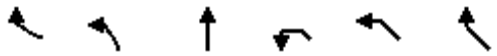
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	972	285	0	0	0	0	0	0	433	1471	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									3.0	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		1.00									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.96									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6153									5017	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6153									5017	
Peak-hour factor, PHF	0.25	0.99	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.95	0.25
Adj. Flow (vph)	0	982	310	0	0	0	0	0	0	471	1548	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	22	0
Lane Group Flow (vph)	0	1287	0	0	0	0	0	0	0	0	1997	0
Confl. Peds. (#/hr)	4		4	8		8	2		2	12		12
Confl. Bikes (#/hr)			2			2			2			
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		18.0									20.0	
Effective Green, g (s)		18.0									20.0	
Actuated g/C Ratio		0.40									0.44	
Clearance Time (s)		4.0									3.0	
Vehicle Extension (s)		2.0									2.0	
Lane Grp Cap (vph)		2461									2230	
v/s Ratio Prot		c0.21										
v/s Ratio Perm											0.40	
v/c Ratio		0.52									0.90	
Uniform Delay, d1		10.2									11.5	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.8									6.1	
Delay (s)		11.0									17.7	
Level of Service		B									B	
Approach Delay (s)		11.0			0.0			0.0			17.7	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	7	369	56	351	352	0	0	216	1629
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.93		1.00			1.00	0.98
Flpb, ped/bikes				0.98	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1726	1863	1471		1817			1863	1559
Flt Permitted				0.95	1.00	1.00		0.72			1.00	1.00
Satd. Flow (perm)				1726	1863	1471		1350			1863	1559
Peak-hour factor, PHF	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.98
Adj. Flow (vph)	0	0	0	8	401	61	382	383	0	0	235	1662
RTOR Reduction (vph)	0	0	0	0	0	46	0	0	0	0	0	41
Lane Group Flow (vph)	0	0	0	8	401	15	0	765	0	0	235	1621
Confl. Peds. (#/hr)	4		4	20		20	1		1	6		6
Confl. Bikes (#/hr)			10			7						
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					1			2			2	
Permitted Phases				1		1	2					2
Actuated Green, G (s)				14.4	14.4	14.4		34.6			34.6	34.6
Effective Green, g (s)				14.4	14.4	14.4		34.6			34.6	34.6
Actuated g/C Ratio				0.24	0.24	0.24		0.58			0.58	0.58
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				414	447	353		779			1074	899
v/s Ratio Prot					c0.22						0.13	
v/s Ratio Perm				0.00		0.01		0.57				c1.04
v/c Ratio				0.02	0.90	0.04		0.98			0.22	1.80
Uniform Delay, d1				17.4	22.1	17.5		12.4			6.2	12.7
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.0	20.2	0.0		28.2			0.5	365.8
Delay (s)				17.4	42.2	17.6		40.6			6.6	378.5
Level of Service				B	D	B		D			A	F
Approach Delay (s)		0.0			38.6			40.6			332.4	
Approach LOS		A			D			D			F	

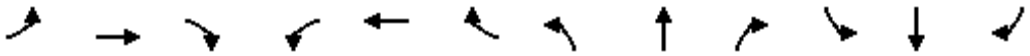
Intersection Summary			
HCM Average Control Delay	217.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.54		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	172.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBR	NBL	NBT	NWL2	NWL	NWR
Lane Configurations						
Volume (vph)	0	184	627	66	56	728
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5		2.0	2.0
Lane Util. Factor			0.95		0.97	0.91
Frpb, ped/bikes			1.00		1.00	1.00
Flpb, ped/bikes			1.00		1.00	1.00
Frt			1.00		0.89	0.85
Flt Protected			0.99		0.99	1.00
Satd. Flow (prot)			3500		3170	1441
Flt Permitted			0.99		0.99	1.00
Satd. Flow (perm)			3500		3170	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.94
Adj. Flow (vph)	0	200	682	72	61	774
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	882	0	520	387
Confl. Peds. (#/hr)	46					
Confl. Bikes (#/hr)	3					
Turn Type	custom	Perm		Perm		Perm
Protected Phases			3		1	
Permitted Phases	2	3		1		1
Actuated Green, G (s)			16.3		16.2	16.2
Effective Green, g (s)			16.3		16.2	16.2
Actuated g/C Ratio			0.36		0.36	0.36
Clearance Time (s)			3.5		2.0	2.0
Lane Grp Cap (vph)			1268		1141	519
v/s Ratio Prot						
v/s Ratio Perm			0.25		0.16	c0.27
v/c Ratio			0.70		0.46	0.75
Uniform Delay, d1			12.2		11.0	12.6
Progression Factor			0.75		1.00	1.00
Incremental Delay, d2			0.3		1.3	9.4
Delay (s)			9.5		12.3	22.0
Level of Service			A		B	C
Approach Delay (s)			9.5		16.5	
Approach LOS			A		B	

Intersection Summary			
HCM Average Control Delay	13.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	291	570	83	0	0	0	0	534	74	1	69	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5			3.5	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						1.00			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		0.99						0.98			1.00	
Flt Protected		0.98						1.00			1.00	
Satd. Flow (prot)		4917						1832			1862	
Flt Permitted		0.98						1.00			0.84	
Satd. Flow (perm)		1000						1300			1300	
Peak-hour factor, PHF	0.92	0.93	0.92	0.25	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.25
Adj. Flow (vph)	316	613	90	0	0	0	0	580	80	1	75	0
RTOR Reduction (vph)	0	26	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	994	0	0	0	0	0	649	0	0	76	0
Confl. Peds. (#/hr)	9		9	38		38				2		2
Confl. Bikes (#/hr)			11			4						2
Turn Type	Perm									Perm		
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		22.5						15.5			15.5	
Effective Green, g (s)		22.5						15.5			15.5	
Actuated g/C Ratio		0.50						0.34			0.34	
Clearance Time (s)		3.5						3.5			3.5	
Lane Grp Cap (vph)		500						631			448	
v/s Ratio Prot								c0.35				
v/s Ratio Perm		c0.99									0.06	
v/c Ratio		1.99						1.03			0.17	
Uniform Delay, d1		11.2						14.8			10.3	
Progression Factor		1.00						1.00			0.08	
Incremental Delay, d2		451.3						43.3			0.8	
Delay (s)		462.5						58.0			1.5	
Level of Service		F						E			A	
Approach Delay (s)		462.5			0.0			58.0			1.5	
Approach LOS		F			A			E			A	

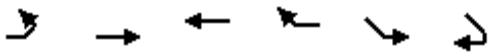
Intersection Summary			
HCM Average Control Delay	290.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.60		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	192	170	1168	831	149	823
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.94		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3316		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3316		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.94	0.92	0.92	0.92
Adj. Flow (vph)	209	185	1243	903	162	895
RTOR Reduction (vph)	0	152	135	0	0	0
Lane Group Flow (vph)	209	33	2011	0	162	895
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	16.0	16.0	39.9		22.1	66.0
Effective Green, g (s)	16.0	16.0	39.9		22.1	66.0
Actuated g/C Ratio	0.18	0.18	0.44		0.25	0.73
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	315	281	1470		435	2595
v/s Ratio Prot	c0.12		c0.61		c0.09	0.25
v/s Ratio Perm		0.02				
v/c Ratio	0.66	0.12	1.37		0.37	0.34
Uniform Delay, d1	34.5	31.1	25.0		28.2	4.3
Progression Factor	1.00	1.00	1.00		0.66	0.46
Incremental Delay, d2	5.2	0.2	170.0		1.9	0.3
Delay (s)	39.7	31.3	195.0		20.4	2.3
Level of Service	D	C	F		C	A
Approach Delay (s)	35.7		195.0			5.1
Approach LOS	D		F			A

Intersection Summary			
HCM Average Control Delay	121.7	HCM Level of Service	F
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	254	299	247	109	460	447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3377		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3377		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	276	325	268	118	500	486
RTOR Reduction (vph)	0	0	81	0	0	308
Lane Group Flow (vph)	276	325	305	0	500	178
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	12.5	27.1	10.6		20.2	20.2
Effective Green, g (s)	12.5	27.1	10.6		20.2	20.2
Actuated g/C Ratio	0.23	0.49	0.19		0.37	0.37
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	400	1734	647		647	578
v/s Ratio Prot	c0.16	0.09	c0.09		c0.28	
v/s Ratio Perm						0.11
v/c Ratio	0.69	0.19	0.47		0.77	0.31
Uniform Delay, d1	19.6	7.9	19.9		15.5	12.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.1	0.1	0.5		5.7	0.3
Delay (s)	24.7	8.0	20.4		21.2	12.9
Level of Service	C	A	C		C	B
Approach Delay (s)		15.6	20.4		17.1	
Approach LOS		B	C		B	

Intersection Summary			
HCM Average Control Delay	17.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	55.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	316	1362	142	0	571	672	490	1038	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.99			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4962			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4962			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.96	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	329	1480	154	0	614	730	533	1128	0
RTOR Reduction (vph)	0	0	0	11	0	0	0	52	0	0	0
Lane Group Flow (vph)	0	0	0	1952	0	0	614	678	533	1128	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				30.0			17.5	17.5	29.5	51.0	
Effective Green, g (s)				30.0			17.5	17.5	29.5	51.0	
Actuated g/C Ratio				0.33			0.19	0.19	0.33	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1654			688	308	580	2005	
v/s Ratio Prot				c0.39			0.17		c0.30	0.32	
v/s Ratio Perm								c0.43			
v/c Ratio				1.18			0.89	2.20	0.92	0.56	
Uniform Delay, d1				30.0			35.3	36.2	29.1	12.4	
Progression Factor				1.00			1.47	1.55	1.00	1.00	
Incremental Delay, d2				87.6			1.9	542.2	19.6	0.4	
Delay (s)				117.6			54.0	598.3	48.7	12.8	
Level of Service				F			D	F	D	B	
Approach Delay (s)	0.0			117.6			349.6			24.3	
Approach LOS	A			F			F			C	

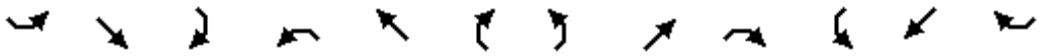
Intersection Summary			
HCM Average Control Delay	149.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	414	1167	609	169	346	550	71	329	24	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.98	0.85		0.90				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3135	1441		3198				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3135	1441		3198				1770	3539
Peak-hour factor, PHF	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	450	1241	662	184	376	598	77	358	26	264
RTOR Reduction (vph)	0	0	16	0	6	0	0	0	0	0
Lane Group Flow (vph)	405	1485	631	0	1045	0	0	0	384	264
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	28.0	28.0	28.0		37.0				12.0	53.0
Effective Green, g (s)	28.0	28.0	28.0		37.0				12.0	53.0
Actuated g/C Ratio	0.31	0.31	0.31		0.41				0.13	0.59
Clearance Time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	501	975	448		1315				236	2084
v/s Ratio Prot	0.25	c0.47	0.44		c0.33				c0.22	0.07
v/s Ratio Perm										
v/c Ratio	0.81	1.52	1.41		1.01dr				1.63	0.13
Uniform Delay, d1	28.5	31.0	31.0		23.2				39.0	8.2
Progression Factor	0.65	0.66	0.64		1.00				1.00	1.00
Incremental Delay, d2	1.3	235.9	185.2		5.0				300.8	0.1
Delay (s)	19.8	256.4	205.1		28.2				339.8	8.3
Level of Service	B	F	F		C				F	A
Approach Delay (s)		205.5			28.2					204.7
Approach LOS		F			C					F

Intersection Summary			
HCM Average Control Delay	161.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	1650	234	329	1013	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.91	1.00		*0.88				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1583		4860				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1583		4860				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.98	0.94	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1719	254	336	1078	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	10	0	6	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1719	244	0	1408	0	0	0	0
Turn Type						Perm	Perm					
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					30.0	30.0		22.0				
Effective Green, g (s)					30.0	30.0		22.0				
Actuated g/C Ratio					0.50	0.50		0.37				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					2543	792		1782				
v/s Ratio Prot					c0.34							
v/s Ratio Perm						0.15		0.29				
v/c Ratio					0.68	0.31		0.79				
Uniform Delay, d1					11.3	8.9		16.9				
Progression Factor					1.00	1.00		1.18				
Incremental Delay, d2					1.5	1.0		1.9				
Delay (s)					12.8	9.9		21.9				
Level of Service					B	A		C				
Approach Delay (s)		0.0			12.4			21.9			0.0	
Approach LOS		A			B			C			A	

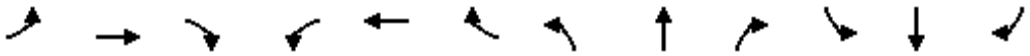
Intersection Summary			
HCM Average Control Delay	16.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	646	1371	0	0	0	0	0	715	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4778						3495	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4778						3495	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	702	1413	0	0	0	0	0	777	71
RTOR Reduction (vph)	0	0	0	38	26	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	474	1577	0	0	0	0	0	837	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				29.0	29.0						23.0	
Effective Green, g (s)				29.0	29.0						23.0	
Actuated g/C Ratio				0.48	0.48						0.38	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				736	2309						1340	
v/s Ratio Prot											c0.24	
v/s Ratio Perm				0.31	0.33							
v/c Ratio				0.64	0.68						0.62	
Uniform Delay, d1				11.6	12.0						15.0	
Progression Factor				1.43	1.37						1.00	
Incremental Delay, d2				3.2	1.2						2.2	
Delay (s)				19.8	17.6						17.2	
Level of Service				B	B						B	
Approach Delay (s)		0.0			18.1			0.0			17.2	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	230	492	11	18	242	20	16	24	30	68	50	45
Peak Hour Factor	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	250	523	12	20	263	22	17	26	33	74	54	49

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	250	535	304	76	177
Volume Left (vph)	250	0	20	17	74
Volume Right (vph)	0	12	22	33	49
Hadj (s)	0.53	0.02	0.00	-0.18	-0.05
Departure Headway (s)	6.3	5.8	5.8	6.7	6.5
Degree Utilization, x	0.44	0.86	0.49	0.14	0.32
Capacity (veh/h)	555	612	581	490	517
Control Delay (s)	13.0	33.6	14.4	10.8	12.5
Approach Delay (s)	27.0		14.4	10.8	12.5
Approach LOS	D		B	B	B

Intersection Summary			
Delay	21.3		
HCM Level of Service	C		
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp

Average Delay (sec/veh): 9.7 Worst Case Level Of Service: D[30.8]

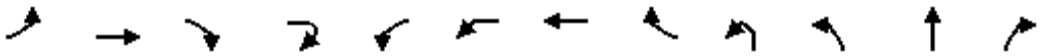
Street Name:	Harrison Street						Stanley Place / I-580 EB Off-Ramp					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Yield Sign			Yield Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0	0	0 0 3	0	0	0 0 0	0	1	0 0 0	0	0
Volume Module:												
Base Vol:	0	0	0	0	1121	0	0	0	506	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	1121	0	0	0	506	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	1121	0	0	0	506	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.93	1.00	1.00	1.00
PHF Volume:	0	0	0	0	1180	0	0	0	544	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	1180	0	0	0	544	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	393	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	660	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	660	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.82	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	8.8	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	30.8	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	D	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			30.8			xxxxxx		
ApproachLOS:	*			*			D			*		

Note: Queue reported is the number of cars per lane.



Movement	SEL2	SET	NET	NER	NER2
Lane Configurations					
Volume (vph)	468	165	1006	447	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	3.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	
Flt Protected	0.95	0.98	1.00	1.00	
Satd. Flow (prot)	1681	1730	3539	1583	
Flt Permitted	0.95	0.98	1.00	1.00	
Satd. Flow (perm)	1681	1730	3539	1583	
Peak-hour factor, PHF	0.97	0.92	0.92	0.92	0.92
Adj. Flow (vph)	482	179	1093	486	30
RTOR Reduction (vph)	79	55	0	0	0
Lane Group Flow (vph)	249	278	1093	516	0
Confl. Peds. (#/hr)					2
Confl. Bikes (#/hr)					
Turn Type	Perm			custom	
Protected Phases		4	5	1	
Permitted Phases	4			1	
Actuated Green, G (s)	12.9	12.9	39.6	16.6	
Effective Green, g (s)	12.9	12.9	39.6	16.6	
Actuated g/C Ratio	0.22	0.22	0.66	0.28	
Clearance Time (s)	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	361	372	2336	438	
v/s Ratio Prot			c0.31	c0.33	
v/s Ratio Perm	0.15	0.16			
v/c Ratio	0.69	0.75	0.47	1.18	
Uniform Delay, d1	21.7	22.0	5.0	21.7	
Progression Factor	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.3	7.0	0.7	101.6	
Delay (s)	26.0	29.0	5.7	123.3	
Level of Service	C	C	A	F	
Approach Delay (s)		27.5	43.4		
Approach LOS		C	D		

Intersection Summary			
HCM Average Control Delay	38.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



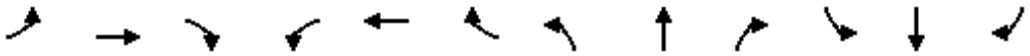
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	38	110	85	20	45	15	150	134	14	243	334	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00			1.00	1.00	1.00		0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.93			1.00	1.00	0.91		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85			1.00	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1478			1770	1863	1443		3433	3497	
Flt Permitted	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1478			1770	1863	1443		3433	3497	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	120	92	22	49	16	163	141	15	264	363	28
RTOR Reduction (vph)	0	0	11	0	0	0	0	117	0	0	5	0
Lane Group Flow (vph)	41	120	103	0	0	65	163	24	0	279	386	0
Confl. Peds. (#/hr)	21		21					27		9		8
Confl. Bikes (#/hr)			8					24				1
Turn Type	Prot		Perm		Prot	Prot		Perm	Prot	Prot		
Protected Phases	3	8			7	7	4		1	1	6	
Permitted Phases			8					4				
Actuated Green, G (s)	5.2	12.9	12.9			7.4	15.1	15.1		12.6	44.4	
Effective Green, g (s)	5.2	12.9	12.9			7.4	15.1	15.1		12.6	44.4	
Actuated g/C Ratio	0.06	0.14	0.14			0.08	0.17	0.17		0.14	0.49	
Clearance Time (s)	4.0	4.0	4.0			4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	102	507	212			146	313	242		481	1725	
v/s Ratio Prot	0.02	0.03				0.04	c0.09			c0.08	c0.11	
v/s Ratio Perm			c0.07					0.02				
v/c Ratio	0.40	0.24	0.49			0.45	0.52	0.10		0.58	0.22	
Uniform Delay, d1	40.9	34.2	35.5			39.3	34.2	31.7		36.2	13.0	
Progression Factor	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.6	0.2	1.7			2.2	1.6	0.2		1.8	0.3	
Delay (s)	43.5	34.4	37.2			41.5	35.7	31.9		38.0	13.3	
Level of Service	D	C	D			D	D	C		D	B	
Approach Delay (s)		36.9					35.3				23.6	
Approach LOS		D					D				C	

Intersection Summary			
HCM Average Control Delay	28.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Volume (vph)	96	1015	95	94
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.98		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3456		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3456		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	104	1103	103	102
RTOR Reduction (vph)	0	5	0	0
Lane Group Flow (vph)	104	1303	0	0
Confl. Peds. (#/hr)	18			
Confl. Bikes (#/hr)				
Turn Type	Prot			
Protected Phases	5	2		
Permitted Phases				
Actuated Green, G (s)	9.3	41.1		
Effective Green, g (s)	9.3	41.1		
Actuated g/C Ratio	0.10	0.46		
Clearance Time (s)	4.0	4.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	183	1578		
v/s Ratio Prot	0.06	c0.38		
v/s Ratio Perm				
v/c Ratio	0.57	0.83		
Uniform Delay, d1	38.4	21.3		
Progression Factor	1.00	1.00		
Incremental Delay, d2	4.0	5.1		
Delay (s)	42.4	26.4		
Level of Service	D	C		
Approach Delay (s)		27.6		
Approach LOS		C		

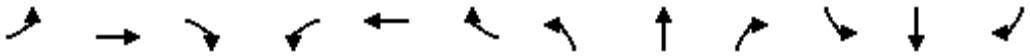
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	172	77	33	288	289	49	459	37	94	547	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.95			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1746	3330			3517	1543	1760	3484		1766	3495	
Flt Permitted	0.55	1.00			0.90	1.00	0.35	1.00		0.43	1.00	
Satd. Flow (perm)	1007	3330			3168	1543	649	3484		797	3495	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.95	0.92	0.92	0.97	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	185	84	36	303	314	53	473	40	102	595	47
RTOR Reduction (vph)	0	48	0	0	0	147	0	7	0	0	7	0
Lane Group Flow (vph)	61	221	0	0	339	167	53	506	0	102	635	0
Confl. Peds. (#/hr)	25		25	18		13	19		13	6		6
Confl. Bikes (#/hr)		16	16	59		5		5	59			6
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			2	
Permitted Phases	4			8		8	2			2		
Actuated Green, G (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Effective Green, g (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Actuated g/C Ratio	0.42	0.42			0.42	0.42	0.45	0.45		0.45	0.45	
Clearance Time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	426	1410			1342	654	290	1558		356	1562	
v/s Ratio Prot		0.07						0.15			c0.18	
v/s Ratio Perm	0.06				0.11	c0.11	0.08			0.13		
v/c Ratio	0.14	0.16			0.25	0.26	0.18	0.32		0.29	0.41	
Uniform Delay, d1	15.0	15.1			15.8	15.8	14.2	15.2		14.9	15.9	
Progression Factor	1.05	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.2			0.5	0.9	1.4	0.6		2.0	0.8	
Delay (s)	16.5	15.4			16.3	16.8	15.5	15.8		16.9	16.7	
Level of Service	B	B			B	B	B	B		B	B	
Approach Delay (s)		15.6			16.5			15.7			16.7	
Approach LOS		B			B			B			B	

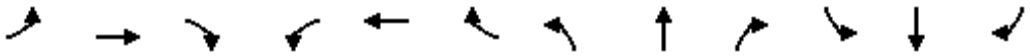
Intersection Summary			
HCM Average Control Delay	16.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	343	365	134	43	253	107	83	362	22	46	341	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	1863	1561	1765	1863	1546	1761	3498		1764	3367	
Flt Permitted	0.48	1.00	1.00	0.53	1.00	1.00	0.28	1.00		0.39	1.00	
Satd. Flow (perm)	893	1863	1561	981	1863	1546	512	3498		716	3367	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	373	397	146	47	275	116	86	393	24	50	371	145
RTOR Reduction (vph)	0	0	58	0	0	59	0	7	0	0	64	0
Lane Group Flow (vph)	373	397	88	47	275	57	86	410	0	50	452	0
Confl. Peds. (#/hr)	1		1	8		8	12		12	6		6
Confl. Bikes (#/hr)			2			5			27			6
Turn Type	pm+pt		Permpm+pt			Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	59.4	51.4	51.4	45.6	42.1	42.1	16.6	16.6		16.6	16.6	
Effective Green, g (s)	59.4	51.4	51.4	45.6	42.1	42.1	16.6	16.6		16.6	16.6	
Actuated g/C Ratio	0.70	0.60	0.60	0.54	0.50	0.50	0.20	0.20		0.20	0.20	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	756	1127	944	559	923	766	100	683		140	658	
v/s Ratio Prot	c0.07	0.21		0.00	0.15			0.12			0.13	
v/s Ratio Perm	c0.27		0.06	0.04		0.04	c0.17			0.07		
v/c Ratio	0.49	0.35	0.09	0.08	0.30	0.08	0.86	0.60		0.36	0.69	
Uniform Delay, d1	5.6	8.4	7.0	9.4	12.7	11.2	33.1	31.2		29.6	31.8	
Progression Factor	1.00	1.00	1.00	0.65	0.67	0.33	0.91	0.89		1.00	1.00	
Incremental Delay, d2	0.2	0.9	0.2	0.0	0.8	0.2	46.1	0.9		0.6	2.4	
Delay (s)	5.7	9.3	7.2	6.1	9.4	3.9	76.2	28.7		30.2	34.2	
Level of Service	A	A	A	A	A	A	E	C		C	C	
Approach Delay (s)		7.5			7.6			36.9			33.8	
Approach LOS		A			A			D			C	

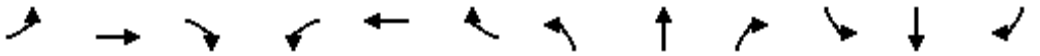
Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	834	0	0	149	297	5	263	25	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1608	3387			3539	2787		5008				
Flt Permitted	0.65	0.95			1.00	1.00		1.00				
Satd. Flow (perm)	1099	3219			3539	2787		5008				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	907	0	0	162	323	5	286	27	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	194	0	16	0	0	0	0
Lane Group Flow (vph)	151	924	0	0	162	129	0	302	0	0	0	0
Confl. Peds. (#/hr)	2		2				6		6	4		4
Confl. Bikes (#/hr)									4			3
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	16.0	16.0			16.0	16.0		16.0				
Effective Green, g (s)	16.0	16.0			16.0	16.0		16.0				
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.40				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)	440	1288			1416	1115		2003				
v/s Ratio Prot					0.05							
v/s Ratio Perm	0.14	c0.29				0.05		0.06				
v/c Ratio	0.34	0.72			0.11	0.12		0.15				
Uniform Delay, d1	8.3	10.1			7.5	7.5		7.7				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	2.1	3.5			0.2	0.2		0.2				
Delay (s)	10.5	13.6			7.7	7.8		7.8				
Level of Service	B	B			A	A		A				
Approach Delay (s)		13.1			7.7			7.8			0.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

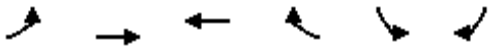
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	280	27	11	158	0	0	0	0	692	1033	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00		0.95					0.91	0.91	1.00
Frpb, ped/bikes		1.00	0.98		1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00					1.00	1.00	1.00
Frt		1.00	0.85		1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00					0.95	0.99	1.00
Satd. Flow (prot)		3539	1558		3526					1610	3370	1583
Flt Permitted		1.00	1.00		0.93					0.95	0.99	1.00
Satd. Flow (perm)		3539	1558		3296					1610	3370	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92
Adj. Flow (vph)	0	304	29	12	172	0	0	0	0	752	1111	382
RTOR Reduction (vph)	0	0	19	0	0	0	0	0	0	0	0	185
Lane Group Flow (vph)	0	304	10	0	184	0	0	0	0	602	1261	197
Confl. Peds. (#/hr)	2		2	10		10	6		6			
Confl. Bikes (#/hr)			3			4			1			
Turn Type			Perm	Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases			4	8						6		6
Actuated Green, G (s)		21.0	21.0		21.0					31.0	31.0	31.0
Effective Green, g (s)		21.0	21.0		21.0					31.0	31.0	31.0
Actuated g/C Ratio		0.35	0.35		0.35					0.52	0.52	0.52
Clearance Time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Grp Cap (vph)		1239	545		1154					832	1741	818
v/s Ratio Prot		c0.09										
v/s Ratio Perm			0.01		0.06					0.37	0.37	0.12
v/c Ratio		0.25	0.02		0.16					0.72	0.72	0.24
Uniform Delay, d1		13.9	12.8		13.4					11.2	11.2	8.0
Progression Factor		1.00	1.00		1.00					1.00	1.00	1.00
Incremental Delay, d2		0.5	0.1		0.3					5.4	2.7	0.7
Delay (s)		14.3	12.8		13.7					16.6	13.9	8.7
Level of Service		B	B		B					B	B	A
Approach Delay (s)		14.2			13.7			0.0			13.7	
Approach LOS		B			B			A			B	

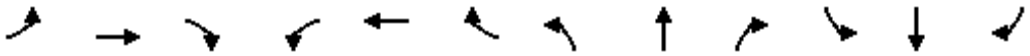
Intersection Summary			
HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



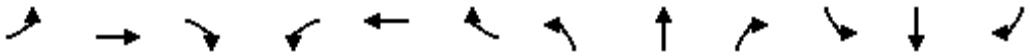
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	195	584	670	126	808	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3438		3432	1414
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3438		3432	1414
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	212	635	728	137	878	214
RTOR Reduction (vph)	0	0	18	0	2	134
Lane Group Flow (vph)	212	635	847	0	897	59
Confl. Peds. (#/hr)	14			11	6	6
Confl. Bikes (#/hr)				10		1
Turn Type	Prot					Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	12.8	47.6	30.8		24.4	24.4
Effective Green, g (s)	12.8	47.6	30.8		24.4	24.4
Actuated g/C Ratio	0.16	0.60	0.38		0.30	0.30
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	283	2106	1324		1047	431
v/s Ratio Prot	c0.12	0.18	c0.25		c0.26	
v/s Ratio Perm						0.04
v/c Ratio	0.75	0.30	0.64		0.86	0.14
Uniform Delay, d1	32.1	8.0	20.1		26.2	20.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	9.1	0.4	2.4		6.8	0.1
Delay (s)	41.2	8.4	22.5		32.9	20.2
Level of Service	D	A	C		C	C
Approach Delay (s)		16.6	22.5		30.7	
Approach LOS		B	C		C	

Intersection Summary			
HCM Average Control Delay	23.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



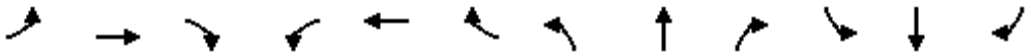
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	108	835	357	68	424	67	201	258	31	100	354	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1766	3427	1553	1768	3347		1768	3471		1757	3430	
Flt Permitted	0.32	1.00	1.00	0.16	1.00		0.41	1.00		0.57	1.00	
Satd. Flow (perm)	592	3427	1553	300	3347		759	3471		1046	3430	
Peak-hour factor, PHF	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	870	388	74	461	73	218	272	34	109	385	84
RTOR Reduction (vph)	0	0	275	0	14	0	0	8	0	0	20	0
Lane Group Flow (vph)	117	870	113	74	520	0	218	298	0	109	449	0
Confl. Peds. (#/hr)	4		4	4		4	4		4	11		11
Confl. Bikes (#/hr)			3			7			21			1
Turn Type	Perm		Perm	Perm			pm+pt			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	24.8	24.8	24.8	24.8	24.8		49.7	49.7		35.9	35.9	
Effective Green, g (s)	24.8	24.8	24.8	24.8	24.8		49.7	49.7		35.9	35.9	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29		0.58	0.58		0.42	0.42	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	173	1000	453	88	977		554	2030		442	1449	
v/s Ratio Prot		c0.25			0.16		c0.04	0.09			0.13	
v/s Ratio Perm	0.20		0.07	0.25			c0.19			0.10		
v/c Ratio	0.68	0.87	0.25	0.84	0.53		0.39	0.15		0.25	0.31	
Uniform Delay, d1	26.6	28.6	23.0	28.2	25.2		8.7	8.0		15.8	16.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.14	1.17	
Incremental Delay, d2	19.2	10.3	1.3	59.2	2.1		0.2	0.2		1.3	0.5	
Delay (s)	45.8	38.8	24.3	87.4	27.3		8.8	8.2		19.4	19.6	
Level of Service	D	D	C	F	C		A	A		B	B	
Approach Delay (s)		35.3			34.6			8.4			19.6	
Approach LOS		D			C			A			B	

Intersection Summary			
HCM Average Control Delay	27.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



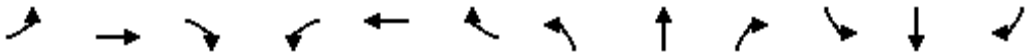
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	87	710	78	94	484	72	107	420	90	77	378	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	*0.92			*0.92		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99			0.98		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1753	3360			3324		1763	3539	1529	1761	3434	
Flt Permitted	0.26	1.00			0.61		0.44	1.00	1.00	0.47	1.00	
Satd. Flow (perm)	478	3360			2053		820	3539	1529	864	3434	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	772	85	102	526	78	116	457	98	84	411	85
RTOR Reduction (vph)	0	12	0	0	13	0	0	0	47	0	19	0
Lane Group Flow (vph)	95	845	0	0	693	0	116	457	51	84	477	0
Confl. Peds. (#/hr)	34		34	37		37	8		8	10		10
Confl. Bikes (#/hr)			11			8			35			7
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	30.5	30.5			30.5		41.5	41.5	41.5	41.5	41.5	
Effective Green, g (s)	30.5	30.5			30.5		41.5	41.5	41.5	41.5	41.5	
Actuated g/C Ratio	0.38	0.38			0.38		0.52	0.52	0.52	0.52	0.52	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	182	1281			783		425	1836	793	448	1781	
v/s Ratio Prot		0.25						0.13			0.14	
v/s Ratio Perm	0.20				c0.34		c0.14		0.03	0.10		
v/c Ratio	0.52	0.66			0.89		0.27	0.25	0.06	0.19	0.27	
Uniform Delay, d1	19.1	20.5			23.1		10.8	10.6	9.6	10.3	10.8	
Progression Factor	1.00	1.00			1.21		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	0.9			11.3		1.6	0.3	0.2	0.9	0.4	
Delay (s)	20.4	21.4			39.2		12.4	11.0	9.7	11.2	11.1	
Level of Service	C	C			D		B	B	A	B	B	
Approach Delay (s)		21.3			39.2			11.0			11.1	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	386	386	119	439	0	0	0	0	10	158	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						3.0	
Lane Util. Factor		*0.92		1.00	*0.92						0.95	
Frpb, ped/bikes		0.97		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						0.99	
Frt		0.92		1.00	1.00						0.98	
Flt Protected		1.00		0.95	1.00						1.00	
Satd. Flow (prot)		3077		1770	3427						3416	
Flt Permitted		1.00		0.18	1.00						1.00	
Satd. Flow (perm)		3077		339	3427						3416	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	415	420	129	477	0	0	0	0	11	172	21
RTOR Reduction (vph)	0	203	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	632	0	129	477	0	0	0	0	0	193	0
Confl. Peds. (#/hr)	26		26	28		28	21		21	101		101
Confl. Bikes (#/hr)			4			4			3			6
Turn Type	Perm			pm+pt						Perm		
Protected Phases		2		1	6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)		31.6		43.0	43.0						29.0	
Effective Green, g (s)		31.6		43.0	43.0						29.0	
Actuated g/C Ratio		0.40		0.54	0.54						0.36	
Clearance Time (s)		5.0		5.0	5.0						3.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		1215		297	1842						1238	
v/s Ratio Prot		c0.21		c0.03	0.14							
v/s Ratio Perm				0.20							0.06	
v/c Ratio		0.52		0.43	0.26						0.16	
Uniform Delay, d1		18.4		11.3	9.9						17.2	
Progression Factor		2.61		1.00	1.00						1.00	
Incremental Delay, d2		1.4		0.4	0.3						0.3	
Delay (s)		49.6		11.7	10.3						17.5	
Level of Service		D		B	B						B	
Approach Delay (s)		49.6			10.6			0.0			17.5	
Approach LOS		D			B			A			B	

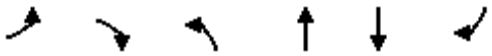
Intersection Summary			
HCM Average Control Delay	31.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	148	77	535	547	119	121	776	341	33	773	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	
Frpb, ped/bikes	1.00	1.00	0.93	1.00	1.00	0.94		1.00	0.90		0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	
Satd. Flow (prot)	3433	3539	1479	3433	3539	1485		5041	1419		4973	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.66	1.00		0.85	
Satd. Flow (perm)	3433	3539	1479	3433	3539	1485		3370	1419		4250	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92
Adj. Flow (vph)	67	161	84	582	595	129	132	843	371	36	831	97
RTOR Reduction (vph)	0	0	20	0	0	72	0	0	237	0	13	0
Lane Group Flow (vph)	67	161	64	582	595	57	0	975	134	0	951	0
Confl. Peds. (#/hr)	38		38	34		34	60		60	28		28
Confl. Bikes (#/hr)			12			18			39			9
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		
Protected Phases	1	6		5	2			4			4	
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	5.5	33.0	33.0	16.0	44.5	44.5		36.0	36.0		36.0	
Effective Green, g (s)	5.5	33.0	33.0	16.0	44.5	44.5		36.0	36.0		36.0	
Actuated g/C Ratio	0.06	0.33	0.33	0.16	0.44	0.44		0.36	0.36		0.36	
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	189	1168	488	549	1575	661		1213	511		1530	
v/s Ratio Prot	0.02	0.05		c0.17	c0.17							
v/s Ratio Perm			0.04			0.04		c0.29	0.09		0.22	
v/c Ratio	0.35	0.14	0.13	1.06	0.38	0.09		0.98dl	0.26		0.62	
Uniform Delay, d1	45.5	23.5	23.5	42.0	18.5	16.0		28.8	22.6		26.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.2	0.6	55.3	0.7	0.3		5.7	1.2		1.9	
Delay (s)	46.0	23.8	24.0	97.3	19.2	16.3		34.5	23.8		28.3	
Level of Service	D	C	C	F	B	B		C	C		C	
Approach Delay (s)		28.6			53.7			31.6			28.3	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	37.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	94	44	106	947	1088	530
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.5	4.5	
Lane Util. Factor	0.97		1.00	*0.50	0.86	
Frpb, ped/bikes	0.98		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.95		1.00	1.00	0.95	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	3253		1768	3725	6091	
Flt Permitted	0.97		0.10	1.00	1.00	
Satd. Flow (perm)	3253		183	3725	6091	
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.93	0.92
Adj. Flow (vph)	102	48	115	986	1170	576
RTOR Reduction (vph)	43	0	0	0	54	0
Lane Group Flow (vph)	107	0	115	986	1692	0
Confl. Peds. (#/hr)	36	36	109			
Confl. Bikes (#/hr)		14				
Turn Type			pm+pt			
Protected Phases	4		1	2	2	
Permitted Phases			2			
Actuated Green, G (s)	8.0		58.5	52.3	52.3	
Effective Green, g (s)	8.0		58.5	52.3	52.3	
Actuated g/C Ratio	0.10		0.73	0.65	0.65	
Clearance Time (s)	5.0		4.0	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	325		257	2435	3982	
v/s Ratio Prot	c0.03		c0.03	0.26	0.28	
v/s Ratio Perm			c0.29			
v/c Ratio	0.33		0.45	0.40	0.42	
Uniform Delay, d1	33.5		3.7	6.5	6.6	
Progression Factor	1.00		1.23	1.50	1.00	
Incremental Delay, d2	0.6		1.1	0.5	0.3	
Delay (s)	34.1		5.6	10.3	7.0	
Level of Service	C		A	B	A	
Approach Delay (s)	34.1			9.8	7.0	
Approach LOS	C			A	A	

Intersection Summary			
HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	132	30	102	534	1	11
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	143	33	111	580	1	12
Pedestrians	7			7	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	533			360		
pX, platoon unblocked						
vC, conflicting volume			178		971	169
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			178		971	169
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		100	99
cM capacity (veh/h)			1395		256	869

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	176	691	13
Volume Left	0	111	1
Volume Right	33	0	12
cSH	1700	1395	724
Volume to Capacity	0.10	0.08	0.02
Queue Length 95th (ft)	0	6	1
Control Delay (s)	0.0	2.0	10.1
Lane LOS		A	B
Approach Delay (s)	0.0	2.0	10.1
Approach LOS			B

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	140	190	294	242	2	20
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	152	207	320	263	2	22
Pedestrians	24			24	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	2			2	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	470			423		
pX, platoon unblocked						
vC, conflicting volume			361		1184	281
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			361		1184	281
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			73		99	97
cM capacity (veh/h)			1196		150	741

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	359	583	24
Volume Left	0	320	2
Volume Right	207	0	22
cSH	1700	1196	546
Volume to Capacity	0.21	0.27	0.04
Queue Length 95th (ft)	0	27	3
Control Delay (s)	0.0	6.3	11.9
Lane LOS		A	B
Approach Delay (s)	0.0	6.3	11.9
Approach LOS			B

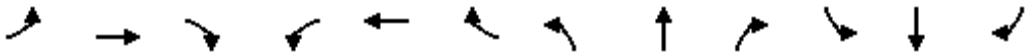
Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	180	88	91	396	30	30
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	1.00	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	196	88	99	430	33	33
Pedestrians	16			16	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	80			813		
pX, platoon unblocked						
vC, conflicting volume			286		886	258
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			286		886	258
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		89	96
cM capacity (veh/h)			1274		286	769

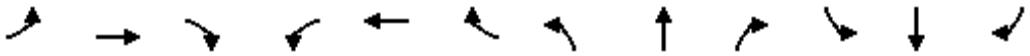
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	284	529	16	16	16	16
Volume Left	0	99	16	16	0	0
Volume Right	88	0	0	0	16	16
cSH	1700	1274	286	286	769	769
Volume to Capacity	0.17	0.08	0.06	0.06	0.02	0.02
Queue Length 95th (ft)	0	6	5	5	2	2
Control Delay (s)	0.0	2.2	18.3	18.3	9.8	9.8
Lane LOS		A	C	C	A	A
Approach Delay (s)	0.0	2.2	14.1			
Approach LOS			B			

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		



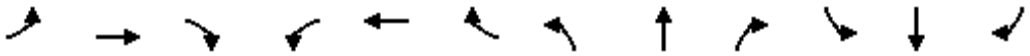
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	283	56	50	56	0	0	0	0	228	400	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.91	
Frpb, ped/bikes		1.00	0.85		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.96						0.96	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.98						0.98	
Satd. Flow (prot)		1863	1342		1744						4736	
Flt Permitted		1.00	1.00		0.58						0.98	
Satd. Flow (perm)		1863	1342		1041						4736	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	308	61	54	61	0	0	0	0	248	435	33
RTOR Reduction (vph)	0	0	46	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	308	15	0	115	0	0	0	0	0	713	0
Confl. Peds. (#/hr)	106		106	134		134	73		73	52		52
Confl. Bikes (#/hr)			3			7			21			1
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		19.8	19.8		19.8						52.2	
Effective Green, g (s)		19.8	19.8		19.8						52.2	
Actuated g/C Ratio		0.25	0.25		0.25						0.65	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		461	332		258						3090	
v/s Ratio Prot		c0.17										
v/s Ratio Perm			0.01		0.11						0.15	
v/c Ratio		0.67	0.05		0.45						0.23	
Uniform Delay, d1		27.1	22.9		25.5						5.7	
Progression Factor		1.00	1.00		1.00						0.74	
Incremental Delay, d2		3.7	0.1		1.2						0.2	
Delay (s)		30.8	23.0		26.7						4.4	
Level of Service		C	C		C						A	
Approach Delay (s)		29.5			26.7			0.0			4.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



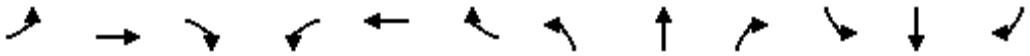
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	213	4	0	40	38	10	204	133	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.94			1.00	0.87			
Flpb, ped/bikes		1.00			1.00			1.00	1.00			
Frt		1.00			0.93			1.00	0.85			
Flt Protected		1.00			1.00			1.00	1.00			
Satd. Flow (prot)		1850			1635			3514	1376			
Flt Permitted		0.99			1.00			1.00	1.00			
Satd. Flow (perm)		1843			1635			3514	1376			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	232	4	0	43	41	11	222	145	0	0	0
RTOR Reduction (vph)	0	1	0	0	14	0	0	0	121	0	0	0
Lane Group Flow (vph)	0	243	0	0	70	0	0	233	24	0	0	0
Confl. Peds. (#/hr)	58		58	134		134	73		73	87		87
Confl. Bikes (#/hr)						5			5			2
Turn Type	Perm						Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2						1		1			
Actuated Green, G (s)		29.6			29.6			7.4	7.4			
Effective Green, g (s)		29.6			29.6			7.4	7.4			
Actuated g/C Ratio		0.66			0.66			0.16	0.16			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)		1212			1075			578	226			
v/s Ratio Prot					0.04							
v/s Ratio Perm		c0.13						0.07	0.02			
v/c Ratio		0.20			0.07			0.40	0.11			
Uniform Delay, d1		3.0			2.8			16.8	16.0			
Progression Factor		0.53			1.00			1.00	1.00			
Incremental Delay, d2		0.4			0.1			0.2	0.1			
Delay (s)		2.0			2.9			17.0	16.1			
Level of Service		A			A			B	B			
Approach Delay (s)		2.0			2.9			16.6			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	36.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



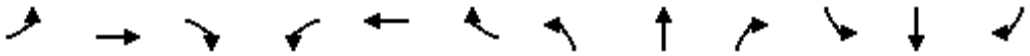
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	121	17	25	0	35	0	320	38	76	354	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	
Flpb, ped/bikes	0.99	1.00			1.00			1.00			0.99	
Frt	1.00	0.98			0.92			0.98			1.00	
Flt Protected	0.95	1.00			0.98			1.00			0.99	
Satd. Flow (prot)	1751	1824			1651			3455			3487	
Flt Permitted	0.71	1.00			0.89			1.00			0.82	
Satd. Flow (perm)	1317	1824			1493			3455			2878	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	132	18	27	0	38	0	348	41	83	385	0
RTOR Reduction (vph)	0	10	0	0	22	0	0	20	0	0	0	0
Lane Group Flow (vph)	12	140	0	0	43	0	0	369	0	0	468	0
Confl. Peds. (#/hr)	16		16	17		17	43		43	44		44
Confl. Bikes (#/hr)			2						2			16
Turn Type	Perm			Perm						Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2						4		
Actuated Green, G (s)	19.0	19.0			19.0			17.0			17.0	
Effective Green, g (s)	19.0	19.0			19.0			17.0			17.0	
Actuated g/C Ratio	0.42	0.42			0.42			0.38			0.38	
Clearance Time (s)	4.0	4.0			4.0			5.0			5.0	
Vehicle Extension (s)	2.0	2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)	556	770			630			1305			1087	
v/s Ratio Prot		c0.08						0.11				
v/s Ratio Perm	0.01				0.03						c0.16	
v/c Ratio	0.02	0.18			0.07			0.28			0.43	
Uniform Delay, d1	7.6	8.1			7.7			9.8			10.4	
Progression Factor	1.00	1.00			1.26			1.00			1.00	
Incremental Delay, d2	0.1	0.5			0.2			0.5			1.2	
Delay (s)	7.7	8.7			10.0			10.3			11.6	
Level of Service	A	A			A			B			B	
Approach Delay (s)		8.6			10.0			10.3			11.6	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	10.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	90	20	12	198	101	34	458	37	158	163	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5		4.5	4.5	
Lane Util. Factor		0.95			0.95			0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99			1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00			1.00		1.00	1.00	
Frt		0.98			0.95			0.99		1.00	0.96	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3414			3324			3483		1769	3383	
Flt Permitted		0.87			0.94			0.92		0.38	1.00	
Satd. Flow (perm)		2980			3130			3226		698	3383	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	98	22	13	211	110	37	467	40	172	177	63
RTOR Reduction (vph)	0	18	0	0	92	0	0	8	0	0	20	0
Lane Group Flow (vph)	0	123	0	0	242	0	0	537	0	172	220	0
Confl. Peds. (#/hr)	10		10	19		19	5		5	4		4
Confl. Bikes (#/hr)			4			1			3			9
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		9.9			9.9			30.0		41.1	41.1	
Effective Green, g (s)		9.9			9.9			30.0		41.1	41.1	
Actuated g/C Ratio		0.16			0.16			0.50		0.68	0.68	
Clearance Time (s)		4.5			4.5			4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		492			516			1613		596	2317	
v/s Ratio Prot										c0.03	0.07	
v/s Ratio Perm		0.04			c0.08			c0.17		0.17		
v/c Ratio		0.25			0.47			0.33		0.29	0.10	
Uniform Delay, d1		21.8			22.7			9.0		3.6	3.2	
Progression Factor		1.00			1.00			1.00		1.00	1.00	
Incremental Delay, d2		0.3			0.6			0.6		0.3	0.1	
Delay (s)		22.1			23.3			9.6		3.9	3.3	
Level of Service		C			C			A		A	A	
Approach Delay (s)		22.1			23.3			9.6			3.5	
Approach LOS		C			C			A			A	

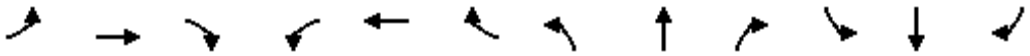
Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	177	61	48	157	112	60	478	78	63	414	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.98			0.96			0.99			1.00	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.96			0.95			0.98			0.99	
Flt Protected		1.00			0.99			1.00			0.99	
Satd. Flow (prot)		3340			3153			3400			4981	
Flt Permitted		0.94			0.88			0.86			0.80	
Satd. Flow (perm)		3154			2783			2950			4002	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	192	66	52	171	122	65	514	85	68	450	28
RTOR Reduction (vph)	0	42	0	0	77	0	0	19	0	0	10	0
Lane Group Flow (vph)	0	225	0	0	268	0	0	645	0	0	536	0
Confl. Peds. (#/hr)	58		58	99		99	72		72	49		49
Confl. Bikes (#/hr)			7			33			10			6
Turn Type	Perm			Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						6		
Actuated Green, G (s)		22.0			22.0			29.0			18.0	
Effective Green, g (s)		22.0			22.0			29.0			18.0	
Actuated g/C Ratio		0.37			0.37			0.48			0.30	
Clearance Time (s)		4.0			4.0			5.0			5.0	
Lane Grp Cap (vph)		1156			1020			1478			1201	
v/s Ratio Prot								c0.05				
v/s Ratio Perm		0.07			c0.10			c0.16			0.13	
v/c Ratio		0.19			0.26			0.44			0.45	
Uniform Delay, d1		13.0			13.3			10.1			17.0	
Progression Factor		0.89			1.00			1.00			1.00	
Incremental Delay, d2		0.4			0.6			0.9			1.2	
Delay (s)		11.8			13.9			11.1			18.2	
Level of Service		B			B			B			B	
Approach Delay (s)		11.8			13.9			11.1			18.2	
Approach LOS		B			B			B			B	

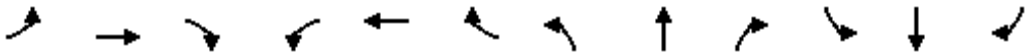
Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	313	0	0	257	88	32	242	96	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.91	1.00			
Frpb, ped/bikes		1.00			1.00	0.93		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			0.99	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3515			3364	1337		5023	1458			
Flt Permitted		0.92			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3237			3364	1337		5023	1458			
Peak-hour factor, PHF	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	340	0	0	279	96	35	263	104	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	19	0	0	91	0	0	0
Lane Group Flow (vph)	0	370	0	0	288	67	0	298	13	0	0	0
Confl. Peds. (#/hr)	40		40	45		45	51		51	207		207
Confl. Bikes (#/hr)			5			6			8			12
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		62.7			62.7	62.7		10.3	10.3			
Effective Green, g (s)		62.7			62.7	62.7		10.3	10.3			
Actuated g/C Ratio		0.78			0.78	0.78		0.13	0.13			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2537			2637	1048		647	188			
v/s Ratio Prot					0.09							
v/s Ratio Perm		c0.11				0.05		0.06	0.01			
v/c Ratio		0.15			0.11	0.06		0.46	0.07			
Uniform Delay, d1		2.1			2.0	2.0		32.3	30.6			
Progression Factor		1.00			1.89	4.21		1.00	1.00			
Incremental Delay, d2		0.1			0.1	0.1		0.5	0.2			
Delay (s)		2.2			3.9	8.4		32.8	30.8			
Level of Service		A			A	A		C	C			
Approach Delay (s)		2.2			5.0			32.3			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	264	150	159	256	0	0	0	0	67	340	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	0.91	0.91						0.91	
Frpb, ped/bikes		1.00	0.90	1.00	1.00						0.94	
Flpb, ped/bikes		1.00	1.00	1.00	0.99						0.96	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		3539	1422	1610	3354						4452	
Flt Permitted		1.00	1.00	0.95	0.94						0.99	
Satd. Flow (perm)		3539	1422	1610	3152						4452	
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	287	158	173	278	0	0	0	0	73	370	97
RTOR Reduction (vph)	0	0	111	0	0	0	0	0	0	0	43	0
Lane Group Flow (vph)	0	287	47	145	306	0	0	0	0	0	497	0
Confl. Peds. (#/hr)	53		53	86		86	105		105	331		331
Confl. Bikes (#/hr)			16			2			1			14
Turn Type			Perm	Prot						Perm		
Protected Phases		2		1	6						4	
Permitted Phases			2							4		
Actuated Green, G (s)		21.0	21.0	16.0	41.0						31.0	
Effective Green, g (s)		21.0	21.0	16.0	41.0						31.0	
Actuated g/C Ratio		0.26	0.26	0.20	0.51						0.39	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		929	373	322	1656						1725	
v/s Ratio Prot		c0.08		c0.09	0.04							
v/s Ratio Perm			0.03		0.06						0.11	
v/c Ratio		0.31	0.13	0.45	0.18						0.29	
Uniform Delay, d1		23.7	22.5	28.1	10.5						16.9	
Progression Factor		1.07	1.68	1.48	0.47						1.13	
Incremental Delay, d2		0.9	0.7	0.3	0.0						0.0	
Delay (s)		26.2	38.5	42.1	5.0						19.2	
Level of Service		C	D	D	A						B	
Approach Delay (s)		30.5			16.9			0.0			19.2	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	22.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL2	EBL	EBR	NBL2	NBL	NBT	SBT	SBR	SBR2	SEL	SER	SER2
Lane Configurations												
Volume (vph)	72	122	171	61	56	318	400	337	59	0	22	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0				4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.94				0.95	0.91	0.91	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00				1.00	1.00	1.00	1.00		1.00	0.94
Flpb, ped/bikes	1.00	1.00				1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.91				1.00	0.97	0.85	0.85		0.85	0.85
Flt Protected	0.95	0.98				0.99	1.00	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	4696				3491	3286	1441	1583		1583	1490
Flt Permitted	0.95	0.98				0.99	1.00	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770	4696				3491	3286	1441	1583		1583	1490
Peak-hour factor, PHF	0.95	0.92	0.92	0.94	0.94	0.96	0.92	0.96	0.96	0.92	0.95	0.95
Adj. Flow (vph)	76	133	186	65	60	331	435	351	61	0	23	28
RTOR Reduction (vph)	0	139	0	0	0	0	0	0	38	0	0	22
Lane Group Flow (vph)	76	180	0	0	0	456	547	239	23	0	23	6
Confl. Peds. (#/hr)	16								102			32
Confl. Bikes (#/hr)						6			10			2
Turn Type	Prot			Split	Split			custom	custom		custom	custom
Protected Phases	5	1		8	8	8	2	6	6			
Permitted Phases		1						6			9	2
Actuated Green, G (s)	6.8	20.4				24.0	16.8	30.4	30.4		2.8	16.8
Effective Green, g (s)	6.8	20.4				24.0	16.8	30.4	30.4		2.8	16.8
Actuated g/C Ratio	0.08	0.26				0.30	0.21	0.38	0.38		0.03	0.21
Clearance Time (s)	4.0	4.0				4.0	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	2.0				2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	150	1197				1047	690	548	602		55	313
v/s Ratio Prot	c0.04	0.04				c0.13	c0.17	c0.17	0.01			
v/s Ratio Perm											c0.01	0.00
v/c Ratio	0.51	0.15				0.44	0.79	0.44	0.04		0.42	0.02
Uniform Delay, d1	35.0	23.1				22.5	30.0	18.4	15.6		37.8	25.1
Progression Factor	0.90	2.08				1.00	1.28	1.55	3.02		1.00	1.00
Incremental Delay, d2	2.6	0.3				0.1	5.7	2.5	0.1		1.9	0.0
Delay (s)	34.1	48.2				22.7	44.1	31.1	47.3		39.7	25.1
Level of Service	C	D				C	D	C	D		D	C
Approach Delay (s)		45.5				22.7	40.7			31.7		
Approach LOS		D				C	D			C		

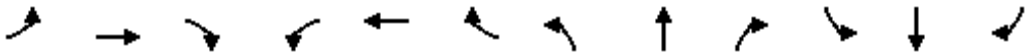
Intersection Summary			
HCM Average Control Delay	36.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	391	29	451	587	143	776
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.91		0.97	0.91	0.97	0.91
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	0.89	0.85
Flt Protected	1.00		0.95	1.00	0.99	1.00
Satd. Flow (prot)	5032		3433	5085	3179	1441
Flt Permitted	1.00		0.95	1.00	0.99	1.00
Satd. Flow (perm)	5032		3433	5085	3179	1441
Peak-hour factor, PHF	0.92	0.92	0.96	0.92	0.92	0.97
Adj. Flow (vph)	425	32	470	638	155	800
RTOR Reduction (vph)	11	0	0	0	333	333
Lane Group Flow (vph)	446	0	470	638	222	67
Confl. Bikes (#/hr)				2		
Turn Type			Prot			Perm
Protected Phases	8		7	4	6	
Permitted Phases						6
Actuated Green, G (s)	33.0		20.6	58.6	13.4	13.4
Effective Green, g (s)	33.0		20.6	58.6	13.4	13.4
Actuated g/C Ratio	0.41		0.26	0.73	0.17	0.17
Clearance Time (s)	5.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2076		884	3725	532	241
v/s Ratio Prot	c0.09		c0.14	0.13	c0.07	
v/s Ratio Perm						0.05
v/c Ratio	0.22		0.53	0.17	0.42	0.28
Uniform Delay, d1	15.2		25.6	3.3	29.8	29.1
Progression Factor	0.43		0.77	1.06	1.00	1.00
Incremental Delay, d2	0.2		2.1	0.0	0.5	0.6
Delay (s)	6.7		21.8	3.5	30.3	29.7
Level of Service	A		C	A	C	C
Approach Delay (s)	6.7			11.3	30.1	
Approach LOS	A			B	C	

Intersection Summary			
HCM Average Control Delay	17.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



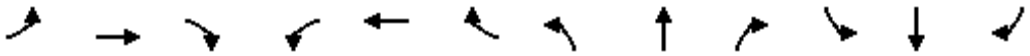
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	82	111	0	0	0	0	0	2982	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0						6.0	
Lane Util. Factor				1.00	0.95						0.86	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				1.00	1.00						1.00	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1770	3539						6403	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1770	3539						6403	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92
Adj. Flow (vph)	0	0	0	88	121	0	0	0	0	0	3106	13
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	88	121	0	0	0	0	0	3119	0
Confl. Peds. (#/hr)												14
Confl. Bikes (#/hr)			1									
Turn Type				Perm								
Protected Phases					4						6	
Permitted Phases				4								
Actuated Green, G (s)				9.2	9.2						56.8	
Effective Green, g (s)				9.2	9.2						56.8	
Actuated g/C Ratio				0.12	0.12						0.76	
Clearance Time (s)				3.0	3.0						6.0	
Vehicle Extension (s)				3.0	3.0						4.0	
Lane Grp Cap (vph)				217	434						4849	
v/s Ratio Prot					0.03						c0.49	
v/s Ratio Perm				c0.05								
v/c Ratio				0.41	0.28						0.64	
Uniform Delay, d1				30.4	29.9						4.3	
Progression Factor				1.00	1.00						0.95	
Incremental Delay, d2				5.5	1.6						0.3	
Delay (s)				35.9	31.5						4.4	
Level of Service				D	C						A	
Approach Delay (s)		0.0			33.4			0.0			4.4	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



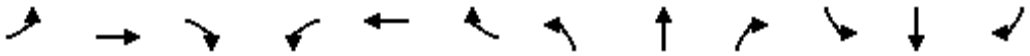
Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	219	1172	528	75	486	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0		5.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.98		0.97	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	5085	4960		3377	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1770	5085	4960		3377	
Peak-hour factor, PHF	0.92	0.96	0.95	0.92	0.94	0.92
Adj. Flow (vph)	238	1221	556	82	517	116
RTOR Reduction (vph)	50	0	30	0	0	0
Lane Group Flow (vph)	188	1221	608	0	633	0
Confl. Peds. (#/hr)				22		
Confl. Bikes (#/hr)				2		
Turn Type	Perm					
Protected Phases		4	2		1	
Permitted Phases	4					
Actuated Green, G (s)	33.6	33.6	15.1		14.3	
Effective Green, g (s)	33.6	33.6	15.1		14.3	
Actuated g/C Ratio	0.45	0.45	0.20		0.19	
Clearance Time (s)	3.0	3.0	4.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	793	2278	999		644	
v/s Ratio Prot		c0.24	c0.12		c0.19	
v/s Ratio Perm	0.11					
v/c Ratio	0.24	0.54	0.61		0.98	
Uniform Delay, d1	12.8	15.0	27.3		30.2	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.7	0.9	1.1		31.0	
Delay (s)	13.5	15.9	28.3		61.2	
Level of Service	B	B	C		E	
Approach Delay (s)		15.5	28.3		61.2	
Approach LOS		B	C		E	

Intersection Summary			
HCM Average Control Delay	29.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



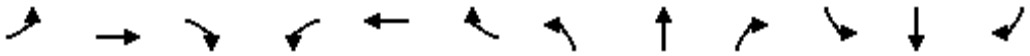
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	155	241	314	316	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	5.0	5.0				
Lane Util. Factor					0.91	0.91	0.81	0.81				
Frpb, ped/bikes					0.99	0.99	1.00	1.00				
Flpb, ped/bikes					1.00	1.00	0.99	1.00				
Frt					0.93	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	0.98				
Satd. Flow (prot)					3150	1423	1425	5925				
Flt Permitted					1.00	1.00	0.95	0.98				
Satd. Flow (perm)					3150	1423	1425	5925				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	165	262	341	343	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	48	50	135	136	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	245	84	35	378	0	0	0	0
Confl. Peds. (#/hr)							5		5			
Confl. Bikes (#/hr)			6			2			5			
Turn Type						Perm	Perm					
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					37.6	37.6	12.4	12.4				
Effective Green, g (s)					37.6	37.6	12.4	12.4				
Actuated g/C Ratio					0.63	0.63	0.21	0.21				
Clearance Time (s)					5.0	5.0	5.0	5.0				
Vehicle Extension (s)					3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)					1974	892	295	1225				
v/s Ratio Prot					c0.08							
v/s Ratio Perm						0.06	0.02	0.06				
v/c Ratio					0.12	0.09	0.12	0.31				
Uniform Delay, d1					4.5	4.4	19.4	20.2				
Progression Factor					4.13	7.37	1.00	1.00				
Incremental Delay, d2					0.1	0.2	0.2	0.1				
Delay (s)					18.8	32.9	19.5	20.3				
Level of Service					B	C	B	C				
Approach Delay (s)		0.0			23.2			20.1			0.0	
Approach LOS		A			C			C			A	

Intersection Summary			
HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	28.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	177	37	0	0	0	0	0	0	1085	1218	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		0.95								0.86	0.86	
Frpb, ped/bikes		1.00								1.00	1.00	
Flpb, ped/bikes		1.00								1.00	1.00	
Frt		0.97								1.00	1.00	
Flt Protected		1.00								0.95	0.99	
Satd. Flow (prot)		3433								1522	4722	
Flt Permitted		1.00								0.95	0.99	
Satd. Flow (perm)		3433								1522	4722	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	190	40	0	0	0	0	0	0	1179	1324	37
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	345	63	0
Lane Group Flow (vph)	0	223	0	0	0	0	0	0	0	280	1852	0
Confl. Peds. (#/hr)	6		6									
Confl. Bikes (#/hr)			1						1			1
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		62.0								50.0	50.0	
Effective Green, g (s)		62.0								50.0	50.0	
Actuated g/C Ratio		0.52								0.42	0.42	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		1774								634	1968	
v/s Ratio Prot		c0.07										
v/s Ratio Perm										0.18	0.39	
v/c Ratio		0.13								0.44	0.94	
Uniform Delay, d1		15.0								25.0	33.6	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.1								2.2	10.5	
Delay (s)		15.1								27.3	44.1	
Level of Service		B								C	D	
Approach Delay (s)		15.1			0.0			0.0			39.9	
Approach LOS		B			A			A			D	

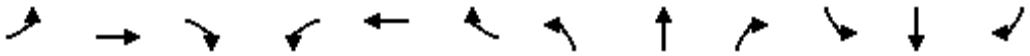
Intersection Summary			
HCM Average Control Delay	37.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	307	0	0	644	565	136	605	27	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Util. Factor		0.95			0.95	1.00		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.98		1.00	0.97			
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3515			3539	1548		3492	1531			
Flt Permitted		0.79			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		2782			3539	1548		3492	1531			
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	334	0	0	700	589	148	630	29	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	144	0	0	14	0	0	0
Lane Group Flow (vph)	0	377	0	0	700	446	0	778	15	0	0	0
Confl. Peds. (#/hr)	35		35	6		6	26		26	2		2
Confl. Bikes (#/hr)			33			6		10				5
Turn Type	Perm			Perm		Perm	Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4			8		8	2		2			
Actuated Green, G (s)		18.0			18.0	18.0		32.0	32.0			
Effective Green, g (s)		18.0			18.0	18.0		32.0	32.0			
Actuated g/C Ratio		0.30			0.30	0.30		0.53	0.53			
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Grp Cap (vph)		835			1062	464		1862	817			
v/s Ratio Prot					0.20							
v/s Ratio Perm		0.14				c0.29		0.22	0.01			
v/c Ratio		0.45			0.66	0.96		0.42	0.02			
Uniform Delay, d1		17.0			18.3	20.6		8.4	6.6			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		1.8			3.2	32.9		0.7	0.0			
Delay (s)		18.8			21.5	53.6		9.1	6.6			
Level of Service		B			C	D		A	A			
Approach Delay (s)		18.8			36.2			9.0			0.0	
Approach LOS		B			D			A			A	

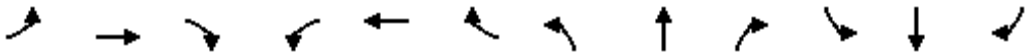
Intersection Summary			
HCM Average Control Delay	24.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



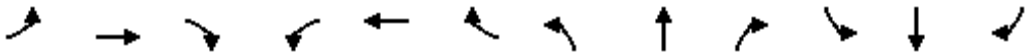
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	274	46	25	731	0	0	0	0	59	368	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0					4.0	4.0	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frpb, ped/bikes		0.99			1.00					1.00	1.00	
Flpb, ped/bikes		1.00			1.00					0.99	1.00	
Frt		0.98			1.00					1.00	0.99	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		3441			3531					1746	3505	
Flt Permitted		1.00			0.94					0.95	1.00	
Satd. Flow (perm)		3441			3321					1746	3505	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.96	0.92
Adj. Flow (vph)	0	298	50	27	761	0	0	0	0	64	383	22
RTOR Reduction (vph)	0	29	0	0	0	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	319	0	0	788	0	0	0	0	64	396	0
Confl. Peds. (#/hr)	36		36	28		28	18		18	16		16
Confl. Bikes (#/hr)			4			10			3			1
Turn Type				Perm						Perm		
Protected Phases		8			4						6	
Permitted Phases				4						6		
Actuated Green, G (s)		19.0			19.0					19.0	19.0	
Effective Green, g (s)		19.0			19.0					19.0	19.0	
Actuated g/C Ratio		0.42			0.42					0.42	0.42	
Clearance Time (s)		3.0			3.0					4.0	4.0	
Vehicle Extension (s)		2.0			2.0					2.0	2.0	
Lane Grp Cap (vph)		1453			1402					737	1480	
v/s Ratio Prot		0.09									c0.11	
v/s Ratio Perm					c0.24					0.04		
v/c Ratio		0.22			0.56					0.09	0.27	
Uniform Delay, d1		8.3			9.8					7.8	8.5	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		0.3			1.6					0.2	0.4	
Delay (s)		8.6			11.5					8.0	8.9	
Level of Service		A			B					A	A	
Approach Delay (s)		8.6			11.5			0.0			8.8	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	166	12	8	400	99	66	425	27	29	75	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.97			0.99			0.97	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		3460			3387			3468			3346	
Flt Permitted		0.83			0.95			0.90			0.82	
Satd. Flow (perm)		2907			3224			3133			2778	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	180	13	9	435	108	72	462	29	32	82	30
RTOR Reduction (vph)	0	6	0	0	40	0	0	10	0	0	20	0
Lane Group Flow (vph)	0	236	0	0	512	0	0	553	0	0	124	0
Confl. Peds. (#/hr)	30		30	55		55	41		41	40		40
Confl. Bikes (#/hr)			7			19			6			4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		23.1			23.1			14.4			14.4	
Effective Green, g (s)		23.1			23.1			14.4			14.4	
Actuated g/C Ratio		0.51			0.51			0.32			0.32	
Clearance Time (s)		3.5			3.5			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1492			1655			1003			889	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.16			c0.18			0.04	
v/c Ratio		0.16			0.31			0.55			0.14	
Uniform Delay, d1		5.8			6.3			12.6			10.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			0.5			0.7			0.1	
Delay (s)		6.0			6.8			13.3			11.0	
Level of Service		A			A			B			B	
Approach Delay (s)		6.0			6.8			13.3			11.0	
Approach LOS		A			A			B			B	

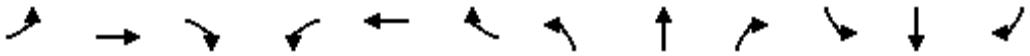
Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	415	1502	0	0	0	0	0	378	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.86						0.91	
Frpb, ped/bikes					1.00						0.99	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					6291						4914	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					6291						4914	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.98	0.92
Adj. Flow (vph)	0	0	0	451	1548	0	0	0	0	0	386	83
RTOR Reduction (vph)	0	0	0	0	88	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	0	1911	0	0	0	0	0	466	0
Confl. Peds. (#/hr)	48		48	30		30	54		54	27		27
Confl. Bikes (#/hr)			9			5			4			1
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2726						2170	
v/s Ratio Prot											c0.09	
v/s Ratio Perm					0.30							
v/c Ratio					0.70						0.21	
Uniform Delay, d1					13.8						10.3	
Progression Factor					0.48						1.00	
Incremental Delay, d2					1.3						0.2	
Delay (s)					7.9						10.6	
Level of Service					A						B	
Approach Delay (s)		0.0			7.9			0.0			10.6	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

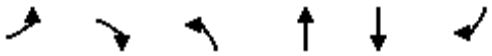
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1684	78	324	797	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5			4.0				
Lane Util. Factor					0.86			0.86				
Frpb, ped/bikes					1.00			1.00				
Flpb, ped/bikes					1.00			0.98				
Frt					0.99			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6341			6165				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6341			6165				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.93	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1736	85	348	866	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	9	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1812	0	0	1211	0	0	0	0
Confl. Peds. (#/hr)	102		102	84		84	84		84	168		168
Confl. Bikes (#/hr)			1									1
Turn Type							Perm					
Protected Phases					6			4				
Permitted Phases							4					
Actuated Green, G (s)					29.9			20.6				
Effective Green, g (s)					29.9			20.6				
Actuated g/C Ratio					0.50			0.34				
Clearance Time (s)					5.5			4.0				
Lane Grp Cap (vph)					3160			2117				
v/s Ratio Prot					c0.29							
v/s Ratio Perm								0.20				
v/c Ratio					0.57			0.57				
Uniform Delay, d1					10.6			16.1				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.8			1.1				
Delay (s)					11.3			17.2				
Level of Service					B			B				
Approach Delay (s)		0.0			11.3			17.2			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

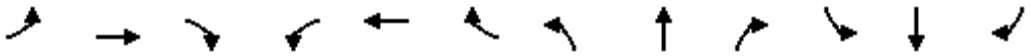
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	66	0	0	1073	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.99	0.92	0.92
Hourly flow rate (vph)	72	0	0	1084	0	0
Pedestrians	12					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1055	320	
pX, platoon unblocked						
vC, conflicting volume	283	12	12			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	283	12	12			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	100	100			
cM capacity (veh/h)	677	1055	1589			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	72	271	271	271	271
Volume Left	72	0	0	0	0
Volume Right	0	0	0	0	0
cSH	677	1700	1700	1700	1700
Volume to Capacity	0.11	0.16	0.16	0.16	0.16
Queue Length 95th (ft)	9	0	0	0	0
Control Delay (s)	10.9	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	10.9	0.0			
Approach LOS	B				

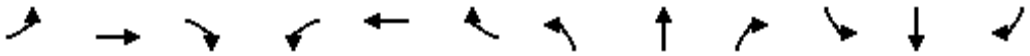
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	398	142	0	0	0	0	0	0	26	778	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5									5.5	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.96									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		6074									5074	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		6074									5074	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	0	433	154	0	0	0	0	0	0	28	819	0
RTOR Reduction (vph)	0	49	0	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	538	0	0	0	0	0	0	0	0	841	0
Confl. Peds. (#/hr)	32		32	21		21	23		23	17		17
Confl. Bikes (#/hr)			10			10			2			3
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		23.0									26.0	
Effective Green, g (s)		23.0									26.0	
Actuated g/C Ratio		0.38									0.43	
Clearance Time (s)		5.5									5.5	
Lane Grp Cap (vph)		2328									2199	
v/s Ratio Prot		c0.09										
v/s Ratio Perm											0.17	
v/c Ratio		0.23									0.38	
Uniform Delay, d1		12.5									11.5	
Progression Factor		0.77									1.16	
Incremental Delay, d2		0.2									0.5	
Delay (s)		9.9									13.8	
Level of Service		A									B	
Approach Delay (s)		9.9			0.0			0.0			13.8	
Approach LOS		A			A			A			B	

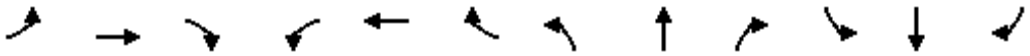
Intersection Summary			
HCM Average Control Delay	12.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	402	0	0	0	0	0	364	59	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.86						0.86				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6288						6247				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6288						6247				
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	432	0	0	0	0	0	396	64	0	0	0
RTOR Reduction (vph)	0	96	0	0	0	0	0	17	0	0	0	0
Lane Group Flow (vph)	0	449	0	0	0	0	0	443	0	0	0	0
Confl. Peds. (#/hr)	46		46	56		56	21		21	52		52
Confl. Bikes (#/hr)			2			2			5			
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		9.0						44.0				
Effective Green, g (s)		9.0						44.0				
Actuated g/C Ratio		0.15						0.73				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		943						4581				
v/s Ratio Prot								c0.07				
v/s Ratio Perm		0.07										
v/c Ratio		0.48						0.10				
Uniform Delay, d1		23.3						2.3				
Progression Factor		1.01						1.00				
Incremental Delay, d2		0.1						0.0				
Delay (s)		23.8						2.3				
Level of Service		C						A				
Approach Delay (s)		23.8			0.0			2.3			0.0	
Approach LOS		C			A			A			A	

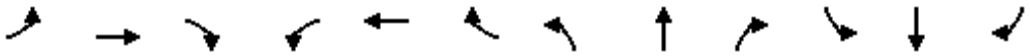
Intersection Summary			
HCM Average Control Delay	14.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.16		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	571	0	0	0	0	0	1115	291	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		0.86						0.91				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.97				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6328						4905				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6328						4905				
Peak-hour factor, PHF	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	145	621	0	0	0	0	0	1212	316	0	0	0
RTOR Reduction (vph)	0	10	0	0	0	0	0	73	0	0	0	0
Lane Group Flow (vph)	0	756	0	0	0	0	0	1455	0	0	0	0
Confl. Peds. (#/hr)	22		22	59		59	12		12	5		5
Confl. Bikes (#/hr)			6			4			2			1
Turn Type	Perm											
Protected Phases		1						2				
Permitted Phases	1											
Actuated Green, G (s)		18.0						18.0				
Effective Green, g (s)		18.0						18.0				
Actuated g/C Ratio		0.40						0.40				
Clearance Time (s)		4.5						4.5				
Lane Grp Cap (vph)		2531						1962				
v/s Ratio Prot								c0.30				
v/s Ratio Perm		0.12										
v/c Ratio		0.30						0.74				
Uniform Delay, d1		9.2						11.5				
Progression Factor		0.78						0.75				
Incremental Delay, d2		0.3						1.9				
Delay (s)		7.5						10.6				
Level of Service		A						B				
Approach Delay (s)		7.5			0.0			10.6			0.0	
Approach LOS		A			A			B			A	

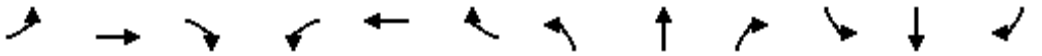
Intersection Summary			
HCM Average Control Delay	9.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



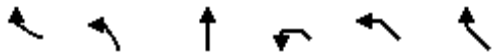
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	552	282	0	0	0	0	0	0	150	619	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									3.0	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.95									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6051									5026	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6051									5026	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.92
Adj. Flow (vph)	0	600	307	0	0	0	0	0	0	163	632	0
RTOR Reduction (vph)	0	95	0	0	0	0	0	0	0	0	82	0
Lane Group Flow (vph)	0	812	0	0	0	0	0	0	0	0	713	0
Confl. Peds. (#/hr)	4		4	10		10	8		8	11		11
Confl. Bikes (#/hr)			1						7			2
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		18.0									20.0	
Effective Green, g (s)		18.0									20.0	
Actuated g/C Ratio		0.40									0.44	
Clearance Time (s)		4.0									3.0	
Vehicle Extension (s)		2.0									2.0	
Lane Grp Cap (vph)		2420									2234	
v/s Ratio Prot		c0.13										
v/s Ratio Perm											0.14	
v/c Ratio		0.34									0.32	
Uniform Delay, d1		9.4									8.1	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.4									0.4	
Delay (s)		9.7									8.5	
Level of Service		A									A	
Approach Delay (s)		9.7			0.0			0.0			8.5	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	38.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	24	348	53	226	282	0	0	167	1778
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.95		1.00			1.00	0.98
Flpb, ped/bikes				0.98	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1736	1863	1503		1821			1863	1558
Flt Permitted				0.95	1.00	1.00		0.77			1.00	1.00
Satd. Flow (perm)				1736	1863	1503		1436			1863	1558
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.95
Adj. Flow (vph)	0	0	0	26	362	58	246	307	0	0	182	1872
RTOR Reduction (vph)	0	0	0	0	0	42	0	0	0	0	0	94
Lane Group Flow (vph)	0	0	0	26	362	16	0	553	0	0	182	1778
Confl. Peds. (#/hr)	1		1	23		23	2		2	5		5
Confl. Bikes (#/hr)			2									
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					1			2			2	
Permitted Phases				1		1	2					2
Actuated Green, G (s)				12.2	12.2	12.2		21.8			21.8	21.8
Effective Green, g (s)				12.2	12.2	12.2		21.8			21.8	21.8
Actuated g/C Ratio				0.27	0.27	0.27		0.48			0.48	0.48
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				471	505	407		696			903	755
v/s Ratio Prot					c0.19						0.10	
v/s Ratio Perm				0.01		0.01		0.39				c1.14
v/c Ratio				0.06	0.72	0.04		0.79			0.20	2.35
Uniform Delay, d1				12.1	14.8	12.1		9.7			6.6	11.6
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.0	4.8	0.0		9.1			0.5	613.6
Delay (s)				12.2	19.7	12.1		18.8			7.1	625.2
Level of Service				B	B	B		B			A	F
Approach Delay (s)		0.0			18.2			18.8			570.5	
Approach LOS		A			B			B			F	

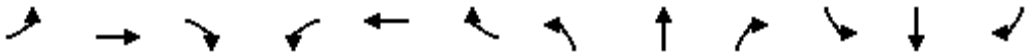
Intersection Summary			
HCM Average Control Delay	389.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.77		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	170.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBR	NBL	NBT	NWL2	NWL	NWR
Lane Configurations						
Volume (vph)	0	145	505	141	56	878
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5		2.0	2.0
Lane Util. Factor			0.95		0.97	0.91
Frpb, ped/bikes			1.00		1.00	1.00
Flpb, ped/bikes			1.00		1.00	1.00
Frt			1.00		0.90	0.85
Flt Protected			0.99		0.98	1.00
Satd. Flow (prot)			3497		3190	1441
Flt Permitted			0.99		0.98	1.00
Satd. Flow (perm)			3497		3190	1441
Peak-hour factor, PHF	0.92	0.92	0.96	0.92	0.92	0.92
Adj. Flow (vph)	0	158	526	153	61	954
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	684	0	691	477
Confl. Peds. (#/hr)	51	2				
Confl. Bikes (#/hr)	2					
Turn Type	custom	Perm		Perm		Perm
Protected Phases			3		1	
Permitted Phases	2	3		1		1
Actuated Green, G (s)			16.3		16.2	16.2
Effective Green, g (s)			16.3		16.2	16.2
Actuated g/C Ratio			0.36		0.36	0.36
Clearance Time (s)			3.5		2.0	2.0
Lane Grp Cap (vph)			1267		1148	519
v/s Ratio Prot						
v/s Ratio Perm			0.20		0.22	c0.33
v/c Ratio			0.54		0.60	0.92
Uniform Delay, d1			11.4		11.8	13.8
Progression Factor			0.81		1.00	1.00
Incremental Delay, d2			0.5		2.3	23.8
Delay (s)			9.7		14.1	37.6
Level of Service			A		B	D
Approach Delay (s)			9.7		23.7	
Approach LOS			A		C	

Intersection Summary			
HCM Average Control Delay	18.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	356	651	179	0	0	0	0	271	80	4	138	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5			3.5	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		0.99						1.00			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		0.98						0.97			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4857						1800			1860	
Flt Permitted		0.99						1.00			0.99	
Satd. Flow (perm)		1850						1500			1600	
Peak-hour factor, PHF	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	375	708	195	0	0	0	0	295	87	4	150	0
RTOR Reduction (vph)	0	57	0	0	0	0	0	24	0	0	0	0
Lane Group Flow (vph)	0	1221	0	0	0	0	0	358	0	0	154	0
Confl. Peds. (#/hr)	14		14	52		52	1		1	4		4
Confl. Bikes (#/hr)			5			2						
Turn Type	Perm									Perm		
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		22.5						15.5			15.5	
Effective Green, g (s)		22.5						15.5			15.5	
Actuated g/C Ratio		0.50						0.34			0.34	
Clearance Time (s)		3.5						3.5			3.5	
Lane Grp Cap (vph)		925						620			551	
v/s Ratio Prot								c0.20				
v/s Ratio Perm		c0.66									0.10	
v/c Ratio		1.32						0.58			0.28	
Uniform Delay, d1		11.2						12.1			10.7	
Progression Factor		1.00						1.00			0.94	
Incremental Delay, d2		151.6						3.9			1.0	
Delay (s)		162.9						16.0			11.1	
Level of Service		F						B			B	
Approach Delay (s)		162.9			0.0			16.0			11.1	
Approach LOS		F			A			B			B	

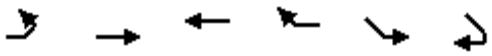
Intersection Summary			
HCM Average Control Delay	119.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	361	213	521	286	115	1223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3351		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3351		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	392	232	566	311	125	1329
RTOR Reduction (vph)	0	171	75	0	0	0
Lane Group Flow (vph)	392	61	802	0	125	1329
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	23.5	23.5	40.6		13.9	58.5
Effective Green, g (s)	23.5	23.5	40.6		13.9	58.5
Actuated g/C Ratio	0.26	0.26	0.45		0.15	0.65
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	462	413	1512		273	2300
v/s Ratio Prot	c0.22		0.24		0.07	c0.38
v/s Ratio Perm		0.04				
v/c Ratio	0.85	0.15	0.53		0.46	0.58
Uniform Delay, d1	31.6	25.5	17.8		34.6	8.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	13.5	0.2	1.3		5.4	1.1
Delay (s)	45.1	25.7	19.2		40.1	9.9
Level of Service	D	C	B		D	A
Approach Delay (s)	37.9		19.2			12.5
Approach LOS	D		B			B

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	350	233	416	206	187	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3363		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3363		1770	1583
Peak-hour factor, PHF	0.94	0.96	0.92	0.92	0.92	0.92
Adj. Flow (vph)	372	243	452	224	203	216
RTOR Reduction (vph)	0	0	90	0	0	167
Lane Group Flow (vph)	372	243	586	0	203	49
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	14.2	31.5	13.3		11.7	11.7
Effective Green, g (s)	14.2	31.5	13.3		11.7	11.7
Actuated g/C Ratio	0.28	0.62	0.26		0.23	0.23
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	491	2177	874		404	362
v/s Ratio Prot	c0.21	0.07	c0.17		c0.11	
v/s Ratio Perm						0.03
v/c Ratio	0.76	0.11	0.67		0.50	0.14
Uniform Delay, d1	16.9	4.1	17.0		17.2	15.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.6	0.0	2.0		1.0	0.2
Delay (s)	23.5	4.1	19.0		18.2	15.9
Level of Service	C	A	B		B	B
Approach Delay (s)		15.8	19.0		17.0	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	51.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	671	706	221	0	424	213	282	1299	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.98			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4932			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4932			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	729	767	240	0	456	232	307	1412	0
RTOR Reduction (vph)	0	0	0	22	0	0	0	182	0	0	0
Lane Group Flow (vph)	0	0	0	1714	0	0	456	50	307	1412	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				36.5			17.5	17.5	39.0	60.5	
Effective Green, g (s)				36.5			17.5	17.5	39.0	60.5	
Actuated g/C Ratio				0.34			0.17	0.17	0.37	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1698			584	261	651	2020	
v/s Ratio Prot				c0.35			0.13		0.17	c0.40	
v/s Ratio Perm								0.03			
v/c Ratio				1.16dl			0.78	0.19	0.47	0.70	
Uniform Delay, d1				34.8			42.4	38.2	25.6	16.2	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				24.2			10.0	1.6	2.4	2.0	
Delay (s)				59.0			52.4	39.8	28.1	18.3	
Level of Service				E			D	D	C	B	
Approach Delay (s)	0.0			59.0			48.1			20.0	
Approach LOS	A			E			D			C	

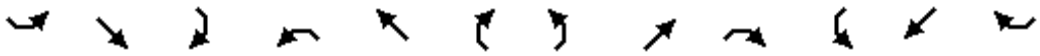
Intersection Summary			
HCM Average Control Delay	41.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	261	490	217	198	341	178	21	345	47	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.97	0.85		0.94				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3101	1441		3341				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3101	1441		3341				1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	284	533	236	215	363	193	23	375	51	500
RTOR Reduction (vph)	0	0	80	0	3	0	0	0	0	0
Lane Group Flow (vph)	256	703	229	0	576	0	0	0	426	500
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	30.6	30.6	30.6		34.1				28.8	66.4
Effective Green, g (s)	30.6	30.6	30.6		34.1				28.8	66.4
Actuated g/C Ratio	0.29	0.29	0.29		0.32				0.27	0.63
Clearance Time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	465	895	416		1075				481	2217
v/s Ratio Prot	0.16	c0.23	0.16		c0.17				c0.24	0.14
v/s Ratio Perm										
v/c Ratio	0.55	0.79	0.55		0.54				0.89	0.23
Uniform Delay, d1	31.9	34.7	31.9		29.5				37.0	8.6
Progression Factor	0.70	0.71	0.57		1.00				1.00	1.00
Incremental Delay, d2	0.8	2.7	0.9		1.9				17.5	0.2
Delay (s)	23.2	27.3	18.9		31.4				54.5	8.9
Level of Service	C	C	B		C				D	A
Approach Delay (s)		24.4			31.4					29.9
Approach LOS		C			C					C

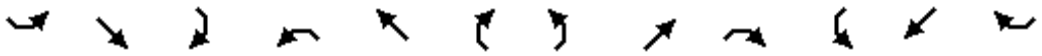
Intersection Summary			
HCM Average Control Delay	27.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	2615	126	466	409	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.91	1.00		*0.88				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.97				
Satd. Flow (prot)					5085	1583		4789				
Flt Permitted					1.00	1.00		0.97				
Satd. Flow (perm)					5085	1583		4789				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.93	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2724	137	501	431	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	68	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2724	69	0	932	0	0	0	0
Turn Type						Perm	Perm					
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					38.0	38.0		34.0				
Effective Green, g (s)					38.0	38.0		34.0				
Actuated g/C Ratio					0.48	0.48		0.42				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					2415	752		2035				
v/s Ratio Prot					c0.54							
v/s Ratio Perm						0.04		0.19				
v/c Ratio					1.13	0.09		0.46				
Uniform Delay, d1					21.0	11.5		16.4				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					63.5	0.2		0.7				
Delay (s)					84.5	11.8		17.2				
Level of Service					F	B		B				
Approach Delay (s)		0.0			81.0			17.2			0.0	
Approach LOS		A			F			B			A	

Intersection Summary			
HCM Average Control Delay	65.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		

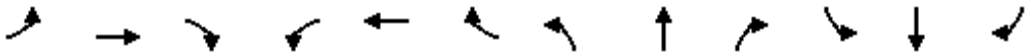
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	1232	1734	0	0	0	0	0	1228	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4755						3524	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4755						3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	0	0	1270	1885	0	0	0	0	0	1306	39
RTOR Reduction (vph)	0	0	0	2	2	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	760	2391	0	0	0	0	0	1342	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				46.0	46.0						26.0	
Effective Green, g (s)				46.0	46.0						26.0	
Actuated g/C Ratio				0.57	0.57						0.32	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				875	2734						1145	
v/s Ratio Prot											c0.38	
v/s Ratio Perm				0.50	0.50							
v/c Ratio				0.87	0.87						1.17	
Uniform Delay, d1				14.4	14.5						27.0	
Progression Factor				1.41	1.41						1.00	
Incremental Delay, d2				1.2	0.4						87.1	
Delay (s)				21.6	20.9						114.1	
Level of Service				C	C						F	
Approach Delay (s)		0.0			21.1			0.0			114.1	
Approach LOS		A			C			A			F	

Intersection Summary			
HCM Average Control Delay	48.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	90	233	7	11	496	16	11	7	10	22	17	16
Peak Hour Factor	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	248	8	12	539	17	12	8	11	24	18	17

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	98	255	568	30	60
Volume Left (vph)	98	0	12	12	24
Volume Right (vph)	0	8	17	11	17
Hadj (s)	0.53	0.01	0.02	-0.10	-0.06
Departure Headway (s)	5.8	5.3	4.7	6.1	6.0
Degree Utilization, x	0.16	0.37	0.75	0.05	0.10
Capacity (veh/h)	605	663	752	530	533
Control Delay (s)	8.7	10.2	20.2	9.4	9.7
Approach Delay (s)	9.8		20.2	9.4	9.7
Approach LOS	A		C	A	A

Intersection Summary			
Delay	15.6		
HCM Level of Service	C		
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp

Average Delay (sec/veh): 4.4 Worst Case Level Of Service: B[14.2]

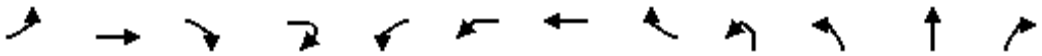
Street Name:	Harrison Street						Stanley Place / I-580 EB Off-Ramp					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Yield Sign			Yield Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0	0	0 0	3 0	0	0 0	0 1		0 0	0 0	0
Volume Module:												
Base Vol:	0	0	0	0	792	0	0	0	346	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	792	0	0	0	346	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	792	0	0	0	346	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	0.92	1.00	1.00	1.00
PHF Volume:	0	0	0	0	834	0	0	0	376	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	834	0	0	0	376	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	278	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	766	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	766	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.49	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	2.7	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	14.2	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	B	*	*	*
Movement:	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT	LT	LTR	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			14.2			xxxxxx		
ApproachLOS:	*			*			B			*		

Note: Queue reported is the number of cars per lane.



Movement	SEL2	SET	NET	NER	NER2
Lane Configurations					
Volume (vph)	738	349	1276	680	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	3.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	
Flt Protected	0.95	0.98	1.00	1.00	
Satd. Flow (prot)	1681	1738	3539	1583	
Flt Permitted	0.95	0.98	1.00	1.00	
Satd. Flow (perm)	1681	1738	3539	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	802	379	1387	739	107
RTOR Reduction (vph)	37	34	0	0	0
Lane Group Flow (vph)	548	562	1387	846	0
Confl. Peds. (#/hr)				2	
Confl. Bikes (#/hr)					
Turn Type	Perm			custom	
Protected Phases		4	5	1	
Permitted Phases	4			1	
Actuated Green, G (s)	16.0	16.0	36.5	13.5	
Effective Green, g (s)	16.0	16.0	36.5	13.5	
Actuated g/C Ratio	0.27	0.27	0.61	0.22	
Clearance Time (s)	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	448	463	2153	356	
v/s Ratio Prot			c0.39	c0.53	
v/s Ratio Perm	c0.33	0.32			
v/c Ratio	1.22	1.21	0.64	2.38	
Uniform Delay, d1	22.0	22.0	7.6	23.2	
Progression Factor	1.00	1.00	1.00	1.00	
Incremental Delay, d2	118.7	114.3	1.5	628.0	
Delay (s)	140.7	136.3	9.1	651.2	
Level of Service	F	F	A	F	
Approach Delay (s)		138.5	252.4		
Approach LOS		F	F		

Intersection Summary			
HCM Average Control Delay	213.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



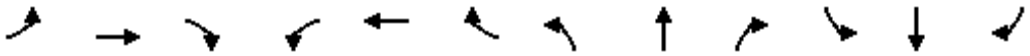
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	212	425	101	20	52	16	180	206	10	391	1093	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0			4.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00			1.00	1.00	1.00		0.97	0.95	
Frpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	0.96		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85			1.00	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583			1770	1863	1522		3433	3482	
Flt Permitted	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583			1770	1863	1522		3433	3482	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	226	452	107	21	57	17	196	224	11	425	1188	112
RTOR Reduction (vph)	0	0	7	0	0	0	0	187	0	0	8	0
Lane Group Flow (vph)	226	452	121	0	0	74	196	37	0	436	1292	0
Confl. Peds. (#/hr)	26											20
Confl. Bikes (#/hr)								20				9
Turn Type	Prot		Perm		Prot	Prot		Perm	Prot	Prot		
Protected Phases	3	8			7	7	4		1	1	6	
Permitted Phases			8					4				
Actuated Green, G (s)	18.9	26.1	26.1			7.7	14.9	14.9		14.5	27.2	
Effective Green, g (s)	18.9	26.1	26.1			7.7	14.9	14.9		14.5	27.2	
Actuated g/C Ratio	0.21	0.29	0.29			0.09	0.17	0.17		0.16	0.30	
Clearance Time (s)	4.0	5.0	5.0			4.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	372	1026	459			151	308	252		553	1052	
v/s Ratio Prot	c0.13	0.13				0.04	c0.11			0.13	c0.37	
v/s Ratio Perm			0.08					0.02				
v/c Ratio	0.61	0.44	0.26			0.49	0.64	0.15		0.79	1.23	
Uniform Delay, d1	32.2	26.0	24.6			39.3	35.0	32.1		36.3	31.4	
Progression Factor	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.8	0.3	0.3			2.5	4.3	0.3		7.3	111.3	
Delay (s)	35.0	26.3	24.9			41.8	39.3	32.4		43.6	142.7	
Level of Service	C	C	C			D	D	C		D	F	
Approach Delay (s)		28.5					36.5				117.8	
Approach LOS		C					D				F	

Intersection Summary			
HCM Average Control Delay	76.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Volume (vph)	222	489	47	78
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.97		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3431		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3431		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93
Adj. Flow (vph)	239	526	51	84
RTOR Reduction (vph)	0	13	0	0
Lane Group Flow (vph)	239	648	0	0
Confl. Peds. (#/hr)	26			
Confl. Bikes (#/hr)				
Turn Type	Prot			
Protected Phases	5	2		
Permitted Phases				
Actuated Green, G (s)	11.0	22.7		
Effective Green, g (s)	11.0	22.7		
Actuated g/C Ratio	0.12	0.25		
Clearance Time (s)	4.0	5.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	216	865		
v/s Ratio Prot	c0.14	0.19		
v/s Ratio Perm				
v/c Ratio	1.11	0.75		
Uniform Delay, d1	39.5	31.0		
Progression Factor	1.00	1.00		
Incremental Delay, d2	92.7	5.9		
Delay (s)	132.2	36.9		
Level of Service	F	D		
Approach Delay (s)		62.2		
Approach LOS		E		

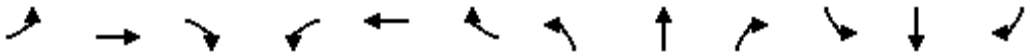
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	91	250	70	48	390	269	150	659	33	202	623	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97			1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1745	3387			3517	1536	1767	3510		1767	3447	
Flt Permitted	0.46	1.00			0.87	1.00	0.28	1.00		0.29	1.00	
Satd. Flow (perm)	845	3387			3076	1536	517	3510		543	3447	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	272	76	52	406	292	163	716	36	220	677	103
RTOR Reduction (vph)	0	30	0	0	0	73	0	4	0	0	14	0
Lane Group Flow (vph)	99	318	0	0	458	219	163	748	0	220	766	0
Confl. Peds. (#/hr)	32		32	10		10	6		6	5		5
Confl. Bikes (#/hr)			20			18			17			66
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			2	
Permitted Phases	4			8		8	2			2		
Actuated Green, G (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Effective Green, g (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Actuated g/C Ratio	0.42	0.42			0.42	0.42	0.45	0.45		0.45	0.45	
Clearance Time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	358	1434			1303	651	231	1569		243	1541	
v/s Ratio Prot		0.09						0.21			0.22	
v/s Ratio Perm	0.12				c0.15	0.14	0.32			c0.41		
v/c Ratio	0.28	0.22			0.35	0.34	0.71	0.48		0.91	0.50	
Uniform Delay, d1	16.0	15.6			16.6	16.5	19.0	16.5		21.8	16.7	
Progression Factor	0.85	0.84			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.3			0.7	1.4	16.6	1.0		37.6	1.1	
Delay (s)	15.2	13.4			17.3	17.9	35.6	17.6		59.5	17.9	
Level of Service	B	B			B	B	D	B		E	B	
Approach Delay (s)		13.8			17.5			20.8			27.0	
Approach LOS		B			B			C			C	

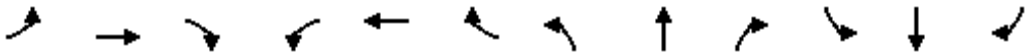
Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	107.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	210	405	136	64	588	114	186	491	46	133	461	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1554	1769	1863	1552	1763	3483		1763	3257	
Flt Permitted	0.12	1.00	1.00	0.35	1.00	1.00	0.20	1.00		0.36	1.00	
Satd. Flow (perm)	226	1863	1554	659	1863	1552	371	3483		675	3257	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	228	440	148	70	639	124	202	534	50	145	501	380
RTOR Reduction (vph)	0	0	90	0	0	83	0	8	0	0	161	0
Lane Group Flow (vph)	228	440	58	70	639	41	202	576	0	145	720	0
Confl. Peds. (#/hr)	4		4	1		1	17		17	10		10
Confl. Bikes (#/hr)			4			10			17			28
Turn Type	pm+pt		Permpm+pt			Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	43.0	33.1	33.1	33.8	28.4	28.4	33.0	33.0		33.0	33.0	
Effective Green, g (s)	43.0	33.1	33.1	33.8	28.4	28.4	33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.51	0.39	0.39	0.40	0.33	0.33	0.39	0.39		0.39	0.39	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	298	725	605	333	622	519	144	1352		262	1264	
v/s Ratio Prot	c0.09	0.24		0.01	c0.34			0.17			0.22	
v/s Ratio Perm	0.30		0.04	0.07		0.03	c0.54			0.21		
v/c Ratio	0.77	0.61	0.10	0.21	1.03	0.08	1.40	0.43		0.55	0.57	
Uniform Delay, d1	17.6	20.7	16.5	16.5	28.3	19.4	26.0	19.1		20.3	20.4	
Progression Factor	1.00	1.00	1.00	1.57	1.42	2.78	0.76	0.66		1.00	1.00	
Incremental Delay, d2	10.1	3.8	0.3	0.1	42.2	0.3	215.0	0.1		1.4	0.4	
Delay (s)	27.7	24.5	16.8	26.0	82.3	54.2	234.7	12.7		21.7	20.8	
Level of Service	C	C	B	C	F	D	F	B		C	C	
Approach Delay (s)		24.0			73.4			69.8			20.9	
Approach LOS		C			E			E			C	

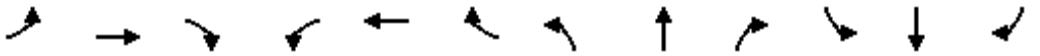
Intersection Summary			
HCM Average Control Delay	45.4	HCM Level of Service	D
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	246	655	0	0	257	973	21	839	75	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1609	3384			3539	2787		5011				
Flt Permitted	0.58	0.94			1.00	1.00		1.00				
Satd. Flow (perm)	983	3181			3539	2787		5011				
Peak-hour factor, PHF	0.93	0.92	0.25	0.25	0.92	0.97	0.92	0.92	0.92	0.25	0.25	0.25
Adj. Flow (vph)	265	712	0	0	279	1003	23	912	82	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	53	0	25	0	0	0	0
Lane Group Flow (vph)	238	739	0	0	279	950	0	992	0	0	0	0
Confl. Peds. (#/hr)	2		2				4		4	3		3
Confl. Bikes (#/hr)			4						5			7
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	16.0	16.0			16.0	16.0		16.0				
Effective Green, g (s)	16.0	16.0			16.0	16.0		16.0				
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.40				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)	393	1272			1416	1115		2004				
v/s Ratio Prot					0.08							
v/s Ratio Perm	0.24	0.23				c0.34		0.20				
v/c Ratio	0.61	0.58			0.20	0.85		0.49				
Uniform Delay, d1	9.5	9.4			7.8	10.9		9.0				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	6.8	1.9			0.3	8.3		0.9				
Delay (s)	16.3	11.3			8.1	19.2		9.9				
Level of Service	B	B			A	B		A				
Approach Delay (s)		12.5			16.8			9.9			0.0	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		

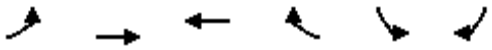
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	492	38	12	243	0	0	0	0	406	296	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00		0.95					0.91	0.91	1.00
Frpb, ped/bikes		1.00	0.98		1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00					1.00	1.00	1.00
Frt		1.00	0.85		1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00					0.95	0.98	1.00
Satd. Flow (prot)		3539	1552		3531					1605	3324	1558
Flt Permitted		1.00	1.00		0.93					0.95	0.98	1.00
Satd. Flow (perm)		3539	1552		3285					1605	3324	1558
Peak-hour factor, PHF	0.25	0.95	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	518	41	13	264	0	0	0	0	441	322	223
RTOR Reduction (vph)	0	0	27	0	0	0	0	0	0	0	0	108
Lane Group Flow (vph)	0	518	14	0	277	0	0	0	0	251	512	115
Confl. Peds. (#/hr)	4		4	4		4	1		1	3		3
Confl. Bikes (#/hr)			5			9			1			1
Turn Type			Perm	Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases			4	8						6		6
Actuated Green, G (s)		21.0	21.0		21.0					31.0	31.0	31.0
Effective Green, g (s)		21.0	21.0		21.0					31.0	31.0	31.0
Actuated g/C Ratio		0.35	0.35		0.35					0.52	0.52	0.52
Clearance Time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Grp Cap (vph)		1239	543		1150					829	1717	805
v/s Ratio Prot		c0.15										
v/s Ratio Perm			0.01		0.08					c0.16	0.15	0.07
v/c Ratio		0.42	0.03		0.24					0.30	0.30	0.14
Uniform Delay, d1		14.8	12.8		13.8					8.3	8.3	7.6
Progression Factor		1.00	1.00		1.00					1.00	1.00	1.00
Incremental Delay, d2		1.0	0.1		0.5					0.9	0.4	0.4
Delay (s)		15.9	12.9		14.3					9.2	8.7	7.9
Level of Service		B	B		B					A	A	A
Approach Delay (s)		15.7			14.3			0.0			8.7	
Approach LOS		B			B			A			A	

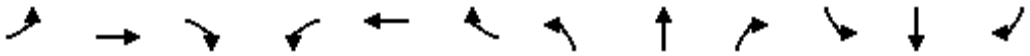
Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



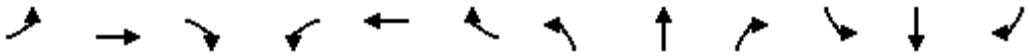
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	274	570	624	456	196	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.91
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.94		0.99	0.85
Flt Protected	0.95	1.00	1.00		0.96	1.00
Satd. Flow (prot)	1770	3539	3273		3417	1421
Flt Permitted	0.95	1.00	1.00		0.96	1.00
Satd. Flow (perm)	1770	3539	3273		3417	1421
Peak-hour factor, PHF	0.92	0.93	0.92	0.97	0.92	0.92
Adj. Flow (vph)	298	613	678	470	213	115
RTOR Reduction (vph)	0	0	117	0	8	89
Lane Group Flow (vph)	298	613	1031	0	219	12
Confl. Peds. (#/hr)	14			18		
Confl. Bikes (#/hr)				7		1
Turn Type	Prot					Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	18.9	62.5	39.6		9.5	9.5
Effective Green, g (s)	18.9	62.5	39.6		9.5	9.5
Actuated g/C Ratio	0.24	0.78	0.50		0.12	0.12
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	418	2765	1620		406	169
v/s Ratio Prot	c0.17	0.17	c0.31		c0.06	
v/s Ratio Perm						0.01
v/c Ratio	0.71	0.22	0.64		0.54	0.07
Uniform Delay, d1	28.1	2.3	14.9		33.2	31.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.7	0.2	1.9		0.7	0.1
Delay (s)	32.8	2.5	16.8		33.9	31.4
Level of Service	C	A	B		C	C
Approach Delay (s)		12.4	16.8		33.1	
Approach LOS		B	B		C	

Intersection Summary			
HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



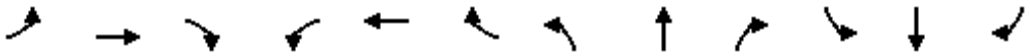
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	688	32	19	845	128	95	542	33	139	429	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3427	1532	1760	3343		1769	3505		1761	3406	
Flt Permitted	0.17	1.00	1.00	0.17	1.00		0.37	1.00		0.41	1.00	
Satd. Flow (perm)	308	3427	1532	306	3343		682	3505		769	3406	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	29	748	35	21	918	139	103	589	36	151	452	115
RTOR Reduction (vph)	0	0	25	0	14	0	0	5	0	0	23	0
Lane Group Flow (vph)	29	748	10	21	1043	0	103	620	0	151	544	0
Confl. Peds. (#/hr)	12		12	18		18	3		3	12		12
Confl. Bikes (#/hr)			8			6			10			28
Turn Type	Perm		Perm	Perm			pm+pt			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	24.2	24.2	24.2	24.2	24.2		50.3	50.3		40.2	40.2	
Effective Green, g (s)	24.2	24.2	24.2	24.2	24.2		50.3	50.3		40.2	40.2	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28		0.59	0.59		0.47	0.47	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	88	976	436	87	952		475	2074		364	1611	
v/s Ratio Prot		0.22			c0.31		0.01	c0.18			0.16	
v/s Ratio Perm	0.09		0.01	0.07			0.11			c0.20		
v/c Ratio	0.33	0.77	0.02	0.24	1.10		0.22	0.30		0.41	0.34	
Uniform Delay, d1	24.0	27.8	21.9	23.3	30.4		7.9	8.6		14.7	14.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.27	1.29	
Incremental Delay, d2	9.7	5.7	0.1	6.5	59.0		0.1	0.4		3.1	0.5	
Delay (s)	33.7	33.6	22.0	29.8	89.4		8.0	9.0		21.7	18.7	
Level of Service	C	C	C	C	F		A	A		C	B	
Approach Delay (s)		33.1			88.2			8.8			19.3	
Approach LOS		C			F			A			B	

Intersection Summary			
HCM Average Control Delay	42.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



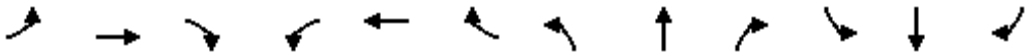
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	81	466	39	105	343	34	294	647	172	54	502	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	*0.92			*0.92		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	1.00	0.99	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1764	3382			3350		1765	3539	1551	1751	3415	
Flt Permitted	0.31	1.00			0.62		0.37	1.00	1.00	0.36	1.00	
Satd. Flow (perm)	581	3382			2090		693	3539	1551	672	3415	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	507	42	114	373	37	320	681	187	59	546	117
RTOR Reduction (vph)	0	10	0	0	9	0	0	0	70	0	15	0
Lane Group Flow (vph)	88	539	0	0	515	0	320	681	117	59	648	0
Confl. Peds. (#/hr)	8		8	2		2	8		8	32		32
Confl. Bikes (#/hr)			6			6			4			28
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	22.4	22.4			22.4		49.6	49.6	49.6	49.6	49.6	
Effective Green, g (s)	22.4	22.4			22.4		49.6	49.6	49.6	49.6	49.6	
Actuated g/C Ratio	0.28	0.28			0.28		0.62	0.62	0.62	0.62	0.62	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	163	947			585		430	2194	962	417	2117	
v/s Ratio Prot		0.16						0.19			0.19	
v/s Ratio Perm	0.15				c0.25		c0.46		0.08	0.09		
v/c Ratio	0.54	0.57			0.88		0.74	0.31	0.12	0.14	0.31	
Uniform Delay, d1	24.4	24.7			27.5		10.7	7.2	6.2	6.3	7.1	
Progression Factor	1.00	1.00			1.06		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.7	0.5			14.0		11.1	0.4	0.3	0.7	0.4	
Delay (s)	26.2	25.1			43.0		21.8	7.5	6.5	7.0	7.5	
Level of Service	C	C			D		C	A	A	A	A	
Approach Delay (s)		25.3			43.0			11.2			7.5	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM Average Control Delay	18.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



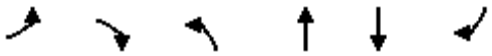
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	666	205	117	373	2	0	0	0	80	249	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						3.0	
Lane Util. Factor		*0.92		1.00	*0.92						0.95	
Frpb, ped/bikes		0.95		1.00	1.00						1.00	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.96		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		3134		1770	3424						3385	
Flt Permitted		0.95		0.16	1.00						0.99	
Satd. Flow (perm)		2984		289	3424						3385	
Peak-hour factor, PHF	0.92	0.99	0.92	0.93	0.92	0.92	0.25	0.25	0.25	0.92	0.94	0.92
Adj. Flow (vph)	7	673	223	126	405	2	0	0	0	87	265	77
RTOR Reduction (vph)	0	35	0	0	0	0	0	0	0	0	23	0
Lane Group Flow (vph)	0	868	0	126	407	0	0	0	0	0	406	0
Confl. Peds. (#/hr)	106		106	8		8	36		36	11		11
Confl. Bikes (#/hr)			18			14			2			8
Turn Type	Perm			pm+pt						Perm		
Protected Phases		2		1	6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)		31.7		43.0	43.0						29.0	
Effective Green, g (s)		31.7		43.0	43.0						29.0	
Actuated g/C Ratio		0.40		0.54	0.54						0.36	
Clearance Time (s)		5.0		5.0	5.0						3.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		1182		272	1840						1227	
v/s Ratio Prot				c0.04	0.12							
v/s Ratio Perm		c0.29		0.21							0.12	
v/c Ratio		0.73		0.46	0.22						0.33	
Uniform Delay, d1		20.6		11.8	9.7						18.5	
Progression Factor		1.66		1.00	1.00						1.00	
Incremental Delay, d2		4.0		0.5	0.3						0.7	
Delay (s)		38.2		12.3	10.0						19.2	
Level of Service		D		B	A						B	
Approach Delay (s)		38.2			10.5			0.0			19.2	
Approach LOS		D			B			A			B	

Intersection Summary			
HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	629	129	350	846	42	11	1314	1058	2	620	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	0.92		1.00	0.93		0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	
Satd. Flow (prot)	3433	3539	1484	3433	3539	1460		5082	1466		4986	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.93	1.00		0.94	
Satd. Flow (perm)	3433	3539	1484	3433	3539	1460		4735	1466		4669	
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.93	0.92	0.92	0.92	0.92	0.92	0.96	0.92
Adj. Flow (vph)	145	684	140	357	910	46	12	1428	1150	2	646	65
RTOR Reduction (vph)	0	0	46	0	0	27	0	0	251	0	12	0
Lane Group Flow (vph)	145	684	94	357	910	19	0	1440	899	0	701	0
Confl. Peds. (#/hr)	31		31	48		48	42		42	34		34
Confl. Bikes (#/hr)			22			15			22			20
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		
Protected Phases	1	6		5	2			4			4	
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	8.6	35.0	35.0	14.0	41.4	41.4		36.0	36.0		36.0	
Effective Green, g (s)	8.6	35.0	35.0	14.0	41.4	41.4		36.0	36.0		36.0	
Actuated g/C Ratio	0.09	0.35	0.35	0.14	0.41	0.41		0.36	0.36		0.36	
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	295	1239	519	481	1465	604		1705	528		1681	
v/s Ratio Prot	0.04	0.19		c0.10	c0.26							
v/s Ratio Perm			0.06			0.01		0.30	c0.61		0.15	
v/c Ratio	0.49	0.55	0.18	0.74	0.62	0.03		0.84	1.70		0.42	
Uniform Delay, d1	43.6	26.2	22.6	41.3	23.1	17.4		29.4	32.0		24.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.5	1.8	0.8	5.4	2.0	0.1		5.3	324.3		0.8	
Delay (s)	44.1	28.0	23.3	46.6	25.1	17.5		34.8	356.3		24.9	
Level of Service	D	C	C	D	C	B		C	F		C	
Approach Delay (s)		29.7			30.7			177.5			24.9	
Approach LOS		C			C			F			C	

Intersection Summary			
HCM Average Control Delay	97.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	122.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	534	121	102	1512	917	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.5	4.5	
Lane Util. Factor	0.97		1.00	*0.50	0.86	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		0.99	1.00	1.00	
Frt	0.97		1.00	1.00	0.98	
Flt Protected	0.96		0.95	1.00	1.00	
Satd. Flow (prot)	3353		1760	3725	6289	
Flt Permitted	0.96		0.19	1.00	1.00	
Satd. Flow (perm)	3353		355	3725	6289	
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.92	0.92
Adj. Flow (vph)	580	132	111	1575	997	140
RTOR Reduction (vph)	32	0	0	0	24	0
Lane Group Flow (vph)	680	0	111	1575	1113	0
Confl. Peds. (#/hr)	30	30	106			
Confl. Bikes (#/hr)		2				
Turn Type			pm+pt			
Protected Phases	4		1	2	2	
Permitted Phases			2			
Actuated Green, G (s)	22.5		44.0	37.4	37.4	
Effective Green, g (s)	22.5		44.0	37.4	37.4	
Actuated g/C Ratio	0.28		0.55	0.47	0.47	
Clearance Time (s)	5.0		4.0	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	943		311	1741	2940	
v/s Ratio Prot	c0.20		c0.03	c0.42	0.18	
v/s Ratio Perm			0.17			
v/c Ratio	0.72		0.36	0.90	0.38	
Uniform Delay, d1	25.9		8.9	19.7	13.8	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	2.7		0.7	8.2	0.4	
Delay (s)	28.7		9.6	27.9	14.2	
Level of Service	C		A	C	B	
Approach Delay (s)	28.7			26.7	14.2	
Approach LOS	C			C	B	

Intersection Summary			
HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	424	10	25	218	11	196
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	451	11	27	237	12	213
Pedestrians	18			18		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	533			360		
pX, platoon unblocked						
vC, conflicting volume			462		766	474
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			462		766	474
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	63
cM capacity (veh/h)			1099		356	581

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	462	264	225
Volume Left	0	27	12
Volume Right	11	0	213
cSH	1700	1099	562
Volume to Capacity	0.27	0.02	0.40
Queue Length 95th (ft)	0	2	48
Control Delay (s)	0.0	1.1	15.6
Lane LOS		A	C
Approach Delay (s)	0.0	1.1	15.6
Approach LOS			C

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	291	25	38	193	30	142
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	316	27	41	210	33	154
Pedestrians	27			27		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	470			423		
pX, platoon unblocked						
vC, conflicting volume			343		649	357
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			343		649	357
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		92	77
cM capacity (veh/h)			1216		410	672

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	343	251	187
Volume Left	0	41	33
Volume Right	27	0	154
cSH	1700	1216	604
Volume to Capacity	0.20	0.03	0.31
Queue Length 95th (ft)	0	3	33
Control Delay (s)	0.0	1.6	13.6
Lane LOS		A	B
Approach Delay (s)	0.0	1.6	13.6
Approach LOS			B

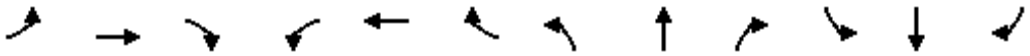
Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	382	18	25	150	80	146
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.92	0.92	0.94	0.92	0.92
Hourly flow rate (vph)	394	20	27	160	87	159
Pedestrians	20			20		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	80			813		
pX, platoon unblocked			0.90		0.90	0.90
vC, conflicting volume			413		638	424
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			286		536	297
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		80	76
cM capacity (veh/h)			1142		434	653

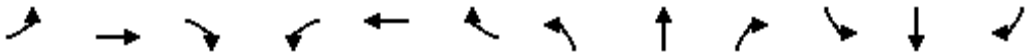
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	413	187	43	43	79	79
Volume Left	0	27	43	43	0	0
Volume Right	20	0	0	0	79	79
cSH	1700	1142	434	434	653	653
Volume to Capacity	0.24	0.02	0.10	0.10	0.12	0.12
Queue Length 95th (ft)	0	2	8	8	10	10
Control Delay (s)	0.0	1.4	14.2	14.2	11.3	11.3
Lane LOS		A	B	B	B	B
Approach Delay (s)	0.0	1.4	12.3			
Approach LOS			B			

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		



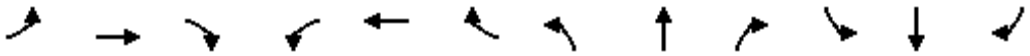
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	220	102	75	204	0	0	0	0	65	521	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.91	
Frpb, ped/bikes		1.00	0.91		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.98						0.97	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.99						0.99	
Satd. Flow (prot)		1863	1436		1797						4827	
Flt Permitted		1.00	1.00		0.77						0.99	
Satd. Flow (perm)		1863	1436		1398						4827	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.97	0.92
Adj. Flow (vph)	0	239	111	82	222	0	0	0	0	71	537	32
RTOR Reduction (vph)	0	0	20	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	239	91	0	304	0	0	0	0	0	636	0
Confl. Peds. (#/hr)	58		58	100		100	50		50	104		104
Confl. Bikes (#/hr)			8			6			10			28
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		22.9	22.9		22.9						49.1	
Effective Green, g (s)		22.9	22.9		22.9						49.1	
Actuated g/C Ratio		0.29	0.29		0.29						0.61	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		533	411		400						2963	
v/s Ratio Prot		0.13										
v/s Ratio Perm			0.06		c0.22						0.13	
v/c Ratio		0.45	0.22		0.76						0.21	
Uniform Delay, d1		23.4	21.8		26.0						6.9	
Progression Factor		1.00	1.00		1.00						1.23	
Incremental Delay, d2		0.6	0.3		8.3						0.1	
Delay (s)		24.0	22.0		34.3						8.6	
Level of Service		C	C		C						A	
Approach Delay (s)		23.4			34.3			0.0			8.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	18.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



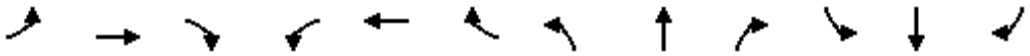
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	113	1	0	109	99	21	358	191	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.97			1.00	0.81			
Flpb, ped/bikes		1.00			1.00			0.99	1.00			
Frt		1.00			0.94			1.00	0.85			
Flt Protected		0.99			1.00			1.00	1.00			
Satd. Flow (prot)		1843			1682			3507	1285			
Flt Permitted		0.97			1.00			1.00	1.00			
Satd. Flow (perm)		1800			1682			3507	1285			
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	14	123	1	0	118	108	23	385	208	0	0	0
RTOR Reduction (vph)	0	0	0	0	43	0	0	0	163	0	0	0
Lane Group Flow (vph)	0	138	0	0	183	0	0	408	45	0	0	0
Confl. Peds. (#/hr)	71		71	82		82	88		88	75		75
Confl. Bikes (#/hr)			8			2			40			1
Turn Type	Perm						Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2						1		1			
Actuated Green, G (s)		27.2			27.2			9.8	9.8			
Effective Green, g (s)		27.2			27.2			9.8	9.8			
Actuated g/C Ratio		0.60			0.60			0.22	0.22			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)		1088			1017			764	280			
v/s Ratio Prot					c0.11							
v/s Ratio Perm		0.08						0.12	0.04			
v/c Ratio		0.13			0.18			0.53	0.16			
Uniform Delay, d1		3.8			4.0			15.6	14.3			
Progression Factor		0.38			1.00			1.00	1.00			
Incremental Delay, d2		0.2			0.4			0.4	0.1			
Delay (s)		1.7			4.3			15.9	14.4			
Level of Service		A			A			B	B			
Approach Delay (s)		1.7			4.3			15.4			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



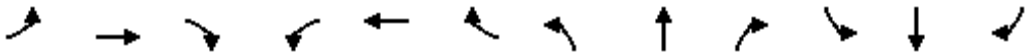
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	48	22	71	0	64	0	558	45	38	477	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frpb, ped/bikes	1.00	0.99			0.99			0.99			1.00	
Flpb, ped/bikes	0.99	1.00			0.99			1.00			1.00	
Frt	1.00	0.95			0.94			0.99			1.00	
Flt Protected	0.95	1.00			0.97			1.00			1.00	
Satd. Flow (prot)	1747	1758			1662			3477			3519	
Flt Permitted	0.73	1.00			0.84			1.00			0.87	
Satd. Flow (perm)	1342	1758			1433			3477			3072	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.99	0.92
Adj. Flow (vph)	15	52	24	77	0	70	0	607	49	41	482	0
RTOR Reduction (vph)	0	14	0	0	40	0	0	13	0	0	0	0
Lane Group Flow (vph)	15	62	0	0	107	0	0	643	0	0	523	0
Confl. Peds. (#/hr)	22		22	24		24	40		40	48		48
Confl. Bikes (#/hr)			3						17			7
Turn Type	Perm			Perm						Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2						4		
Actuated Green, G (s)	19.0	19.0			19.0			17.0			17.0	
Effective Green, g (s)	19.0	19.0			19.0			17.0			17.0	
Actuated g/C Ratio	0.42	0.42			0.42			0.38			0.38	
Clearance Time (s)	4.0	4.0			4.0			5.0			5.0	
Vehicle Extension (s)	2.0	2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)	567	742			605			1314			1161	
v/s Ratio Prot		0.04						c0.18				
v/s Ratio Perm	0.01				c0.07						0.17	
v/c Ratio	0.03	0.08			0.18			0.49			0.45	
Uniform Delay, d1	7.6	7.8			8.1			10.7			10.5	
Progression Factor	1.00	1.00			1.12			1.00			1.00	
Incremental Delay, d2	0.1	0.2			0.6			1.3			1.3	
Delay (s)	7.7	8.0			9.8			12.0			11.8	
Level of Service	A	A			A			B			B	
Approach Delay (s)		8.0			9.8			12.0			11.8	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	11.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	167	30	12	207	204	26	657	29	40	180	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5		4.5	4.5	
Lane Util. Factor		0.95			0.95			0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.98			1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00			1.00		1.00	1.00	
Frt		0.98			0.93			0.99		1.00	0.96	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3419			3219			3504		1767	3370	
Flt Permitted		0.80			0.94			0.94		0.28	1.00	
Satd. Flow (perm)		2754			3033			3295		525	3370	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92	0.92
Adj. Flow (vph)	32	182	33	13	225	222	28	714	32	41	196	70
RTOR Reduction (vph)	0	25	0	0	181	0	0	4	0	0	23	0
Lane Group Flow (vph)	0	222	0	0	279	0	0	770	0	41	243	0
Confl. Peds. (#/hr)	32		32	24		24	16		16	19		19
Confl. Bikes (#/hr)			6			4			25			3
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		11.0			11.0			32.8		40.0	40.0	
Effective Green, g (s)		11.0			11.0			32.8		40.0	40.0	
Actuated g/C Ratio		0.18			0.18			0.55		0.67	0.67	
Clearance Time (s)		4.5			4.5			4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		505			556			1801		406	2247	
v/s Ratio Prot										0.00	c0.07	
v/s Ratio Perm		0.08			c0.09			c0.23		0.06		
v/c Ratio		0.44			0.50			0.43		0.10	0.11	
Uniform Delay, d1		21.8			22.0			8.0		4.0	3.6	
Progression Factor		1.00			0.68			1.00		1.00	1.00	
Incremental Delay, d2		0.6			0.6			0.7		0.1	0.1	
Delay (s)		22.4			15.5			8.8		4.1	3.7	
Level of Service		C			B			A		A	A	
Approach Delay (s)		22.4			15.5			8.8			3.7	
Approach LOS		C			B			A			A	

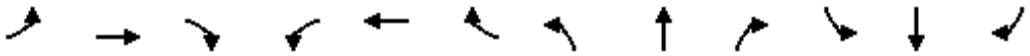
Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	157	95	61	260	112	109	803	115	44	561	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.97			0.97			0.99			0.99	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.95			0.96			0.98			0.99	
Flt Protected		1.00			0.99			0.99			1.00	
Satd. Flow (prot)		3222			3230			3411			4989	
Flt Permitted		0.90			0.87			0.72			0.81	
Satd. Flow (perm)		2921			2821			2484			4036	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	25	171	103	66	283	122	118	873	121	48	610	42
RTOR Reduction (vph)	0	65	0	0	46	0	0	16	0	0	12	0
Lane Group Flow (vph)	0	234	0	0	425	0	0	1097	0	0	688	0
Confl. Peds. (#/hr)	74		74	120		120	85		85	65		65
Confl. Bikes (#/hr)			30			13			10			6
Turn Type	Perm			Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						6		
Actuated Green, G (s)		22.0			22.0			29.0			18.0	
Effective Green, g (s)		22.0			22.0			29.0			18.0	
Actuated g/C Ratio		0.37			0.37			0.48			0.30	
Clearance Time (s)		4.0			4.0			5.0			5.0	
Lane Grp Cap (vph)		1071			1034			1309			1211	
v/s Ratio Prot								c0.10				
v/s Ratio Perm		0.08			c0.15			c0.31			0.17	
v/c Ratio		0.22			0.41			0.84			0.57	
Uniform Delay, d1		13.1			14.2			13.5			17.7	
Progression Factor		2.14			1.00			1.00			1.00	
Incremental Delay, d2		0.5			1.2			6.5			1.9	
Delay (s)		28.5			15.4			20.0			19.7	
Level of Service		C			B			B			B	
Approach Delay (s)		28.5			15.4			20.0			19.7	
Approach LOS		C			B			B			B	

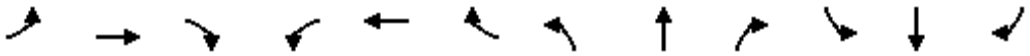
Intersection Summary			
HCM Average Control Delay	20.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



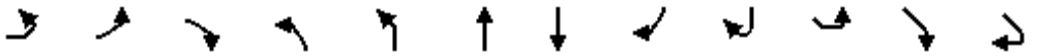
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	338	0	0	421	113	65	401	257	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.91	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3511			3370	1319		5005	1458			
Flt Permitted		0.88			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3108			3370	1319		5005	1458			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	41	367	0	0	458	120	71	436	276	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	29	0	0	223	0	0	0
Lane Group Flow (vph)	0	408	0	0	469	79	0	507	53	0	0	0
Confl. Peds. (#/hr)	42		42	54		54	58		58	194		194
Confl. Bikes (#/hr)			12			7			5			8
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		58.2			58.2	58.2		14.8	14.8			
Effective Green, g (s)		58.2			58.2	58.2		14.8	14.8			
Actuated g/C Ratio		0.73			0.73	0.73		0.18	0.18			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2261			2452	960		926	270			
v/s Ratio Prot					c0.14							
v/s Ratio Perm		0.13				0.06		0.10	0.04			
v/c Ratio		0.18			0.19	0.08		0.55	0.20			
Uniform Delay, d1		3.4			3.5	3.2		29.6	27.6			
Progression Factor		1.00			0.72	0.30		1.00	1.00			
Incremental Delay, d2		0.2			0.2	0.2		0.7	0.4			
Delay (s)		3.6			2.6	1.1		30.2	27.9			
Level of Service		A			A	A		C	C			
Approach Delay (s)		3.6			2.4			29.4			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	415	178	147	414	0	0	0	0	82	522	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	0.91	0.91						0.91	
Frpb, ped/bikes		1.00	0.91	1.00	1.00						0.95	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						0.97	
Frt		1.00	0.85	1.00	1.00						0.98	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		3539	1439	1610	3377						4521	
Flt Permitted		1.00	1.00	0.95	0.94						0.99	
Satd. Flow (perm)		3539	1439	1610	3195						4521	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	451	193	160	450	0	0	0	0	89	567	129
RTOR Reduction (vph)	0	0	43	0	0	0	0	0	0	0	36	0
Lane Group Flow (vph)	0	451	150	144	466	0	0	0	0	0	749	0
Confl. Peds. (#/hr)	51		51	114		114	115		115	333		333
Confl. Bikes (#/hr)			8			3			17			6
Turn Type			Perm	Prot						Perm		
Protected Phases		2		1	6						4	
Permitted Phases			2							4		
Actuated Green, G (s)		28.0	28.0	10.0	42.0						30.0	
Effective Green, g (s)		28.0	28.0	10.0	42.0						30.0	
Actuated g/C Ratio		0.35	0.35	0.12	0.52						0.38	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		1239	504	201	1700						1695	
v/s Ratio Prot		c0.13		c0.09	0.03							
v/s Ratio Perm			0.10		0.11						0.17	
v/c Ratio		0.36	0.30	0.72	0.27						0.44	
Uniform Delay, d1		19.4	18.9	33.6	10.5						18.7	
Progression Factor		1.10	1.14	1.00	1.00						1.38	
Incremental Delay, d2		0.8	1.5	9.7	0.0						0.1	
Delay (s)		22.1	22.9	43.3	10.6						25.9	
Level of Service		C	C	D	B						C	
Approach Delay (s)		22.3			18.3			0.0			25.9	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM Average Control Delay	22.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL2	EBL	EBR	NBL2	NBL	NBT	SBT	SBR	SBR2	SEL	SER	SER2
Lane Configurations												
Volume (vph)	7	389	103	97	26	828	188	268	51	0	128	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0				4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.94				0.95	0.91	0.91	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00				1.00	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	0.48	1.00				1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.97				1.00	0.94	0.85	0.85		0.85	0.85
Flt Protected	0.95	0.96				0.99	1.00	1.00	1.00		1.00	1.00
Satd. Flow (prot)	841	4894				3517	3186	1441	1583		1583	1554
Flt Permitted	0.95	0.96				0.99	1.00	1.00	1.00		1.00	1.00
Satd. Flow (perm)	841	4894				3517	3186	1441	1583		1583	1554
Peak-hour factor, PHF	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95
Adj. Flow (vph)	7	423	112	105	28	900	204	291	55	0	135	58
RTOR Reduction (vph)	0	72	0	0	0	0	0	0	32	0	0	44
Lane Group Flow (vph)	7	463	0	0	0	1033	341	154	23	0	135	14
Confl. Peds. (#/hr)	22								74			
Confl. Bikes (#/hr)						7			8			7
Turn Type	Prot			Split	Split			custom	custom		custom	custom
Protected Phases	5	1		8	8	8	2	6	6			
Permitted Phases		1						6			9	2
Actuated Green, G (s)	0.8	13.1				16.0	17.2	29.5	29.5		7.7	17.2
Effective Green, g (s)	0.8	13.1				16.0	17.2	29.5	29.5		7.7	17.2
Actuated g/C Ratio	0.01	0.19				0.23	0.25	0.42	0.42		0.11	0.25
Clearance Time (s)	4.0	4.0				4.0	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	2.0				2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	10	916				804	783	607	667		174	382
v/s Ratio Prot	0.01	c0.09				c0.29	c0.11	0.11	0.01			
v/s Ratio Perm											c0.09	0.01
v/c Ratio	0.70	0.51				1.28	0.44	0.25	0.03		0.78	0.04
Uniform Delay, d1	34.5	25.5				27.0	22.3	13.1	11.9		30.3	20.1
Progression Factor	1.00	1.00				1.00	1.41	1.63	2.67		1.00	1.00
Incremental Delay, d2	120.0	2.0				137.6	0.1	1.0	0.1		17.7	0.0
Delay (s)	154.5	27.5				164.6	31.6	22.3	31.8		48.0	20.1
Level of Service	F	C				F	C	C	C		D	C
Approach Delay (s)		29.2				164.6	29.0			39.6		
Approach LOS		C				F	C			D		

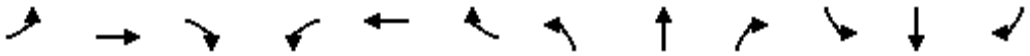
Intersection Summary			
HCM Average Control Delay	90.3	HCM Level of Service	F
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1069	71	785	326	153	843
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.91		0.97	0.91	0.97	0.91
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	0.89	0.85
Flt Protected	1.00		0.95	1.00	0.99	1.00
Satd. Flow (prot)	5036		3433	5085	3174	1441
Flt Permitted	1.00		0.95	1.00	0.99	1.00
Satd. Flow (perm)	5036		3433	5085	3174	1441
Peak-hour factor, PHF	0.95	0.92	0.99	0.92	0.92	0.93
Adj. Flow (vph)	1125	77	793	354	166	906
RTOR Reduction (vph)	11	0	0	0	317	317
Lane Group Flow (vph)	1191	0	793	354	302	136
Confl. Bikes (#/hr)				16		
Turn Type			Prot			Perm
Protected Phases	8		7	4	6	
Permitted Phases						6
Actuated Green, G (s)	18.0		19.0	41.0	21.0	21.0
Effective Green, g (s)	18.0		19.0	41.0	21.0	21.0
Actuated g/C Ratio	0.26		0.27	0.59	0.30	0.30
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1295		932	2978	952	432
v/s Ratio Prot	c0.24		c0.23	0.07	c0.10	
v/s Ratio Perm						0.09
v/c Ratio	0.92		0.85	0.12	0.32	0.31
Uniform Delay, d1	25.3		24.2	6.5	19.0	18.9
Progression Factor	0.99		1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4		9.6	0.1	0.9	1.9
Delay (s)	26.3		33.8	6.5	19.8	20.8
Level of Service	C		C	A	B	C
Approach Delay (s)	26.3			25.4	20.3	
Approach LOS	C			C	C	

Intersection Summary			
HCM Average Control Delay	24.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	148	158	0	0	0	0	0	1270	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0						6.0	
Lane Util. Factor				1.00	0.95						0.86	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				1.00	1.00						1.00	
Frt				1.00	1.00						0.98	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1766	3539						6292	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1766	3539						6292	
Peak-hour factor, PHF	0.25	0.95	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.92	0.97	0.92
Adj. Flow (vph)	0	0	0	161	172	0	0	0	0	0	1309	160
RTOR Reduction (vph)	0	0	0	3	0	0	0	0	0	0	19	0
Lane Group Flow (vph)	0	0	0	158	172	0	0	0	0	0	1450	0
Confl. Peds. (#/hr)	15		15	2		2				2		2
Confl. Bikes (#/hr)			4									2
Turn Type				Perm								
Protected Phases					4						6	
Permitted Phases				4								
Actuated Green, G (s)				23.6	23.6						42.4	
Effective Green, g (s)				23.6	23.6						42.4	
Actuated g/C Ratio				0.31	0.31						0.57	
Clearance Time (s)				3.0	3.0						6.0	
Vehicle Extension (s)				3.0	3.0						4.0	
Lane Grp Cap (vph)				556	1114						3557	
v/s Ratio Prot					0.05						c0.23	
v/s Ratio Perm				c0.09								
v/c Ratio				0.28	0.15						0.41	
Uniform Delay, d1				19.3	18.5						9.2	
Progression Factor				1.00	1.00						0.73	
Incremental Delay, d2				1.3	0.3						0.1	
Delay (s)				20.6	18.8						6.8	
Level of Service				C	B						A	
Approach Delay (s)		0.0			19.7			0.0			6.8	
Approach LOS		A			B			A			A	

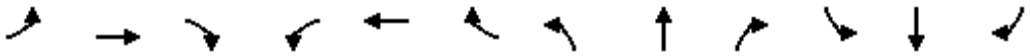
Intersection Summary			
HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	200	396	1220	77	346	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0		5.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.98	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	5085	5028		3404	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1770	5085	5028		3404	
Peak-hour factor, PHF	0.92	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	217	426	1312	84	376	45
RTOR Reduction (vph)	2	0	9	0	0	0
Lane Group Flow (vph)	215	426	1387	0	421	0
Confl. Peds. (#/hr)				17		
Confl. Bikes (#/hr)				6		
Turn Type	Perm					
Protected Phases		4	2		1	
Permitted Phases	4					
Actuated Green, G (s)	15.9	15.9	26.0		21.1	
Effective Green, g (s)	15.9	15.9	26.0		21.1	
Actuated g/C Ratio	0.21	0.21	0.35		0.28	
Clearance Time (s)	3.0	3.0	4.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	375	1078	1743		958	
v/s Ratio Prot		0.08	c0.28		c0.12	
v/s Ratio Perm	c0.12					
v/c Ratio	0.57	0.40	0.80		0.44	
Uniform Delay, d1	26.5	25.4	22.1		22.1	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	6.2	1.1	2.6		0.3	
Delay (s)	32.7	26.5	24.7		22.4	
Level of Service	C	C	C		C	
Approach Delay (s)		28.6	24.7		22.4	
Approach LOS		C	C		C	

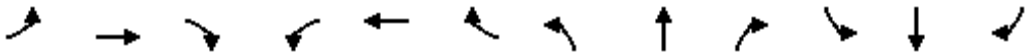
Intersection Summary			
HCM Average Control Delay	25.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



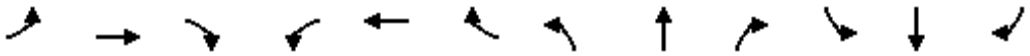
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	268	878	1024	528	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	5.0	5.0				
Lane Util. Factor					0.91	0.91	0.81	0.81				
Frpb, ped/bikes					0.99	0.98	1.00	1.00				
Flpb, ped/bikes					1.00	1.00	0.98	0.99				
Frt					0.91	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	0.98				
Satd. Flow (prot)					3043	1417	1403	5828				
Flt Permitted					1.00	1.00	0.95	0.98				
Satd. Flow (perm)					3043	1417	1403	5828				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.92	0.92	0.92	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	291	954	1113	568	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	62	62	344	271	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	706	415	212	854	0	0	0	0
Confl. Peds. (#/hr)	1		1	4		4	14		14			
Confl. Bikes (#/hr)						1						4
Turn Type						Perm	Perm					
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					42.7	42.7	22.3	22.3				
Effective Green, g (s)					42.7	42.7	22.3	22.3				
Actuated g/C Ratio					0.57	0.57	0.30	0.30				
Clearance Time (s)					5.0	5.0	5.0	5.0				
Vehicle Extension (s)					3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)					1732	807	417	1733				
v/s Ratio Prot					0.23							
v/s Ratio Perm						c0.29	c0.15	0.15				
v/c Ratio					0.41	0.51	0.51	0.49				
Uniform Delay, d1					9.1	9.8	21.8	21.7				
Progression Factor					1.00	1.00	1.00	1.00				
Incremental Delay, d2					0.7	2.3	1.0	0.2				
Delay (s)					9.8	12.2	22.8	21.9				
Level of Service					A	B	C	C				
Approach Delay (s)		0.0			10.7			22.2			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM Average Control Delay	17.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	250	72	0	0	0	0	0	0	561	908	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		0.95								0.86	0.86	
Frpb, ped/bikes		1.00								1.00	1.00	
Flpb, ped/bikes		1.00								1.00	1.00	
Frt		0.97								1.00	0.99	
Flt Protected		1.00								0.95	0.99	
Satd. Flow (prot)		3407								1522	4729	
Flt Permitted		1.00								0.95	0.99	
Satd. Flow (perm)		3407								1522	4729	
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	272	78	0	0	0	0	0	0	610	987	60
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	0	231	42	0
Lane Group Flow (vph)	0	324	0	0	0	0	0	0	0	172	1212	0
Confl. Peds. (#/hr)	5		5									
Confl. Bikes (#/hr)			2									2
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		35.0								32.0	32.0	
Effective Green, g (s)		35.0								32.0	32.0	
Actuated g/C Ratio		0.47								0.43	0.43	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		1590								649	2018	
v/s Ratio Prot		c0.10										
v/s Ratio Perm										0.11	0.26	
v/c Ratio		0.20								0.26	0.60	
Uniform Delay, d1		11.8								13.9	16.6	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.3								1.0	1.3	
Delay (s)		12.1								14.9	17.9	
Level of Service		B								B	B	
Approach Delay (s)		12.1			0.0			0.0			17.2	
Approach LOS		B			A			A			B	

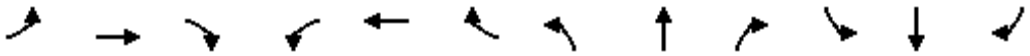
Intersection Summary			
HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	918	0	0	425	261	205	634	42	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Util. Factor		0.95			0.95	1.00		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.96			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3524			3539	1461		3472	1520			
Flt Permitted		0.89			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3130			3539	1461		3472	1520			
Peak-hour factor, PHF	0.92	0.92	0.25	0.99	0.96	0.96	0.92	0.92	0.92	0.25	0.25	0.25
Adj. Flow (vph)	68	998	0	0	443	272	223	689	46	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	118	0	0	4	0	0	0
Lane Group Flow (vph)	0	1066	0	0	443	154	0	912	42	0	0	0
Confl. Peds. (#/hr)	36		36	52		52	35		35	10		10
Confl. Bikes (#/hr)			5			21						22
Turn Type	Perm			Perm		Perm	Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4			8		8	2		2			
Actuated Green, G (s)		18.0			18.0	18.0		32.0	32.0			
Effective Green, g (s)		18.0			18.0	18.0		32.0	32.0			
Actuated g/C Ratio		0.30			0.30	0.30		0.53	0.53			
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Grp Cap (vph)		939			1062	438		1852	811			
v/s Ratio Prot					0.13							
v/s Ratio Perm		c0.34				0.11		0.26	0.03			
v/c Ratio		1.14			0.42	0.35		0.49	0.05			
Uniform Delay, d1		21.0			16.8	16.4		8.9	6.7			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		74.1			1.2	2.2		0.9	0.1			
Delay (s)		95.1			18.0	18.7		9.8	6.8			
Level of Service		F			B	B		A	A			
Approach Delay (s)		95.1			18.3			9.7			0.0	
Approach LOS		F			B			A			A	

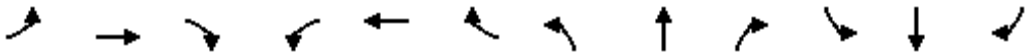
Intersection Summary			
HCM Average Control Delay	45.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



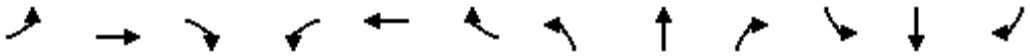
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	644	73	26	560	0	0	0	0	344	638	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0					4.0	4.0	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frpb, ped/bikes		0.99			1.00					1.00	1.00	
Flpb, ped/bikes		1.00			1.00					0.98	1.00	
Frt		0.98			1.00					1.00	1.00	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		3464			3531					1734	3520	
Flt Permitted		1.00			0.91					0.95	1.00	
Satd. Flow (perm)		3464			3232					1734	3520	
Peak-hour factor, PHF	0.25	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.94	0.96	0.92
Adj. Flow (vph)	0	700	79	28	609	0	0	0	0	366	665	21
RTOR Reduction (vph)	0	19	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	760	0	0	637	0	0	0	0	366	681	0
Confl. Peds. (#/hr)	50		50	25		25	17		17	24		24
Confl. Bikes (#/hr)			16			17			2			
Turn Type				Perm						Perm		
Protected Phases		8			4						6	
Permitted Phases				4						6		
Actuated Green, G (s)		19.0			19.0					19.0	19.0	
Effective Green, g (s)		19.0			19.0					19.0	19.0	
Actuated g/C Ratio		0.42			0.42					0.42	0.42	
Clearance Time (s)		3.0			3.0					4.0	4.0	
Vehicle Extension (s)		2.0			2.0					2.0	2.0	
Lane Grp Cap (vph)		1463			1365					732	1486	
v/s Ratio Prot		c0.22									0.19	
v/s Ratio Perm					0.20					c0.21		
v/c Ratio		0.52			0.47					0.50	0.46	
Uniform Delay, d1		9.6			9.4					9.5	9.3	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		1.3			1.1					2.4	1.0	
Delay (s)		10.9			10.5					12.0	10.3	
Level of Service		B			B					B	B	
Approach Delay (s)		10.9			10.5			0.0			10.9	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	430	8	19	401	44	69	447	25	114	187	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.99			0.98	
Flt Protected		0.99			1.00			0.99			0.98	
Satd. Flow (prot)		3484			3457			3474			3365	
Flt Permitted		0.84			0.93			0.86			0.65	
Satd. Flow (perm)		2949			3221			3005			2216	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92
Adj. Flow (vph)	79	467	9	21	436	48	75	486	27	124	193	54
RTOR Reduction (vph)	0	2	0	0	15	0	0	9	0	0	34	0
Lane Group Flow (vph)	0	553	0	0	490	0	0	579	0	0	337	0
Confl. Peds. (#/hr)	80		80	58		58	44		44	41		41
Confl. Bikes (#/hr)			14			10			7			4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		22.8			22.8			14.7			14.7	
Effective Green, g (s)		22.8			22.8			14.7			14.7	
Actuated g/C Ratio		0.51			0.51			0.33			0.33	
Clearance Time (s)		3.5			3.5			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1494			1632			982			724	
v/s Ratio Prot												
v/s Ratio Perm		c0.19			0.15			c0.19			0.15	
v/c Ratio		0.37			0.30			0.59			0.46	
Uniform Delay, d1		6.7			6.5			12.6			12.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.7			0.5			0.9			0.5	
Delay (s)		7.4			6.9			13.5			12.5	
Level of Service		A			A			B			B	
Approach Delay (s)		7.4			6.9			13.5			12.5	
Approach LOS		A			A			B			B	

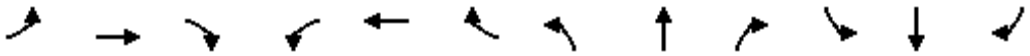
Intersection Summary			
HCM Average Control Delay	10.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	249	941	0	0	0	0	0	735	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.86						0.91	
Frpb, ped/bikes					1.00						1.00	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.99	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					6270						5027	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					6270						5027	
Peak-hour factor, PHF	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25	0.25	0.25	0.92	0.92
Adj. Flow (vph)	0	0	0	271	970	0	0	0	0	0	799	50
RTOR Reduction (vph)	0	0	0	0	47	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	0	0	0	1194	0	0	0	0	0	837	0
Confl. Peds. (#/hr)	32		32	47		47	36		36	29		29
Confl. Bikes (#/hr)			3			13			9			2
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2717						2220	
v/s Ratio Prot											c0.17	
v/s Ratio Perm					0.19							
v/c Ratio					0.44						0.38	
Uniform Delay, d1					11.9						11.2	
Progression Factor					0.45						1.00	
Incremental Delay, d2					0.5						0.5	
Delay (s)					5.8						11.7	
Level of Service					A						B	
Approach Delay (s)		0.0			5.8			0.0			11.7	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	8.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	42.5%	ICU Level of Service	A
Analysis Period (min)	15		

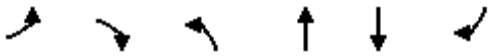
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1015	60	178	986	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5			4.0				
Lane Util. Factor					0.86			0.86				
Frpb, ped/bikes					1.00			1.00				
Flpb, ped/bikes					1.00			0.98				
Frt					0.99			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6330			6239				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6330			6239				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.95	0.92	0.92	0.96	0.25	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	1068	65	193	1027	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	28	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1129	0	0	1192	0	0	0	0
Confl. Peds. (#/hr)	121		121	69		69	118		118	84		84
Confl. Bikes (#/hr)			3									15
Turn Type							Perm					
Protected Phases					6			4				
Permitted Phases							4					
Actuated Green, G (s)					29.9			20.6				
Effective Green, g (s)					29.9			20.6				
Actuated g/C Ratio					0.50			0.34				
Clearance Time (s)					5.5			4.0				
Lane Grp Cap (vph)					3154			2142				
v/s Ratio Prot					c0.18							
v/s Ratio Perm								0.19				
v/c Ratio					0.36			0.56				
Uniform Delay, d1					9.2			16.0				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.3			1.0				
Delay (s)					9.5			17.0				
Level of Service					A			B				
Approach Delay (s)		0.0			9.5			17.0			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

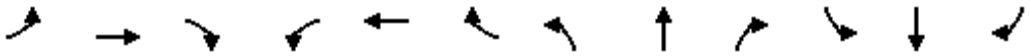
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	68	0	0	1081	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.25	0.92	0.25	0.25
Hourly flow rate (vph)	74	0	0	1175	0	0
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1055	320	
pX, platoon unblocked						
vC, conflicting volume	300	6	6			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	300	6	6			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	100	100			
cM capacity (veh/h)	664	1069	1605			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	74	294	294	294	294
Volume Left	74	0	0	0	0
Volume Right	0	0	0	0	0
cSH	664	1700	1700	1700	1700
Volume to Capacity	0.11	0.17	0.17	0.17	0.17
Queue Length 95th (ft)	9	0	0	0	0
Control Delay (s)	11.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.1	0.0			
Approach LOS	B				

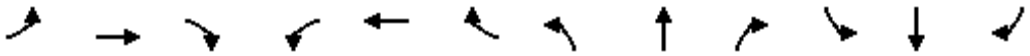
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	910	194	0	0	0	0	0	0	51	911	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5									5.5	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.97									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		6193									5067	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		6193									5067	
Peak-hour factor, PHF	0.25	0.96	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.93	0.25
Adj. Flow (vph)	0	948	211	0	0	0	0	0	0	55	980	0
RTOR Reduction (vph)	0	29	0	0	0	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	1130	0	0	0	0	0	0	0	0	1025	0
Confl. Peds. (#/hr)	20		20	30		30	12		12	17		17
Confl. Bikes (#/hr)			5			7			3			
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		23.0									26.0	
Effective Green, g (s)		23.0									26.0	
Actuated g/C Ratio		0.38									0.43	
Clearance Time (s)		5.5									5.5	
Lane Grp Cap (vph)		2374									2196	
v/s Ratio Prot		c0.18										
v/s Ratio Perm											0.20	
v/c Ratio		0.48									0.47	
Uniform Delay, d1		14.0									12.1	
Progression Factor		0.83									0.58	
Incremental Delay, d2		0.7									0.7	
Delay (s)		12.2									7.7	
Level of Service		B									A	
Approach Delay (s)		12.2			0.0			0.0			7.7	
Approach LOS		B			A			A			A	

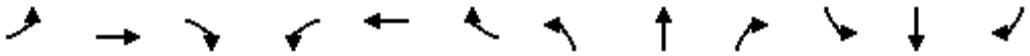
Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	724	0	0	0	0	0	326	134	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.86						0.86				
Frpb, ped/bikes		1.00						0.98				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		6387						6038				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		6387						6038				
Peak-hour factor, PHF	0.92	0.92	0.25	0.25	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25
Adj. Flow (vph)	29	787	0	0	0	0	0	354	138	0	0	0
RTOR Reduction (vph)	0	11	0	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	0	805	0	0	0	0	0	472	0	0	0	0
Confl. Peds. (#/hr)	46		46	17		17	53		53	68		68
Confl. Bikes (#/hr)			1			1			6			2
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		13.3						39.7				
Effective Green, g (s)		13.3						39.7				
Actuated g/C Ratio		0.22						0.66				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		1416						3995				
v/s Ratio Prot								c0.08				
v/s Ratio Perm		0.13										
v/c Ratio		0.57						0.12				
Uniform Delay, d1		20.8						3.7				
Progression Factor		1.00						1.00				
Incremental Delay, d2		0.3						0.1				
Delay (s)		21.1						3.8				
Level of Service		C						A				
Approach Delay (s)		21.1			0.0			3.8			0.0	
Approach LOS		C			A			A			A	

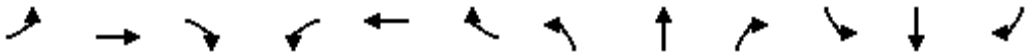
Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	178	1092	0	0	0	0	0	942	394	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		0.86						0.91				
Frpb, ped/bikes		1.00						0.99				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6345						4831				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6345						4831				
Peak-hour factor, PHF	0.92	0.98	0.25	0.25	0.25	0.25	0.25	0.94	0.96	0.25	0.25	0.25
Adj. Flow (vph)	193	1114	0	0	0	0	0	1002	410	0	0	0
RTOR Reduction (vph)	0	20	0	0	0	0	0	13	0	0	0	0
Lane Group Flow (vph)	0	1287	0	0	0	0	0	1399	0	0	0	0
Confl. Peds. (#/hr)	22		22	50		50	14		14	6		6
Confl. Bikes (#/hr)			16			1			2			2
Turn Type	Perm											
Protected Phases		1						2				
Permitted Phases	1											
Actuated Green, G (s)		18.0						18.0				
Effective Green, g (s)		18.0						18.0				
Actuated g/C Ratio		0.40						0.40				
Clearance Time (s)		4.5						4.5				
Lane Grp Cap (vph)		2538						1932				
v/s Ratio Prot								c0.29				
v/s Ratio Perm		0.20										
v/c Ratio		0.51						0.72				
Uniform Delay, d1		10.2						11.4				
Progression Factor		0.96						1.56				
Incremental Delay, d2		0.5						1.8				
Delay (s)		10.3						19.6				
Level of Service		B						B				
Approach Delay (s)		10.3			0.0			19.6			0.0	
Approach LOS		B			A			B			A	

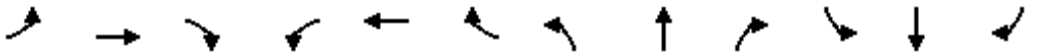
Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



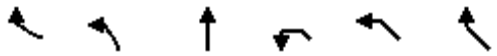
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	972	285	0	0	0	0	0	0	451	1491	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									3.0	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		1.00									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.96									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6153									5016	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6153									5016	
Peak-hour factor, PHF	0.25	0.99	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.95	0.25
Adj. Flow (vph)	0	982	310	0	0	0	0	0	0	490	1569	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	22	0
Lane Group Flow (vph)	0	1287	0	0	0	0	0	0	0	0	2037	0
Confl. Peds. (#/hr)	4		4	8		8	2		2	12		12
Confl. Bikes (#/hr)			2			2			2			
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		18.0									20.0	
Effective Green, g (s)		18.0									20.0	
Actuated g/C Ratio		0.40									0.44	
Clearance Time (s)		4.0									3.0	
Vehicle Extension (s)		2.0									2.0	
Lane Grp Cap (vph)		2461									2229	
v/s Ratio Prot		c0.21										
v/s Ratio Perm											0.41	
v/c Ratio		0.52									0.91	
Uniform Delay, d1		10.2									11.7	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.8									7.2	
Delay (s)		11.0									18.9	
Level of Service		B									B	
Approach Delay (s)		11.0			0.0			0.0			18.9	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM Average Control Delay	15.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	7	369	56	351	352	0	0	216	1638
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.93		1.00			1.00	0.98
Flpb, ped/bikes				0.98	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1726	1863	1471		1817			1863	1559
Flt Permitted				0.95	1.00	1.00		0.72			1.00	1.00
Satd. Flow (perm)				1726	1863	1471		1350			1863	1559
Peak-hour factor, PHF	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.98
Adj. Flow (vph)	0	0	0	8	401	61	382	383	0	0	235	1671
RTOR Reduction (vph)	0	0	0	0	0	46	0	0	0	0	0	41
Lane Group Flow (vph)	0	0	0	8	401	15	0	765	0	0	235	1630
Confl. Peds. (#/hr)	4		4	20		20	1		1	6		6
Confl. Bikes (#/hr)			10			7						
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					1			2			2	
Permitted Phases				1		1	2					2
Actuated Green, G (s)				14.4	14.4	14.4		34.6			34.6	34.6
Effective Green, g (s)				14.4	14.4	14.4		34.6			34.6	34.6
Actuated g/C Ratio				0.24	0.24	0.24		0.58			0.58	0.58
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				414	447	353		779			1074	899
v/s Ratio Prot					c0.22						0.13	
v/s Ratio Perm				0.00		0.01		0.57				c1.05
v/c Ratio				0.02	0.90	0.04		0.98			0.22	1.81
Uniform Delay, d1				17.4	22.1	17.5		12.4			6.2	12.7
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.0	20.2	0.0		28.2			0.5	370.3
Delay (s)				17.4	42.2	17.6		40.6			6.6	383.0
Level of Service				B	D	B		D			A	F
Approach Delay (s)		0.0			38.6			40.6			336.6	
Approach LOS		A			D			D			F	

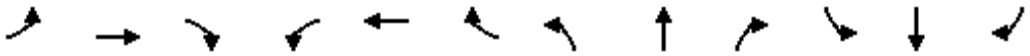
Intersection Summary			
HCM Average Control Delay	219.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.54		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	173.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBR	NBL	NBT	NWL2	NWL	NWR
Lane Configurations						
Volume (vph)	0	184	627	66	56	730
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5		2.0	2.0
Lane Util. Factor			0.95		0.97	0.91
Frpb, ped/bikes			1.00		1.00	1.00
Flpb, ped/bikes			1.00		1.00	1.00
Frt			1.00		0.89	0.85
Flt Protected			0.99		0.99	1.00
Satd. Flow (prot)			3500		3169	1441
Flt Permitted			0.99		0.99	1.00
Satd. Flow (perm)			3500		3169	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.94
Adj. Flow (vph)	0	200	682	72	61	777
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	882	0	522	388
Confl. Peds. (#/hr)	46					
Confl. Bikes (#/hr)	3					
Turn Type	custom	Perm		Perm		Perm
Protected Phases			3		1	
Permitted Phases	2	3		1		1
Actuated Green, G (s)			16.3		16.2	16.2
Effective Green, g (s)			16.3		16.2	16.2
Actuated g/C Ratio			0.36		0.36	0.36
Clearance Time (s)			3.5		2.0	2.0
Lane Grp Cap (vph)			1268		1141	519
v/s Ratio Prot						
v/s Ratio Perm			0.25		0.16	c0.27
v/c Ratio			0.70		0.46	0.75
Uniform Delay, d1			12.2		11.0	12.6
Progression Factor			0.75		1.00	1.00
Incremental Delay, d2			0.3		1.3	9.5
Delay (s)			9.5		12.4	22.1
Level of Service			A		B	C
Approach Delay (s)			9.5		16.5	
Approach LOS			A		B	

Intersection Summary			
HCM Average Control Delay	13.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	291	590	83	0	0	0	0	534	74	1	69	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5			3.5	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						1.00			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		0.99						0.98			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4920						1832			1862	
Flt Permitted		0.99						1.00			0.84	
Satd. Flow (perm)		1000						1300			1300	
Peak-hour factor, PHF	0.92	0.93	0.92	0.25	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.25
Adj. Flow (vph)	316	634	90	0	0	0	0	580	80	1	75	0
RTOR Reduction (vph)	0	25	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	1016	0	0	0	0	0	649	0	0	76	0
Confl. Peds. (#/hr)	9		9	38		38				2		2
Confl. Bikes (#/hr)			11			4						2
Turn Type	Perm									Perm		
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		22.5						15.5			15.5	
Effective Green, g (s)		22.5						15.5			15.5	
Actuated g/C Ratio		0.50						0.34			0.34	
Clearance Time (s)		3.5						3.5			3.5	
Lane Grp Cap (vph)		500						631			448	
v/s Ratio Prot								c0.35				
v/s Ratio Perm		c1.02									0.06	
v/c Ratio		2.03						1.03			0.17	
Uniform Delay, d1		11.2						14.8			10.3	
Progression Factor		1.00						1.00			0.08	
Incremental Delay, d2		470.9						43.3			0.8	
Delay (s)		482.2						58.0			1.5	
Level of Service		F						E			A	
Approach Delay (s)		482.2			0.0			58.0			1.5	
Approach LOS		F			A			E			A	

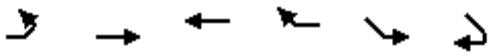
Intersection Summary			
HCM Average Control Delay	304.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.62		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	192	170	1199	862	149	847
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.94		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3314		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3314		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.94	0.92	0.92	0.92
Adj. Flow (vph)	209	185	1276	937	162	921
RTOR Reduction (vph)	0	152	136	0	0	0
Lane Group Flow (vph)	209	33	2077	0	162	921
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	16.0	16.0	39.9		22.1	66.0
Effective Green, g (s)	16.0	16.0	39.9		22.1	66.0
Actuated g/C Ratio	0.18	0.18	0.44		0.25	0.73
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	315	281	1469		435	2595
v/s Ratio Prot	c0.12		c0.63		0.09	c0.26
v/s Ratio Perm		0.02				
v/c Ratio	0.66	0.12	1.41		0.37	0.35
Uniform Delay, d1	34.5	31.1	25.0		28.2	4.3
Progression Factor	1.00	1.00	1.00		0.66	0.46
Incremental Delay, d2	5.2	0.2	190.2		1.9	0.3
Delay (s)	39.7	31.3	215.3		20.3	2.3
Level of Service	D	C	F		C	A
Approach Delay (s)	35.7		215.3			5.0
Approach LOS	D		F			A

Intersection Summary			
HCM Average Control Delay	134.4	HCM Level of Service	F
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	254	299	247	109	491	447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3377		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3377		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	276	325	268	118	534	486
RTOR Reduction (vph)	0	0	81	0	0	304
Lane Group Flow (vph)	276	325	305	0	534	182
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	12.5	27.1	10.6		21.1	21.1
Effective Green, g (s)	12.5	27.1	10.6		21.1	21.1
Actuated g/C Ratio	0.22	0.48	0.19		0.38	0.38
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	394	1707	637		665	594
v/s Ratio Prot	c0.16	0.09	c0.09		c0.30	
v/s Ratio Perm						0.12
v/c Ratio	0.70	0.19	0.48		0.80	0.31
Uniform Delay, d1	20.1	8.3	20.3		15.7	12.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.5	0.1	0.6		7.0	0.3
Delay (s)	25.7	8.4	20.9		22.6	12.7
Level of Service	C	A	C		C	B
Approach Delay (s)		16.3	20.9		17.9	
Approach LOS		B	C		B	

Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	56.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	316	1362	142	0	571	703	490	1062	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.99			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4962			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4962			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.96	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	329	1480	154	0	614	764	533	1154	0
RTOR Reduction (vph)	0	0	0	11	0	0	0	52	0	0	0
Lane Group Flow (vph)	0	0	0	1952	0	0	614	712	533	1154	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				30.0			17.5	17.5	29.5	51.0	
Effective Green, g (s)				30.0			17.5	17.5	29.5	51.0	
Actuated g/C Ratio				0.33			0.19	0.19	0.33	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1654			688	308	580	2005	
v/s Ratio Prot				c0.39			0.17		c0.30	0.33	
v/s Ratio Perm								c0.45			
v/c Ratio				1.18			0.89	2.31	0.92	0.58	
Uniform Delay, d1				30.0			35.3	36.2	29.1	12.5	
Progression Factor				1.00			1.48	1.55	1.00	1.00	
Incremental Delay, d2				87.6			1.9	591.8	19.6	0.4	
Delay (s)				117.6			54.1	648.0	48.7	12.9	
Level of Service				F			D	F	D	B	
Approach Delay (s)	0.0			117.6			383.3			24.2	
Approach LOS	A			F			F			C	

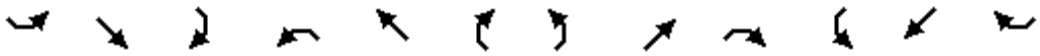
Intersection Summary			
HCM Average Control Delay	159.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	414	1198	609	169	346	550	102	329	24	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.98	0.85		0.90				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3138	1441		3192				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3138	1441		3192				1770	3539
Peak-hour factor, PHF	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	450	1274	662	184	376	598	111	358	26	264
RTOR Reduction (vph)	0	0	16	0	9	0	0	0	0	0
Lane Group Flow (vph)	405	1511	638	0	1076	0	0	0	384	264
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	28.0	28.0	28.0		37.0				12.0	53.0
Effective Green, g (s)	28.0	28.0	28.0		37.0				12.0	53.0
Actuated g/C Ratio	0.31	0.31	0.31		0.41				0.13	0.59
Clearance Time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	501	976	448		1312				236	2084
v/s Ratio Prot	0.25	c0.48	0.44		c0.34				c0.22	0.07
v/s Ratio Perm										
v/c Ratio	0.81	1.55	1.42		1.06dr				1.63	0.13
Uniform Delay, d1	28.5	31.0	31.0		23.5				39.0	8.2
Progression Factor	0.65	0.66	0.65		1.00				1.00	1.00
Incremental Delay, d2	1.3	247.1	192.2		5.8				300.8	0.1
Delay (s)	19.9	267.7	212.2		29.4				339.8	8.3
Level of Service	B	F	F		C				F	A
Approach Delay (s)		214.5			29.4					204.7
Approach LOS		F			C					F

Intersection Summary			
HCM Average Control Delay	166.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	96.6%	ICU Level of Service	F
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	1658	234	329	1045	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.91	1.00		*0.88				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1583		4861				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1583		4861				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.98	0.94	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1727	254	336	1112	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	9	0	6	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1727	246	0	1442	0	0	0	0
Turn Type						Perm	Perm					
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					30.0	30.0		22.0				
Effective Green, g (s)					30.0	30.0		22.0				
Actuated g/C Ratio					0.50	0.50		0.37				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					2543	792		1782				
v/s Ratio Prot					c0.34							
v/s Ratio Perm						0.16		0.30				
v/c Ratio					0.68	0.31		0.81				
Uniform Delay, d1					11.4	8.9		17.1				
Progression Factor					1.00	1.00		1.19				
Incremental Delay, d2					1.5	1.0		2.1				
Delay (s)					12.8	9.9		22.4				
Level of Service					B	A		C				
Approach Delay (s)		0.0			12.5			22.4			0.0	
Approach LOS		A			B			C			A	

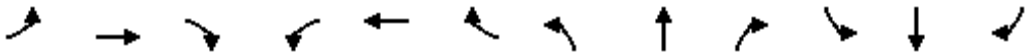
Intersection Summary			
HCM Average Control Delay	16.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	654	1371	0	0	0	0	0	718	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4776						3495	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4776						3495	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	711	1413	0	0	0	0	0	780	71
RTOR Reduction (vph)	0	0	0	37	28	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	475	1584	0	0	0	0	0	840	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				29.0	29.0						23.0	
Effective Green, g (s)				29.0	29.0						23.0	
Actuated g/C Ratio				0.48	0.48						0.38	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				736	2308						1340	
v/s Ratio Prot											c0.24	
v/s Ratio Perm				0.31	0.33							
v/c Ratio				0.65	0.69						0.63	
Uniform Delay, d1				11.6	12.0						15.0	
Progression Factor				1.43	1.37						1.00	
Incremental Delay, d2				3.2	1.2						2.2	
Delay (s)				19.8	17.7						17.2	
Level of Service				B	B						B	
Approach Delay (s)		0.0			18.2			0.0			17.2	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	230	524	11	18	245	20	16	24	30	68	50	45
Peak Hour Factor	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	250	557	12	20	266	22	17	26	33	74	54	49

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	250	569	308	76	177
Volume Left (vph)	250	0	20	17	74
Volume Right (vph)	0	12	22	33	49
Hadj (s)	0.53	0.02	0.00	-0.18	-0.05
Departure Headway (s)	6.4	5.8	5.9	6.8	6.6
Degree Utilization, x	0.44	0.92	0.50	0.14	0.32
Capacity (veh/h)	554	603	593	488	518
Control Delay (s)	13.1	42.4	14.7	10.9	12.7
Approach Delay (s)	33.4		14.7	10.9	12.7
Approach LOS	D		B	B	B

Intersection Summary			
Delay	25.4		
HCM Level of Service	D		
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp

Average Delay (sec/veh): 13.0 Worst Case Level Of Service: E[45.4]

Street Name:	Harrison Street						Stanley Place / I-580 EB Off-Ramp					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Yield Sign			Yield Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 3 0 0			0 0 0 0 1			0 0 0 0 0		
Volume Module:												
Base Vol:	0	0	0	0	1270	0	0	0	517	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	1270	0	0	0	517	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	1270	0	0	0	517	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.92	1.00	1.00	1.00	0.93	1.00	1.00	1.00
PHF Volume:	0	0	0	0	1380	0	0	0	556	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	1380	0	0	0	556	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	460	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	605	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	605	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.92	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	11.7	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	45.4	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	E	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			45.4			xxxxxx		
ApproachLOS:	*			*			E			*		

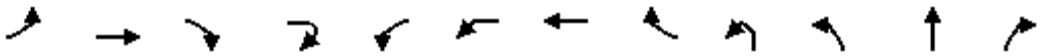
Note: Queue reported is the number of cars per lane.

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Movement	SEL2	SET	NET	NER	NER2
Lane Configurations					
Volume (vph)	468	165	1011	473	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	3.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	
Flt Protected	0.95	0.98	1.00	1.00	
Satd. Flow (prot)	1681	1730	3539	1583	
Flt Permitted	0.95	0.98	1.00	1.00	
Satd. Flow (perm)	1681	1730	3539	1583	
Peak-hour factor, PHF	0.97	0.92	0.92	0.92	0.92
Adj. Flow (vph)	482	179	1099	514	30
RTOR Reduction (vph)	79	55	0	0	0
Lane Group Flow (vph)	250	278	1099	544	0
Confl. Peds. (#/hr)					2
Confl. Bikes (#/hr)					
Turn Type	Perm			custom	
Protected Phases		4	5	1	
Permitted Phases	4			1	
Actuated Green, G (s)	12.9	12.9	39.6	16.6	
Effective Green, g (s)	12.9	12.9	39.6	16.6	
Actuated g/C Ratio	0.22	0.22	0.66	0.28	
Clearance Time (s)	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	361	372	2336	438	
v/s Ratio Prot			c0.31	c0.34	
v/s Ratio Perm	0.15	0.16			
v/c Ratio	0.69	0.75	0.47	1.24	
Uniform Delay, d1	21.7	22.0	5.0	21.7	
Progression Factor	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.6	7.0	0.7	127.0	
Delay (s)	26.3	29.0	5.7	148.7	
Level of Service	C	C	A	F	
Approach Delay (s)		27.7	53.1		
Approach LOS		C	D		

Intersection Summary			
HCM Average Control Delay	45.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



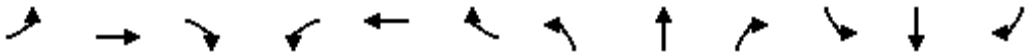
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	40	110	93	20	45	15	150	134	14	253	363	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00			1.00	1.00	1.00		0.97	0.91	
Frpb, ped/bikes	1.00	1.00	0.93			1.00	1.00	0.91		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85			1.00	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1479			1770	1863	1444		3433	5029	
Flt Permitted	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1479			1770	1863	1444		3433	5029	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	120	101	22	49	16	163	141	15	275	395	28
RTOR Reduction (vph)	0	0	10	0	0	0	0	117	0	0	7	0
Lane Group Flow (vph)	43	120	113	0	0	65	163	24	0	290	416	0
Confl. Peds. (#/hr)	21		21					27		9		8
Confl. Bikes (#/hr)			8					24				1
Turn Type	Prot		Perm		Prot	Prot		Perm	Prot	Prot		
Protected Phases	3	8			7	7	4		1	1	6	
Permitted Phases			8					4				
Actuated Green, G (s)	5.3	13.1	13.1			7.4	15.2	15.2		12.8	44.2	
Effective Green, g (s)	5.3	13.1	13.1			7.4	15.2	15.2		12.8	44.2	
Actuated g/C Ratio	0.06	0.15	0.15			0.08	0.17	0.17		0.14	0.49	
Clearance Time (s)	4.0	4.0	4.0			4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	104	515	215			146	315	244		488	2470	
v/s Ratio Prot	0.02	0.03				0.04	c0.09			c0.08	c0.08	
v/s Ratio Perm			c0.08					0.02				
v/c Ratio	0.41	0.23	0.52			0.45	0.52	0.10		0.59	0.17	
Uniform Delay, d1	40.9	34.0	35.6			39.3	34.1	31.6		36.2	12.7	
Progression Factor	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	0.2	2.3			2.2	1.4	0.2		1.9	0.1	
Delay (s)	43.5	34.2	37.9			41.5	35.5	31.8		38.1	12.9	
Level of Service	D	C	D			D	D	C		D	B	
Approach Delay (s)		37.2					35.1				23.1	
Approach LOS		D					D				C	

Intersection Summary			
HCM Average Control Delay	33.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Volume (vph)	96	1176	95	94
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.98		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3466		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3466		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	104	1278	103	102
RTOR Reduction (vph)	0	4	0	0
Lane Group Flow (vph)	104	1479	0	0
Confl. Peds. (#/hr)	18			
Confl. Bikes (#/hr)				
Turn Type	Prot			
Protected Phases	5	2		
Permitted Phases				
Actuated Green, G (s)	9.3	40.7		
Effective Green, g (s)	9.3	40.7		
Actuated g/C Ratio	0.10	0.45		
Clearance Time (s)	4.0	4.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	183	1567		
v/s Ratio Prot	0.06	c0.43		
v/s Ratio Perm				
v/c Ratio	0.57	0.94		
Uniform Delay, d1	38.4	23.6		
Progression Factor	1.00	1.00		
Incremental Delay, d2	4.0	12.8		
Delay (s)	42.4	36.3		
Level of Service	D	D		
Approach Delay (s)		36.7		
Approach LOS		D		

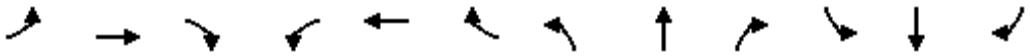
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	180	98	33	294	289	54	462	37	94	584	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.95			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1746	3302			3517	1543	1760	3484		1766	3498	
Flt Permitted	0.54	1.00			0.89	1.00	0.33	1.00		0.43	1.00	
Satd. Flow (perm)	1001	3302			3157	1543	608	3484		793	3498	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.95	0.92	0.92	0.97	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	194	107	36	309	314	59	476	40	102	635	47
RTOR Reduction (vph)	0	62	0	0	0	146	0	7	0	0	7	0
Lane Group Flow (vph)	61	239	0	0	345	168	59	509	0	102	675	0
Confl. Peds. (#/hr)	25		25	18		13	19		13	6		6
Confl. Bikes (#/hr)		16	16	59		5		5	59			6
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			2	
Permitted Phases	4			8		8	2			2		
Actuated Green, G (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Effective Green, g (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Actuated g/C Ratio	0.42	0.42			0.42	0.42	0.45	0.45		0.45	0.45	
Clearance Time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	424	1398			1337	654	272	1558		355	1564	
v/s Ratio Prot		0.07						0.15			c0.19	
v/s Ratio Perm	0.06				c0.11	0.11	0.10			0.13		
v/c Ratio	0.14	0.17			0.26	0.26	0.22	0.33		0.29	0.43	
Uniform Delay, d1	15.0	15.2			15.9	15.8	14.4	15.2		14.9	16.1	
Progression Factor	1.12	1.08			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.3			0.5	0.9	1.8	0.6		2.0	0.9	
Delay (s)	17.6	16.7			16.3	16.8	16.2	15.8		16.9	17.0	
Level of Service	B	B			B	B	B	B		B	B	
Approach Delay (s)		16.9			16.6			15.8			17.0	
Approach LOS		B			B			B			B	

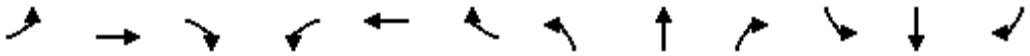
Intersection Summary			
HCM Average Control Delay	16.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	93.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	343	392	145	43	263	107	87	364	22	48	356	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	1863	1561	1765	1863	1546	1761	3499		1764	3372	
Flt Permitted	0.46	1.00	1.00	0.51	1.00	1.00	0.28	1.00		0.39	1.00	
Satd. Flow (perm)	865	1863	1561	955	1863	1546	511	3499		730	3372	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	373	426	158	47	286	116	91	396	24	52	387	145
RTOR Reduction (vph)	0	0	64	0	0	60	0	6	0	0	59	0
Lane Group Flow (vph)	373	426	94	47	286	56	91	414	0	52	473	0
Confl. Peds. (#/hr)	1		1	8		8	12		12	6		6
Confl. Bikes (#/hr)			2			5			27			6
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	58.4	50.4	50.4	44.4	40.9	40.9	17.6	17.6		17.6	17.6	
Effective Green, g (s)	58.4	50.4	50.4	44.4	40.9	40.9	17.6	17.6		17.6	17.6	
Actuated g/C Ratio	0.69	0.59	0.59	0.52	0.48	0.48	0.21	0.21		0.21	0.21	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	733	1105	926	532	896	744	106	724		151	698	
v/s Ratio Prot	c0.08	0.23		0.00	0.15			0.12			0.14	
v/s Ratio Perm	c0.27		0.06	0.04		0.04	c0.18			0.07		
v/c Ratio	0.51	0.39	0.10	0.09	0.32	0.08	0.86	0.57		0.34	0.68	
Uniform Delay, d1	6.1	9.1	7.5	10.0	13.5	11.9	32.5	30.3		28.8	31.1	
Progression Factor	1.00	1.00	1.00	0.65	0.67	0.33	0.92	0.90		1.00	1.00	
Incremental Delay, d2	0.2	1.0	0.2	0.0	0.9	0.2	43.2	0.7		0.5	2.1	
Delay (s)	6.3	10.1	7.7	6.5	9.9	4.1	73.0	27.8		29.3	33.2	
Level of Service	A	B	A	A	A	A	E	C		C	C	
Approach Delay (s)		8.2			8.1			35.9			32.8	
Approach LOS		A			A			D			C	

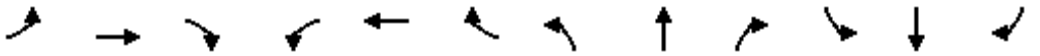
Intersection Summary			
HCM Average Control Delay	19.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	872	0	0	149	312	5	269	25	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1608	3387			3539	2787		5010				
Flt Permitted	0.65	0.95			1.00	1.00		1.00				
Satd. Flow (perm)	1099	3220			3539	2787		5010				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	948	0	0	162	339	5	292	27	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	203	0	16	0	0	0	0
Lane Group Flow (vph)	151	965	0	0	162	136	0	308	0	0	0	0
Confl. Peds. (#/hr)	2		2				6		6	4		4
Confl. Bikes (#/hr)									4			3
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	16.0	16.0			16.0	16.0		16.0				
Effective Green, g (s)	16.0	16.0			16.0	16.0		16.0				
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.40				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)	440	1288			1416	1115		2004				
v/s Ratio Prot					0.05							
v/s Ratio Perm	0.14	c0.30				0.05		0.06				
v/c Ratio	0.34	0.75			0.11	0.12		0.15				
Uniform Delay, d1	8.3	10.3			7.5	7.6		7.7				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	2.1	4.0			0.2	0.2		0.2				
Delay (s)	10.5	14.3			7.7	7.8		7.8				
Level of Service	B	B			A	A		A				
Approach Delay (s)		13.8			7.8			7.8			0.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	11.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

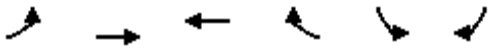
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	280	27	11	158	0	0	0	0	730	1092	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00		0.95					0.91	0.91	1.00
Frpb, ped/bikes		1.00	0.98		1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00					1.00	1.00	1.00
Frt		1.00	0.85		1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00					0.95	0.99	1.00
Satd. Flow (prot)		3539	1558		3526					1610	3370	1583
Flt Permitted		1.00	1.00		0.93					0.95	0.99	1.00
Satd. Flow (perm)		3539	1558		3296					1610	3370	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92
Adj. Flow (vph)	0	304	29	12	172	0	0	0	0	793	1174	382
RTOR Reduction (vph)	0	0	19	0	0	0	0	0	0	0	0	185
Lane Group Flow (vph)	0	304	10	0	184	0	0	0	0	634	1333	197
Confl. Peds. (#/hr)	2		2	10		10	6		6			
Confl. Bikes (#/hr)			3			4			1			
Turn Type			Perm	Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases			4	8						6		6
Actuated Green, G (s)		21.0	21.0		21.0					31.0	31.0	31.0
Effective Green, g (s)		21.0	21.0		21.0					31.0	31.0	31.0
Actuated g/C Ratio		0.35	0.35		0.35					0.52	0.52	0.52
Clearance Time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Grp Cap (vph)		1239	545		1154					832	1741	818
v/s Ratio Prot		c0.09										
v/s Ratio Perm			0.01		0.06					0.39	0.40	0.12
v/c Ratio		0.25	0.02		0.16					0.76	0.77	0.24
Uniform Delay, d1		13.9	12.8		13.4					11.6	11.6	8.0
Progression Factor		1.00	1.00		1.00					1.00	1.00	1.00
Incremental Delay, d2		0.5	0.1		0.3					6.5	3.3	0.7
Delay (s)		14.3	12.8		13.7					18.1	14.9	8.7
Level of Service		B	B		B					B	B	A
Approach Delay (s)		14.2			13.7			0.0			14.7	
Approach LOS		B			B			A			B	

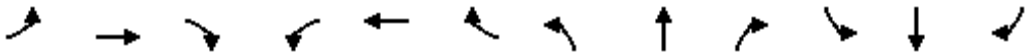
Intersection Summary			
HCM Average Control Delay	14.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



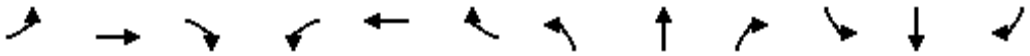
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	195	602	672	132	857	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.91
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3435		3432	1414
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3435		3432	1414
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	212	654	730	143	932	214
RTOR Reduction (vph)	0	0	19	0	2	132
Lane Group Flow (vph)	212	654	854	0	951	61
Confl. Peds. (#/hr)	14			11	6	6
Confl. Bikes (#/hr)				10		1
Turn Type	Prot					Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	12.8	46.8	30.0		25.2	25.2
Effective Green, g (s)	12.8	46.8	30.0		25.2	25.2
Actuated g/C Ratio	0.16	0.58	0.38		0.32	0.32
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	283	2070	1288		1081	445
v/s Ratio Prot	c0.12	0.18	c0.25		c0.28	
v/s Ratio Perm						0.04
v/c Ratio	0.75	0.32	0.66		0.88	0.14
Uniform Delay, d1	32.1	8.5	20.8		26.0	19.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	9.1	0.4	2.7		8.1	0.1
Delay (s)	41.2	8.9	23.5		34.1	19.7
Level of Service	D	A	C		C	B
Approach Delay (s)		16.8	23.5		31.6	
Approach LOS		B	C		C	

Intersection Summary			
HCM Average Control Delay	24.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



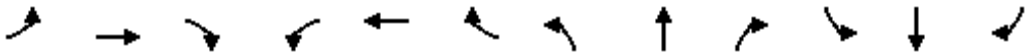
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	108	903	357	68	431	69	201	262	31	119	368	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1766	3427	1553	1768	3346		1768	3472		1757	3433	
Flt Permitted	0.31	1.00	1.00	0.16	1.00		0.40	1.00		0.56	1.00	
Satd. Flow (perm)	584	3427	1553	297	3346		739	3472		1042	3433	
Peak-hour factor, PHF	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	941	388	74	468	75	218	276	34	129	400	84
RTOR Reduction (vph)	0	0	273	0	14	0	0	5	0	0	19	0
Lane Group Flow (vph)	117	941	115	74	529	0	218	305	0	129	465	0
Confl. Peds. (#/hr)	4		4	4		4	4		4	11		11
Confl. Bikes (#/hr)			3			7			21			1
Turn Type	Perm		Perm	Perm			pm+pt			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	25.1	25.1	25.1	25.1	25.1		49.4	49.4		35.6	35.6	
Effective Green, g (s)	25.1	25.1	25.1	25.1	25.1		49.4	49.4		35.6	35.6	
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30		0.58	0.58		0.42	0.42	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	172	1012	459	88	988		542	2018		436	1438	
v/s Ratio Prot		c0.27			0.16		c0.04	0.09			0.14	
v/s Ratio Perm	0.20		0.07	0.25			c0.19			0.12		
v/c Ratio	0.68	0.93	0.25	0.84	0.54		0.40	0.15		0.30	0.32	
Uniform Delay, d1	26.4	29.1	22.8	28.1	25.1		8.8	8.2		16.4	16.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.14	1.16	
Incremental Delay, d2	19.6	15.7	1.3	59.2	2.1		0.2	0.2		1.7	0.6	
Delay (s)	46.0	44.8	24.1	87.3	27.1		9.0	8.3		20.3	19.8	
Level of Service	D	D	C	F	C		A	A		C	B	
Approach Delay (s)		39.4			34.4			8.6			19.9	
Approach LOS		D			C			A			B	

Intersection Summary			
HCM Average Control Delay	29.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



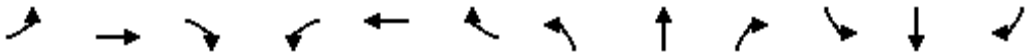
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	779	90	94	487	72	113	436	97	96	397	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	*0.92			*0.92		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	0.99			0.99		1.00	1.00	0.97	1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98			0.98		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1753	3357			3325		1764	3539	1529	1762	3438	
Flt Permitted	0.26	1.00			0.59		0.43	1.00	1.00	0.45	1.00	
Satd. Flow (perm)	485	3357			1981		793	3539	1529	840	3438	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	847	98	102	529	78	123	474	105	104	432	85
RTOR Reduction (vph)	0	12	0	0	13	0	0	0	38	0	18	0
Lane Group Flow (vph)	100	933	0	0	696	0	123	474	67	104	499	0
Confl. Peds. (#/hr)	34		34	37		37	8		8	10		10
Confl. Bikes (#/hr)			11			8			35			7
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	31.3	31.3			31.3		40.7	40.7	40.7	40.7	40.7	
Effective Green, g (s)	31.3	31.3			31.3		40.7	40.7	40.7	40.7	40.7	
Actuated g/C Ratio	0.39	0.39			0.39		0.51	0.51	0.51	0.51	0.51	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	190	1313			775		403	1800	778	427	1749	
v/s Ratio Prot		0.28						0.13			0.15	
v/s Ratio Perm	0.21				c0.35		c0.16		0.04	0.12		
v/c Ratio	0.53	0.71			0.90		0.31	0.26	0.09	0.24	0.29	
Uniform Delay, d1	18.7	20.5			22.9		11.4	11.1	10.1	11.0	11.3	
Progression Factor	1.00	1.00			1.23		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	1.5			12.8		1.9	0.4	0.2	1.4	0.4	
Delay (s)	19.9	22.1			40.9		13.4	11.5	10.3	12.4	11.7	
Level of Service	B	C			D		B	B	B	B	B	
Approach Delay (s)		21.9			40.9			11.7			11.8	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM Average Control Delay	21.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	414	453	119	441	0	0	0	0	12	159	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						3.0	
Lane Util. Factor		*0.92		1.00	*0.92						0.95	
Frpb, ped/bikes		0.97		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						0.99	
Frt		0.92		1.00	1.00						0.98	
Flt Protected		1.00		0.95	1.00						1.00	
Satd. Flow (prot)		3062		1770	3427						3409	
Flt Permitted		1.00		0.14	1.00						1.00	
Satd. Flow (perm)		3062		264	3427						3409	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	445	492	129	479	0	0	0	0	13	173	22
RTOR Reduction (vph)	0	197	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	740	0	129	479	0	0	0	0	0	197	0
Confl. Peds. (#/hr)	26		26	28		28	21		21	101		101
Confl. Bikes (#/hr)			4			4			3			6
Turn Type	Perm			pm+pt						Perm		
Protected Phases		2		1	6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)		31.6		43.0	43.0						29.0	
Effective Green, g (s)		31.6		43.0	43.0						29.0	
Actuated g/C Ratio		0.40		0.54	0.54						0.36	
Clearance Time (s)		5.0		5.0	5.0						3.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		1209		262	1842						1236	
v/s Ratio Prot		c0.24		c0.04	0.14							
v/s Ratio Perm				0.23							0.06	
v/c Ratio		0.61		0.49	0.26						0.16	
Uniform Delay, d1		19.3		12.2	9.9						17.3	
Progression Factor		2.36		1.00	1.00						1.00	
Incremental Delay, d2		2.0		0.5	0.3						0.3	
Delay (s)		47.6		12.7	10.3						17.5	
Level of Service		D		B	B						B	
Approach Delay (s)		47.6			10.8			0.0			17.5	
Approach LOS		D			B			A			B	

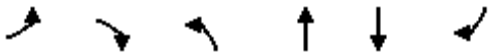
Intersection Summary			
HCM Average Control Delay	31.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	71.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	64	150	78	634	547	119	121	812	343	33	890	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	
Frpb, ped/bikes	1.00	1.00	0.93	1.00	1.00	0.94		1.00	0.90		0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	
Satd. Flow (prot)	3433	3539	1479	3433	3539	1485		5045	1419		4972	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.65	1.00		0.85	
Satd. Flow (perm)	3433	3539	1479	3433	3539	1485		3285	1419		4239	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92
Adj. Flow (vph)	70	163	85	689	595	129	132	883	373	36	957	114
RTOR Reduction (vph)	0	0	11	0	0	72	0	0	239	0	14	0
Lane Group Flow (vph)	70	163	74	689	595	57	0	1015	134	0	1093	0
Confl. Peds. (#/hr)	38		38	34		34	60		60	28		28
Confl. Bikes (#/hr)			12			18			39			9
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		
Protected Phases	1	6		5	2			4			4	
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	5.5	33.0	33.0	16.0	44.5	44.5		36.0	36.0		36.0	
Effective Green, g (s)	5.5	33.0	33.0	16.0	44.5	44.5		36.0	36.0		36.0	
Actuated g/C Ratio	0.06	0.33	0.33	0.16	0.44	0.44		0.36	0.36		0.36	
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	189	1168	488	549	1575	661		1183	511		1526	
v/s Ratio Prot	0.02	0.05		c0.20	c0.17							
v/s Ratio Perm			0.05			0.04		c0.31	0.09		0.26	
v/c Ratio	0.37	0.14	0.15	1.26	0.38	0.09		1.28dl	0.26		0.72	
Uniform Delay, d1	45.6	23.5	23.6	42.0	18.5	16.0		29.6	22.6		27.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.2	0.7	129.1	0.7	0.3		8.2	1.3		2.9	
Delay (s)	46.0	23.8	24.3	171.1	19.2	16.3		37.8	23.9		30.5	
Level of Service	D	C	C	F	B	B		D	C		C	
Approach Delay (s)		28.8			93.0			34.0			30.5	
Approach LOS		C			F			C			C	

Intersection Summary			
HCM Average Control Delay	52.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	96.4%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	121	49	113	958	1139	696
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.5	4.5	
Lane Util. Factor	0.97		1.00	*0.50	0.86	
Frpb, ped/bikes	0.98		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.96		1.00	1.00	0.94	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	3274		1769	3725	6041	
Flt Permitted	0.97		0.08	1.00	1.00	
Satd. Flow (perm)	3274		145	3725	6041	
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.93	0.92
Adj. Flow (vph)	132	53	123	998	1225	757
RTOR Reduction (vph)	47	0	0	0	70	0
Lane Group Flow (vph)	138	0	123	998	1912	0
Confl. Peds. (#/hr)	36	36	109			
Confl. Bikes (#/hr)		14				
Turn Type			pm+pt			
Protected Phases	4		1	2	2	
Permitted Phases			2			
Actuated Green, G (s)	8.6		57.9	51.5	51.5	
Effective Green, g (s)	8.6		57.9	51.5	51.5	
Actuated g/C Ratio	0.11		0.72	0.64	0.64	
Clearance Time (s)	5.0		4.0	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	352		235	2398	3889	
v/s Ratio Prot	c0.04		c0.04	0.27	0.32	
v/s Ratio Perm			c0.34			
v/c Ratio	0.39		0.52	0.42	0.49	
Uniform Delay, d1	33.3		5.0	6.9	7.4	
Progression Factor	1.00		1.07	1.50	1.00	
Incremental Delay, d2	0.7		1.9	0.5	0.4	
Delay (s)	34.0		7.2	10.9	7.9	
Level of Service	C		A	B	A	
Approach Delay (s)	34.0			10.5	7.9	
Approach LOS	C			B	A	

Intersection Summary			
HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	156	30	113	695	1	19
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	170	33	123	755	1	21
Pedestrians	7			7	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	533			360		
pX, platoon unblocked						
vC, conflicting volume			204		1196	195
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			204		1196	195
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		99	98
cM capacity (veh/h)			1365		186	840

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	202	878	22
Volume Left	0	123	1
Volume Right	33	0	21
cSH	1700	1365	714
Volume to Capacity	0.12	0.09	0.03
Queue Length 95th (ft)	0	7	2
Control Delay (s)	0.0	2.2	10.2
Lane LOS		A	B
Approach Delay (s)	0.0	2.2	10.2
Approach LOS			B

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	150	256	412	286	2	34
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	163	278	448	311	2	37
Pedestrians	24			24	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	2			2	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	470			423		
pX, platoon unblocked						
vC, conflicting volume			443		1535	328
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			443		1535	328
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			60		97	95
cM capacity (veh/h)			1115		75	698

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	441	759	39
Volume Left	0	448	2
Volume Right	278	0	37
cSH	1700	1115	477
Volume to Capacity	0.26	0.40	0.08
Queue Length 95th (ft)	0	49	7
Control Delay (s)	0.0	8.2	13.2
Lane LOS		A	B
Approach Delay (s)	0.0	8.2	13.2
Approach LOS			B

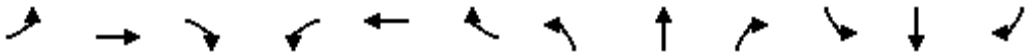
Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	246	149	131	400	34	42
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	1.00	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	267	149	142	435	37	46
Pedestrians	16			16	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	80			813		
pX, platoon unblocked			0.85		0.85	0.85
vC, conflicting volume			418		1079	360
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			220		1002	151
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		81	94
cM capacity (veh/h)			1138		196	745

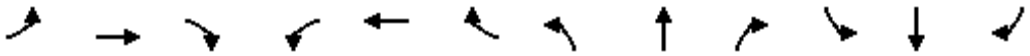
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	416	577	18	18	23	23
Volume Left	0	142	18	18	0	0
Volume Right	149	0	0	0	23	23
cSH	1700	1138	196	196	745	745
Volume to Capacity	0.24	0.13	0.09	0.09	0.03	0.03
Queue Length 95th (ft)	0	11	8	8	2	2
Control Delay (s)	0.0	3.2	25.3	25.3	10.0	10.0
Lane LOS		A	D	D	A	A
Approach Delay (s)	0.0	3.2	16.8			
Approach LOS			C			

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		



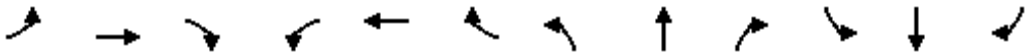
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	354	65	50	64	0	0	0	0	285	412	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.91	
Frpb, ped/bikes		1.00	0.85		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.97						0.95	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.98						0.98	
Satd. Flow (prot)		1863	1342		1766						4705	
Flt Permitted		1.00	1.00		0.57						0.98	
Satd. Flow (perm)		1863	1342		1035						4705	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	385	71	54	70	0	0	0	0	310	448	33
RTOR Reduction (vph)	0	0	46	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	385	25	0	124	0	0	0	0	0	788	0
Confl. Peds. (#/hr)	106		106	134		134	73		73	52		52
Confl. Bikes (#/hr)			3			7			21			1
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		23.8	23.8		23.8						48.2	
Effective Green, g (s)		23.8	23.8		23.8						48.2	
Actuated g/C Ratio		0.30	0.30		0.30						0.60	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		554	399		308						2835	
v/s Ratio Prot		c0.21										
v/s Ratio Perm			0.02		0.12						0.17	
v/c Ratio		0.69	0.06		0.40						0.28	
Uniform Delay, d1		24.9	20.1		22.4						7.6	
Progression Factor		1.00	1.00		1.00						0.82	
Incremental Delay, d2		3.8	0.1		0.9						0.2	
Delay (s)		28.7	20.2		23.3						6.4	
Level of Service		C	C		C						A	
Approach Delay (s)		27.3			23.3			0.0			6.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



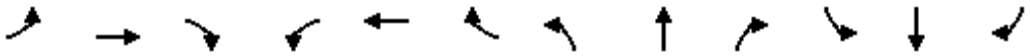
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	253	4	0	43	43	10	213	173	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.94			1.00	0.87			
Flpb, ped/bikes		1.00			1.00			1.00	1.00			
Frt		1.00			0.93			1.00	0.85			
Flt Protected		1.00			1.00			1.00	1.00			
Satd. Flow (prot)		1852			1629			3515	1377			
Flt Permitted		1.00			1.00			1.00	1.00			
Satd. Flow (perm)		1846			1629			3515	1377			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	275	4	0	47	47	11	232	188	0	0	0
RTOR Reduction (vph)	0	1	0	0	16	0	0	0	156	0	0	0
Lane Group Flow (vph)	0	286	0	0	78	0	0	243	32	0	0	0
Confl. Peds. (#/hr)	58		58	134		134	73		73	87		87
Confl. Bikes (#/hr)						5			5			2
Turn Type	Perm						Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2						1		1			
Actuated Green, G (s)		29.4			29.4			7.6	7.6			
Effective Green, g (s)		29.4			29.4			7.6	7.6			
Actuated g/C Ratio		0.65			0.65			0.17	0.17			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)		1206			1064			594	233			
v/s Ratio Prot					0.05							
v/s Ratio Perm		c0.16						0.07	0.02			
v/c Ratio		0.24			0.07			0.41	0.14			
Uniform Delay, d1		3.2			2.8			16.7	15.9			
Progression Factor		0.46			1.00			1.00	1.00			
Incremental Delay, d2		0.4			0.1			0.2	0.1			
Delay (s)		1.9			3.0			16.9	16.0			
Level of Service		A			A			B	B			
Approach Delay (s)		1.9			3.0			16.5			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



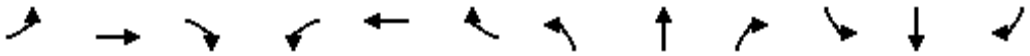
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	135	17	26	0	37	0	331	38	102	359	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	
Flpb, ped/bikes	0.99	1.00			1.00			1.00			0.99	
Frt	1.00	0.98			0.92			0.98			1.00	
Flt Protected	0.95	1.00			0.98			1.00			0.99	
Satd. Flow (prot)	1751	1827			1650			3457			3475	
Flt Permitted	0.71	1.00			0.88			1.00			0.78	
Satd. Flow (perm)	1314	1827			1485			3457			2726	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	147	18	28	0	40	0	360	41	111	390	0
RTOR Reduction (vph)	0	10	0	0	23	0	0	19	0	0	0	0
Lane Group Flow (vph)	12	155	0	0	45	0	0	382	0	0	501	0
Confl. Peds. (#/hr)	16		16	17		17	43		43	44		44
Confl. Bikes (#/hr)			2						2			16
Turn Type	Perm			Perm						Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2						4		
Actuated Green, G (s)	19.0	19.0			19.0			17.0			17.0	
Effective Green, g (s)	19.0	19.0			19.0			17.0			17.0	
Actuated g/C Ratio	0.42	0.42			0.42			0.38			0.38	
Clearance Time (s)	4.0	4.0			4.0			5.0			5.0	
Vehicle Extension (s)	2.0	2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)	555	771			627			1306			1030	
v/s Ratio Prot		c0.08						0.11				
v/s Ratio Perm	0.01				0.03						c0.18	
v/c Ratio	0.02	0.20			0.07			0.29			0.49	
Uniform Delay, d1	7.6	8.2			7.7			9.8			10.7	
Progression Factor	1.00	1.00			1.23			1.00			1.00	
Incremental Delay, d2	0.1	0.6			0.2			0.6			1.6	
Delay (s)	7.7	8.8			9.7			10.4			12.3	
Level of Service	A	A			A			B			B	
Approach Delay (s)		8.7			9.7			10.4			12.3	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	101	20	12	199	105	34	458	47	163	163	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5		4.5	4.5	
Lane Util. Factor		0.95			0.95			0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99			1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00			1.00		1.00	1.00	
Frt		0.98			0.95			0.99		1.00	0.96	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3424			3320			3472		1769	3383	
Flt Permitted		0.87			0.94			0.92		0.37	1.00	
Satd. Flow (perm)		3003			3125			3218		688	3383	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	110	22	13	212	114	37	467	51	177	177	63
RTOR Reduction (vph)	0	18	0	0	95	0	0	10	0	0	20	0
Lane Group Flow (vph)	0	135	0	0	244	0	0	546	0	177	220	0
Confl. Peds. (#/hr)	10		10	19		19	5		5	4		4
Confl. Bikes (#/hr)			4			1			3			9
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		9.9			9.9			30.0		41.1	41.1	
Effective Green, g (s)		9.9			9.9			30.0		41.1	41.1	
Actuated g/C Ratio		0.16			0.16			0.50		0.68	0.68	
Clearance Time (s)		4.5			4.5			4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		495			516			1609		590	2317	
v/s Ratio Prot										c0.03	0.07	
v/s Ratio Perm		0.04			c0.08			c0.17		0.17		
v/c Ratio		0.27			0.47			0.34		0.30	0.10	
Uniform Delay, d1		21.9			22.7			9.0		3.7	3.2	
Progression Factor		1.00			1.01			1.00		1.00	1.00	
Incremental Delay, d2		0.3			0.7			0.6		0.3	0.1	
Delay (s)		22.2			23.7			9.6		4.0	3.3	
Level of Service		C			C			A		A	A	
Approach Delay (s)		22.2			23.7			9.6			3.6	
Approach LOS		C			C			A			A	

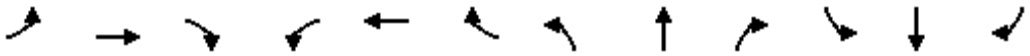
Intersection Summary			
HCM Average Control Delay	12.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	202	61	48	162	114	60	487	86	67	415	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.98			0.96			0.99			1.00	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.97			0.95			0.98			0.99	
Flt Protected		1.00			0.99			1.00			0.99	
Satd. Flow (prot)		3359			3157			3393			4980	
Flt Permitted		0.94			0.87			0.86			0.79	
Satd. Flow (perm)		3174			2775			2948			3945	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	220	66	52	176	124	65	524	93	73	451	28
RTOR Reduction (vph)	0	42	0	0	79	0	0	21	0	0	10	0
Lane Group Flow (vph)	0	253	0	0	273	0	0	661	0	0	542	0
Confl. Peds. (#/hr)	58		58	99		99	72		72	49		49
Confl. Bikes (#/hr)			7			33			10			6
Turn Type	Perm			Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						6		
Actuated Green, G (s)		22.0			22.0			29.0			18.0	
Effective Green, g (s)		22.0			22.0			29.0			18.0	
Actuated g/C Ratio		0.37			0.37			0.48			0.30	
Clearance Time (s)		4.0			4.0			5.0			5.0	
Lane Grp Cap (vph)		1164			1018			1477			1184	
v/s Ratio Prot								c0.05				
v/s Ratio Perm		0.08			c0.10			c0.16			0.14	
v/c Ratio		0.22			0.27			0.45			0.46	
Uniform Delay, d1		13.1			13.3			10.2			17.0	
Progression Factor		0.91			1.00			1.00			1.00	
Incremental Delay, d2		0.4			0.6			1.0			1.3	
Delay (s)		12.3			14.0			11.2			18.3	
Level of Service		B			B			B			B	
Approach Delay (s)		12.3			14.0			11.2			18.3	
Approach LOS		B			B			B			B	

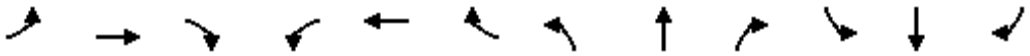
Intersection Summary			
HCM Average Control Delay	14.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



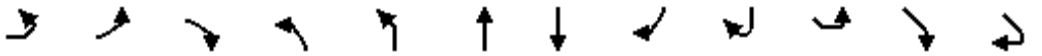
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	350	0	0	261	90	35	289	113	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.91	1.00			
Frpb, ped/bikes		1.00			1.00	0.93		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			0.99	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3517			3365	1337		5028	1460			
Flt Permitted		0.92			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3248			3365	1337		5028	1460			
Peak-hour factor, PHF	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	380	0	0	284	98	38	314	123	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	20	0	0	106	0	0	0
Lane Group Flow (vph)	0	410	0	0	293	68	0	352	17	0	0	0
Confl. Peds. (#/hr)	40		40	45		45	51		51	207		207
Confl. Bikes (#/hr)			5			6			8			12
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		61.8			61.8	61.8		11.2	11.2			
Effective Green, g (s)		61.8			61.8	61.8		11.2	11.2			
Actuated g/C Ratio		0.77			0.77	0.77		0.14	0.14			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2509			2599	1033		704	204			
v/s Ratio Prot					0.09							
v/s Ratio Perm		c0.13				0.05		0.07	0.01			
v/c Ratio		0.16			0.11	0.07		0.50	0.08			
Uniform Delay, d1		2.4			2.3	2.2		31.8	29.9			
Progression Factor		1.00			1.87	4.06		1.00	1.00			
Incremental Delay, d2		0.1			0.1	0.1		0.6	0.2			
Delay (s)		2.5			4.3	9.0		32.4	30.1			
Level of Service		A			A	A		C	C			
Approach Delay (s)		2.5			5.4			31.8			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	14.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	301	167	194	259	0	0	0	0	67	361	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	0.91	0.91						0.91	
Frpb, ped/bikes		1.00	0.90	1.00	1.00						0.95	
Flpb, ped/bikes		1.00	1.00	1.00	0.99						0.96	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	0.99						0.99	
Satd. Flow (prot)		3539	1422	1610	3334						4475	
Flt Permitted		1.00	1.00	0.95	0.89						0.99	
Satd. Flow (perm)		3539	1422	1610	2995						4475	
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	327	176	211	282	0	0	0	0	73	392	97
RTOR Reduction (vph)	0	0	94	0	0	0	0	0	0	0	40	0
Lane Group Flow (vph)	0	327	82	160	333	0	0	0	0	0	522	0
Confl. Peds. (#/hr)	53		53	86		86	105		105	331		331
Confl. Bikes (#/hr)			16			2			1			14
Turn Type			Perm	Prot						Perm		
Protected Phases		2		1	6						4	
Permitted Phases			2							4		
Actuated Green, G (s)		21.0	21.0	16.0	41.0						31.0	
Effective Green, g (s)		21.0	21.0	16.0	41.0						31.0	
Actuated g/C Ratio		0.26	0.26	0.20	0.51						0.39	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		929	373	322	1603						1734	
v/s Ratio Prot		c0.09		c0.10	0.04							
v/s Ratio Perm			0.06		0.06						0.12	
v/c Ratio		0.35	0.22	0.50	0.21						0.30	
Uniform Delay, d1		24.0	23.1	28.4	10.6						17.0	
Progression Factor		1.05	1.34	1.50	0.46						1.13	
Incremental Delay, d2		1.0	1.4	0.4	0.0						0.0	
Delay (s)		26.1	32.3	43.0	4.9						19.1	
Level of Service		C	C	D	A						B	
Approach Delay (s)		28.3			17.3			0.0			19.1	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL2	EBL	EBR	NBL2	NBL	NBT	SBT	SBR	SBR2	SEL	SER	SER2
Lane Configurations												
Volume (vph)	103	128	171	61	76	318	415	371	59	0	26	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0				4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.94				0.95	0.91	0.91	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00				1.00	1.00	1.00	1.00		1.00	0.94
Flpb, ped/bikes	1.00	1.00				1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.91				1.00	0.97	0.85	0.85		0.85	0.85
Flt Protected	0.95	0.98				0.98	1.00	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	4701				3486	3276	1441	1583		1583	1490
Flt Permitted	0.95	0.98				0.98	1.00	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770	4701				3486	3276	1441	1583		1583	1490
Peak-hour factor, PHF	0.95	0.92	0.92	0.94	0.94	0.96	0.92	0.96	0.96	0.92	0.95	0.95
Adj. Flow (vph)	108	139	186	65	81	331	451	386	61	0	27	35
RTOR Reduction (vph)	0	139	0	0	0	0	0	0	38	0	0	28
Lane Group Flow (vph)	108	186	0	0	0	477	582	255	23	0	27	7
Confl. Peds. (#/hr)	16								102			32
Confl. Bikes (#/hr)						6			10			2
Turn Type	Prot			Split	Split			custom	custom		custom	custom
Protected Phases	5	1		8	8	8	2	6	6			
Permitted Phases		1						6			9	2
Actuated Green, G (s)	7.3	20.3				24.0	16.8	29.8	29.8		2.9	16.8
Effective Green, g (s)	7.3	20.3				24.0	16.8	29.8	29.8		2.9	16.8
Actuated g/C Ratio	0.09	0.25				0.30	0.21	0.37	0.37		0.04	0.21
Clearance Time (s)	4.0	4.0				4.0	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	2.0				2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	162	1193				1046	688	537	590		57	313
v/s Ratio Prot	c0.06	0.04				c0.14	c0.18	c0.18	0.01			
v/s Ratio Perm											c0.02	0.00
v/c Ratio	0.67	0.16				0.46	0.85	0.47	0.04		0.47	0.02
Uniform Delay, d1	35.2	23.2				22.7	30.4	19.1	16.0		37.8	25.1
Progression Factor	0.90	2.09				1.00	1.28	1.55	3.09		1.00	1.00
Incremental Delay, d2	9.6	0.3				0.1	8.9	2.9	0.1		2.3	0.0
Delay (s)	41.1	48.7				22.8	47.8	32.6	49.5		40.1	25.1
Level of Service	D	D				C	D	C	D		D	C
Approach Delay (s)		46.8				22.8	43.6			31.6		
Approach LOS		D				C	D			C		

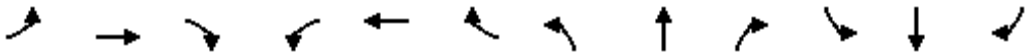
Intersection Summary			
HCM Average Control Delay	38.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	398	29	457	636	143	788
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.91		0.97	0.91	0.97	0.91
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	0.89	0.85
Flt Protected	1.00		0.95	1.00	0.99	1.00
Satd. Flow (prot)	5033		3433	5085	3178	1441
Flt Permitted	1.00		0.95	1.00	0.99	1.00
Satd. Flow (perm)	5033		3433	5085	3178	1441
Peak-hour factor, PHF	0.92	0.92	0.96	0.92	0.92	0.97
Adj. Flow (vph)	433	32	476	691	155	812
RTOR Reduction (vph)	11	0	0	0	338	338
Lane Group Flow (vph)	454	0	476	691	223	68
Confl. Bikes (#/hr)				2		
Turn Type			Prot			Perm
Protected Phases	8		7	4	6	
Permitted Phases						6
Actuated Green, G (s)	33.0		20.6	58.6	13.4	13.4
Effective Green, g (s)	33.0		20.6	58.6	13.4	13.4
Actuated g/C Ratio	0.41		0.26	0.73	0.17	0.17
Clearance Time (s)	5.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2076		884	3725	532	241
v/s Ratio Prot	c0.09		c0.14	0.14	c0.07	
v/s Ratio Perm						0.05
v/c Ratio	0.22		0.54	0.19	0.42	0.28
Uniform Delay, d1	15.2		25.6	3.3	29.8	29.1
Progression Factor	0.45		0.74	0.88	1.00	1.00
Incremental Delay, d2	0.2		2.1	0.1	0.5	0.6
Delay (s)	7.0		21.1	3.0	30.4	29.7
Level of Service	A		C	A	C	C
Approach Delay (s)	7.0			10.4	30.1	
Approach LOS	A			B	C	

Intersection Summary			
HCM Average Control Delay	17.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	82	113	0	0	0	0	0	2984	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0						6.0	
Lane Util. Factor				1.00	0.95						0.86	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				1.00	1.00						1.00	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1770	3539						6403	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1770	3539						6403	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92
Adj. Flow (vph)	0	0	0	88	123	0	0	0	0	0	3108	13
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	88	123	0	0	0	0	0	3121	0
Confl. Peds. (#/hr)												14
Confl. Bikes (#/hr)			1									
Turn Type				Perm								
Protected Phases					4						6	
Permitted Phases				4								
Actuated Green, G (s)				9.2	9.2						56.8	
Effective Green, g (s)				9.2	9.2						56.8	
Actuated g/C Ratio				0.12	0.12						0.76	
Clearance Time (s)				3.0	3.0						6.0	
Vehicle Extension (s)				3.0	3.0						4.0	
Lane Grp Cap (vph)				217	434						4849	
v/s Ratio Prot					0.03						c0.49	
v/s Ratio Perm				c0.05								
v/c Ratio				0.41	0.28						0.64	
Uniform Delay, d1				30.4	29.9						4.3	
Progression Factor				1.00	1.00						0.95	
Incremental Delay, d2				5.5	1.6						0.3	
Delay (s)				35.9	31.5						4.4	
Level of Service				D	C						A	
Approach Delay (s)		0.0			33.4			0.0			4.4	
Approach LOS		A			C			A			A	

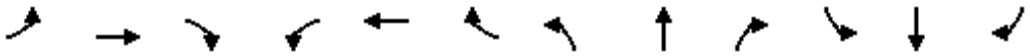
Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	219	1178	528	80	486	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0		5.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.98		0.97	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	5085	4953		3377	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1770	5085	4953		3377	
Peak-hour factor, PHF	0.92	0.96	0.95	0.92	0.94	0.92
Adj. Flow (vph)	238	1227	556	87	517	116
RTOR Reduction (vph)	50	0	30	0	0	0
Lane Group Flow (vph)	188	1227	613	0	633	0
Confl. Peds. (#/hr)				22		
Confl. Bikes (#/hr)				2		
Turn Type	Perm					
Protected Phases		4	2		1	
Permitted Phases	4					
Actuated Green, G (s)	33.7	33.7	15.2		14.1	
Effective Green, g (s)	33.7	33.7	15.2		14.1	
Actuated g/C Ratio	0.45	0.45	0.20		0.19	
Clearance Time (s)	3.0	3.0	4.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	795	2285	1004		635	
v/s Ratio Prot		c0.24	c0.12		c0.19	
v/s Ratio Perm	0.11					
v/c Ratio	0.24	0.54	0.61		1.00	
Uniform Delay, d1	12.7	15.0	27.2		30.4	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.7	0.9	1.1		34.7	
Delay (s)	13.4	15.9	28.3		65.1	
Level of Service	B	B	C		E	
Approach Delay (s)		15.5	28.3		65.1	
Approach LOS		B	C		E	

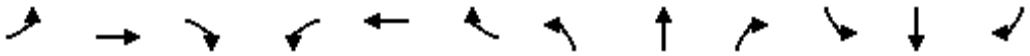
Intersection Summary			
HCM Average Control Delay	30.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



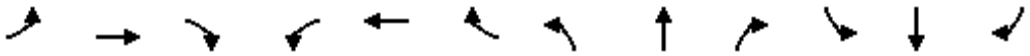
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	156	241	314	316	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	5.0	5.0				
Lane Util. Factor					0.91	0.91	0.81	0.81				
Frpb, ped/bikes					0.99	0.99	1.00	1.00				
Flpb, ped/bikes					1.00	1.00	0.99	1.00				
Frt					0.93	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	0.98				
Satd. Flow (prot)					3151	1423	1425	5925				
Flt Permitted					1.00	1.00	0.95	0.98				
Satd. Flow (perm)					3151	1423	1425	5925				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	166	262	341	343	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	48	50	135	136	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	246	84	35	378	0	0	0	0
Confl. Peds. (#/hr)							5		5			
Confl. Bikes (#/hr)			6			2			5			
Turn Type						Perm	Perm					
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					37.6	37.6	12.4	12.4				
Effective Green, g (s)					37.6	37.6	12.4	12.4				
Actuated g/C Ratio					0.63	0.63	0.21	0.21				
Clearance Time (s)					5.0	5.0	5.0	5.0				
Vehicle Extension (s)					3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)					1975	892	295	1225				
v/s Ratio Prot					c0.08							
v/s Ratio Perm						0.06	0.02	0.06				
v/c Ratio					0.12	0.09	0.12	0.31				
Uniform Delay, d1					4.5	4.4	19.4	20.2				
Progression Factor					4.12	7.37	1.00	1.00				
Incremental Delay, d2					0.1	0.2	0.2	0.1				
Delay (s)					18.8	32.9	19.5	20.3				
Level of Service					B	C	B	C				
Approach Delay (s)		0.0			23.2			20.1			0.0	
Approach LOS		A			C			C			A	

Intersection Summary			
HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	28.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	182	37	0	0	0	0	0	0	1085	1218	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		0.95								0.86	0.86	
Frpb, ped/bikes		1.00								1.00	1.00	
Flpb, ped/bikes		1.00								1.00	1.00	
Frt		0.97								1.00	1.00	
Flt Protected		1.00								0.95	0.99	
Satd. Flow (prot)		3435								1522	4722	
Flt Permitted		1.00								0.95	0.99	
Satd. Flow (perm)		3435								1522	4722	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	196	40	0	0	0	0	0	0	1179	1324	37
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	0	345	63	0
Lane Group Flow (vph)	0	229	0	0	0	0	0	0	0	280	1852	0
Confl. Peds. (#/hr)	6		6									
Confl. Bikes (#/hr)			1						1			1
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		62.0								50.0	50.0	
Effective Green, g (s)		62.0								50.0	50.0	
Actuated g/C Ratio		0.52								0.42	0.42	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		1775								634	1968	
v/s Ratio Prot		c0.07										
v/s Ratio Perm										0.18	0.39	
v/c Ratio		0.13								0.44	0.94	
Uniform Delay, d1		15.0								25.0	33.6	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.2								2.2	10.5	
Delay (s)		15.2								27.3	44.1	
Level of Service		B								C	D	
Approach Delay (s)		15.2			0.0			0.0			39.9	
Approach LOS		B			A			A			D	

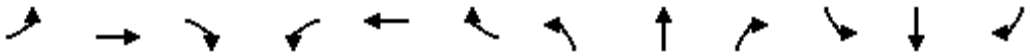
Intersection Summary			
HCM Average Control Delay	37.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	307	0	0	644	565	136	622	27	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Util. Factor		0.95			0.95	1.00		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.98		1.00	0.97			
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3515			3539	1548		3493	1531			
Flt Permitted		0.79			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		2782			3539	1548		3493	1531			
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	334	0	0	700	589	148	648	29	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	137	0	0	14	0	0	0
Lane Group Flow (vph)	0	377	0	0	700	452	0	796	15	0	0	0
Confl. Peds. (#/hr)	35		35	6		6	26		26	2		2
Confl. Bikes (#/hr)			33			6		10				5
Turn Type	Perm			Perm		Perm	Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4			8		8	2		2			
Actuated Green, G (s)		18.0			18.0	18.0		32.0	32.0			
Effective Green, g (s)		18.0			18.0	18.0		32.0	32.0			
Actuated g/C Ratio		0.30			0.30	0.30		0.53	0.53			
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Grp Cap (vph)		835			1062	464		1863	817			
v/s Ratio Prot					0.20							
v/s Ratio Perm		0.14				c0.29		0.23	0.01			
v/c Ratio		0.45			0.66	0.97		0.43	0.02			
Uniform Delay, d1		17.0			18.3	20.8		8.5	6.6			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		1.8			3.2	35.7		0.7	0.0			
Delay (s)		18.8			21.5	56.5		9.2	6.6			
Level of Service		B			C	E		A	A			
Approach Delay (s)		18.8			37.5			9.1			0.0	
Approach LOS		B			D			A			A	

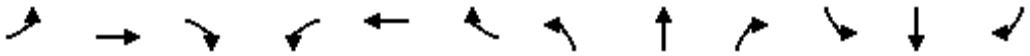
Intersection Summary			
HCM Average Control Delay	25.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



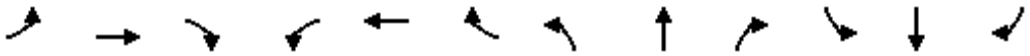
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	274	46	25	731	0	0	0	0	59	374	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0					4.0	4.0	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frpb, ped/bikes		0.99			1.00					1.00	1.00	
Flpb, ped/bikes		1.00			1.00					0.99	1.00	
Frt		0.98			1.00					1.00	0.99	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		3441			3531					1746	3506	
Flt Permitted		1.00			0.94					0.95	1.00	
Satd. Flow (perm)		3441			3321					1746	3506	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.96	0.92
Adj. Flow (vph)	0	298	50	27	761	0	0	0	0	64	390	22
RTOR Reduction (vph)	0	29	0	0	0	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	319	0	0	788	0	0	0	0	64	403	0
Confl. Peds. (#/hr)	36		36	28		28	18		18	16		16
Confl. Bikes (#/hr)			4			10			3			1
Turn Type				Perm						Perm		
Protected Phases		8			4						6	
Permitted Phases				4						6		
Actuated Green, G (s)		19.0			19.0					19.0	19.0	
Effective Green, g (s)		19.0			19.0					19.0	19.0	
Actuated g/C Ratio		0.42			0.42					0.42	0.42	
Clearance Time (s)		3.0			3.0					4.0	4.0	
Vehicle Extension (s)		2.0			2.0					2.0	2.0	
Lane Grp Cap (vph)		1453			1402					737	1480	
v/s Ratio Prot		0.09									c0.11	
v/s Ratio Perm					c0.24					0.04		
v/c Ratio		0.22			0.56					0.09	0.27	
Uniform Delay, d1		8.3			9.8					7.8	8.5	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		0.3			1.6					0.2	0.5	
Delay (s)		8.6			11.5					8.0	8.9	
Level of Service		A			B					A	A	
Approach Delay (s)		8.6			11.5			0.0			8.8	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	166	12	8	400	99	66	437	27	29	76	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.97			0.99			0.97	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		3460			3387			3470			3348	
Flt Permitted		0.83			0.95			0.90			0.82	
Satd. Flow (perm)		2906			3224			3137			2776	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	180	13	9	435	108	72	475	29	32	83	30
RTOR Reduction (vph)	0	6	0	0	41	0	0	9	0	0	20	0
Lane Group Flow (vph)	0	236	0	0	511	0	0	567	0	0	125	0
Confl. Peds. (#/hr)	30		30	55		55	41		41	40		40
Confl. Bikes (#/hr)			7			19			6			4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		23.0			23.0			14.5			14.5	
Effective Green, g (s)		23.0			23.0			14.5			14.5	
Actuated g/C Ratio		0.51			0.51			0.32			0.32	
Clearance Time (s)		3.5			3.5			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1485			1648			1011			894	
v/s Ratio Prot												
v/s Ratio Perm		0.08			c0.16			c0.18			0.04	
v/c Ratio		0.16			0.31			0.56			0.14	
Uniform Delay, d1		5.9			6.4			12.6			10.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			0.5			0.7			0.1	
Delay (s)		6.1			6.9			13.3			10.9	
Level of Service		A			A			B			B	
Approach Delay (s)		6.1			6.9			13.3			10.9	
Approach LOS		A			A			B			B	

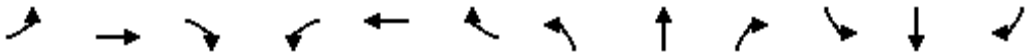
Intersection Summary			
HCM Average Control Delay	9.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	415	1502	0	0	0	0	0	384	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.86						0.91	
Frpb, ped/bikes					1.00						0.99	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					6291						4916	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					6291						4916	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.98	0.92
Adj. Flow (vph)	0	0	0	451	1548	0	0	0	0	0	392	83
RTOR Reduction (vph)	0	0	0	0	88	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	0	1911	0	0	0	0	0	472	0
Confl. Peds. (#/hr)	48		48	30		30	54		54	27		27
Confl. Bikes (#/hr)			9			5			4			1
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2726						2171	
v/s Ratio Prot											c0.10	
v/s Ratio Perm					0.30							
v/c Ratio					0.70						0.22	
Uniform Delay, d1					13.8						10.3	
Progression Factor					0.48						1.00	
Incremental Delay, d2					1.3						0.2	
Delay (s)					7.9						10.6	
Level of Service					A						B	
Approach Delay (s)		0.0			7.9			0.0			10.6	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		

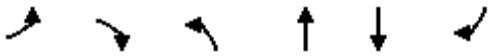
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1684	78	326	814	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5			4.0				
Lane Util. Factor					0.86			0.86				
Frpb, ped/bikes					1.00			1.00				
Flpb, ped/bikes					1.00			0.98				
Frt					0.99			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6341			6167				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6341			6167				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.93	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1736	85	351	885	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	9	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1812	0	0	1233	0	0	0	0
Confl. Peds. (#/hr)	102		102	84		84	84		84	168		168
Confl. Bikes (#/hr)			1									1
Turn Type							Perm					
Protected Phases					6			4				
Permitted Phases							4					
Actuated Green, G (s)					29.9			20.6				
Effective Green, g (s)					29.9			20.6				
Actuated g/C Ratio					0.50			0.34				
Clearance Time (s)					5.5			4.0				
Lane Grp Cap (vph)					3160			2117				
v/s Ratio Prot					c0.29							
v/s Ratio Perm								0.20				
v/c Ratio					0.57			0.58				
Uniform Delay, d1					10.6			16.2				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.8			1.2				
Delay (s)					11.3			17.3				
Level of Service					B			B				
Approach Delay (s)		0.0			11.3			17.3			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	13.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

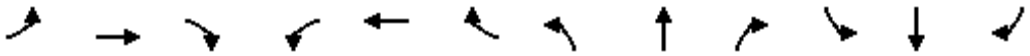
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	66	0	0	1092	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.99	0.92	0.92
Hourly flow rate (vph)	72	0	0	1103	0	0
Pedestrians	12					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1055	320	
pX, platoon unblocked						
vC, conflicting volume	288	12	12			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	288	12	12			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	100	100			
cM capacity (veh/h)	672	1055	1589			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	72	276	276	276	276
Volume Left	72	0	0	0	0
Volume Right	0	0	0	0	0
cSH	672	1700	1700	1700	1700
Volume to Capacity	0.11	0.16	0.16	0.16	0.16
Queue Length 95th (ft)	9	0	0	0	0
Control Delay (s)	11.0	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.0	0.0			
Approach LOS	B				

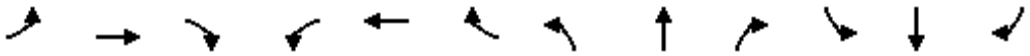
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	398	142	0	0	0	0	0	0	26	784	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5									5.5	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.96									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		6074									5074	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		6074									5074	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	0	433	154	0	0	0	0	0	0	28	825	0
RTOR Reduction (vph)	0	48	0	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	539	0	0	0	0	0	0	0	0	847	0
Confl. Peds. (#/hr)	32		32	21		21	23		23	17		17
Confl. Bikes (#/hr)			10			10			2			3
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		23.0									26.0	
Effective Green, g (s)		23.0									26.0	
Actuated g/C Ratio		0.38									0.43	
Clearance Time (s)		5.5									5.5	
Lane Grp Cap (vph)		2328									2199	
v/s Ratio Prot		c0.09										
v/s Ratio Perm											0.17	
v/c Ratio		0.23									0.39	
Uniform Delay, d1		12.5									11.6	
Progression Factor		0.76									1.15	
Incremental Delay, d2		0.2									0.5	
Delay (s)		9.8									13.8	
Level of Service		A									B	
Approach Delay (s)		9.8			0.0			0.0			13.8	
Approach LOS		A			A			A			B	

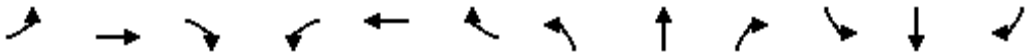
Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	39.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	120	402	0	0	0	0	0	411	59	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.86						0.86				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6274						6263				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6274						6263				
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	432	0	0	0	0	0	447	64	0	0	0
RTOR Reduction (vph)	0	110	0	0	0	0	0	17	0	0	0	0
Lane Group Flow (vph)	0	452	0	0	0	0	0	494	0	0	0	0
Confl. Peds. (#/hr)	46		46	56		56	21		21	52		52
Confl. Bikes (#/hr)			2			2			5			
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		9.2						43.8				
Effective Green, g (s)		9.2						43.8				
Actuated g/C Ratio		0.15						0.73				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		962						4572				
v/s Ratio Prot								c0.08				
v/s Ratio Perm		0.07										
v/c Ratio		0.47						0.11				
Uniform Delay, d1		23.2						2.4				
Progression Factor		1.03						1.00				
Incremental Delay, d2		0.1						0.0				
Delay (s)		23.9						2.4				
Level of Service		C						A				
Approach Delay (s)		23.9			0.0			2.4			0.0	
Approach LOS		C			A			A			A	

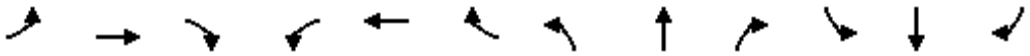
Intersection Summary			
HCM Average Control Delay	13.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	575	0	0	0	0	0	1145	291	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		0.86						0.91				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.97				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6328						4909				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6328						4909				
Peak-hour factor, PHF	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	145	625	0	0	0	0	0	1245	316	0	0	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	72	0	0	0	0
Lane Group Flow (vph)	0	762	0	0	0	0	0	1489	0	0	0	0
Confl. Peds. (#/hr)	22		22	59		59	12		12	5		5
Confl. Bikes (#/hr)			6			4			2			1
Turn Type	Perm											
Protected Phases		1						2				
Permitted Phases	1											
Actuated Green, G (s)		18.0						18.0				
Effective Green, g (s)		18.0						18.0				
Actuated g/C Ratio		0.40						0.40				
Clearance Time (s)		4.5						4.5				
Lane Grp Cap (vph)		2531						1964				
v/s Ratio Prot								c0.30				
v/s Ratio Perm		0.12										
v/c Ratio		0.30						0.76				
Uniform Delay, d1		9.2						11.6				
Progression Factor		0.79						0.74				
Incremental Delay, d2		0.3						2.0				
Delay (s)		7.6						10.7				
Level of Service		A						B				
Approach Delay (s)		7.6			0.0			10.7			0.0	
Approach LOS		A			A			B			A	

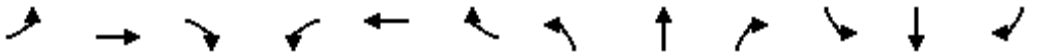
Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



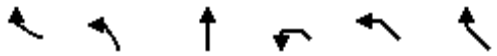
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	553	283	0	0	0	0	0	0	153	622	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									3.0	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.95									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6050									5025	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6050									5025	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.92
Adj. Flow (vph)	0	601	308	0	0	0	0	0	0	166	635	0
RTOR Reduction (vph)	0	94	0	0	0	0	0	0	0	0	82	0
Lane Group Flow (vph)	0	815	0	0	0	0	0	0	0	0	719	0
Confl. Peds. (#/hr)	4		4	10		10	8		8	11		11
Confl. Bikes (#/hr)			1						7			2
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		18.0									20.0	
Effective Green, g (s)		18.0									20.0	
Actuated g/C Ratio		0.40									0.44	
Clearance Time (s)		4.0									3.0	
Vehicle Extension (s)		2.0									2.0	
Lane Grp Cap (vph)		2420									2233	
v/s Ratio Prot		c0.13										
v/s Ratio Perm											0.14	
v/c Ratio		0.34									0.32	
Uniform Delay, d1		9.4									8.1	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.4									0.4	
Delay (s)		9.7									8.5	
Level of Service		A									A	
Approach Delay (s)		9.7			0.0			0.0			8.5	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	39.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	24	349	53	226	282	0	0	167	1779
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.95		1.00			1.00	0.98
Flpb, ped/bikes				0.98	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1736	1863	1503		1821			1863	1558
Flt Permitted				0.95	1.00	1.00		0.77			1.00	1.00
Satd. Flow (perm)				1736	1863	1503		1436			1863	1558
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.95
Adj. Flow (vph)	0	0	0	26	364	58	246	307	0	0	182	1873
RTOR Reduction (vph)	0	0	0	0	0	42	0	0	0	0	0	94
Lane Group Flow (vph)	0	0	0	26	364	16	0	553	0	0	182	1779
Confl. Peds. (#/hr)	1		1	23		23	2		2	5		5
Confl. Bikes (#/hr)			2									
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					1			2			2	
Permitted Phases				1		1	2					2
Actuated Green, G (s)				12.2	12.2	12.2		21.8			21.8	21.8
Effective Green, g (s)				12.2	12.2	12.2		21.8			21.8	21.8
Actuated g/C Ratio				0.27	0.27	0.27		0.48			0.48	0.48
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				471	505	407		696			903	755
v/s Ratio Prot					c0.20						0.10	
v/s Ratio Perm				0.01		0.01		0.39				c1.14
v/c Ratio				0.06	0.72	0.04		0.79			0.20	2.36
Uniform Delay, d1				12.1	14.9	12.1		9.7			6.6	11.6
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.0	5.0	0.0		9.1			0.5	614.5
Delay (s)				12.2	19.9	12.1		18.8			7.1	626.1
Level of Service				B	B	B		B			A	F
Approach Delay (s)		0.0			18.4			18.8			571.3	
Approach LOS		A			B			B			F	

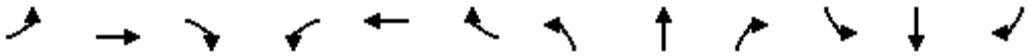
Intersection Summary			
HCM Average Control Delay	390.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.77		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	170.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBR	NBL	NBT	NWL2	NWL	NWR
Lane Configurations						
Volume (vph)	0	145	505	141	57	908
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5		2.0	2.0
Lane Util. Factor			0.95		0.97	0.91
Frpb, ped/bikes			1.00		1.00	1.00
Flpb, ped/bikes			1.00		1.00	1.00
Frt			1.00		0.90	0.85
Flt Protected			0.99		0.99	1.00
Satd. Flow (prot)			3497		3188	1441
Flt Permitted			0.99		0.99	1.00
Satd. Flow (perm)			3497		3188	1441
Peak-hour factor, PHF	0.92	0.92	0.96	0.92	0.92	0.92
Adj. Flow (vph)	0	158	526	153	62	987
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	684	0	709	493
Confl. Peds. (#/hr)	51	2				
Confl. Bikes (#/hr)	2					
Turn Type	custom	Perm		Perm		Perm
Protected Phases			3		1	
Permitted Phases	2	3		1		1
Actuated Green, G (s)			16.3		16.2	16.2
Effective Green, g (s)			16.3		16.2	16.2
Actuated g/C Ratio			0.36		0.36	0.36
Clearance Time (s)			3.5		2.0	2.0
Lane Grp Cap (vph)			1267		1148	519
v/s Ratio Prot						
v/s Ratio Perm			0.20		0.22	c0.34
v/c Ratio			0.54		0.87dr	0.95
Uniform Delay, d1			11.4		11.9	14.0
Progression Factor			0.81		1.00	1.00
Incremental Delay, d2			0.5		2.5	28.8
Delay (s)			9.7		14.3	42.9
Level of Service			A		B	D
Approach Delay (s)			9.7		26.0	
Approach LOS			A		C	

Intersection Summary			
HCM Average Control Delay	20.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	356	655	179	0	0	0	0	271	80	4	138	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5			3.5	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		0.99						1.00			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		0.98						0.97			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4858						1800			1860	
Flt Permitted		0.99						1.00			0.99	
Satd. Flow (perm)		1850						1500			1600	
Peak-hour factor, PHF	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	375	712	195	0	0	0	0	295	87	4	150	0
RTOR Reduction (vph)	0	57	0	0	0	0	0	24	0	0	0	0
Lane Group Flow (vph)	0	1226	0	0	0	0	0	358	0	0	154	0
Confl. Peds. (#/hr)	14		14	52		52	1		1	4		4
Confl. Bikes (#/hr)			5			2						
Turn Type	Perm									Perm		
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		22.5						15.5			15.5	
Effective Green, g (s)		22.5						15.5			15.5	
Actuated g/C Ratio		0.50						0.34			0.34	
Clearance Time (s)		3.5						3.5			3.5	
Lane Grp Cap (vph)		925						620			551	
v/s Ratio Prot								c0.20				
v/s Ratio Perm		c0.66									0.10	
v/c Ratio		1.32						0.58			0.28	
Uniform Delay, d1		11.2						12.1			10.7	
Progression Factor		1.00						1.00			0.93	
Incremental Delay, d2		153.7						3.9			1.0	
Delay (s)		165.0						16.0			11.0	
Level of Service		F						B			B	
Approach Delay (s)		165.0			0.0			16.0			11.0	
Approach LOS		F			A			B			B	

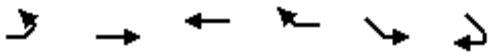
Intersection Summary			
HCM Average Control Delay	120.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	361	213	523	288	115	1322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3351		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3351		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	392	232	568	313	125	1437
RTOR Reduction (vph)	0	171	76	0	0	0
Lane Group Flow (vph)	392	61	805	0	125	1437
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	23.5	23.5	40.6		13.9	58.5
Effective Green, g (s)	23.5	23.5	40.6		13.9	58.5
Actuated g/C Ratio	0.26	0.26	0.45		0.15	0.65
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	462	413	1512		273	2300
v/s Ratio Prot	c0.22		0.24		0.07	c0.41
v/s Ratio Perm		0.04				
v/c Ratio	0.85	0.15	0.53		0.46	0.62
Uniform Delay, d1	31.6	25.5	17.8		34.6	9.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	13.5	0.2	1.3		5.4	1.3
Delay (s)	45.1	25.7	19.2		40.1	10.6
Level of Service	D	C	B		D	B
Approach Delay (s)	37.9		19.2			12.9
Approach LOS	D		B			B

Intersection Summary			
HCM Average Control Delay	19.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	350	233	416	206	189	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3363		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3363		1770	1583
Peak-hour factor, PHF	0.94	0.96	0.92	0.92	0.92	0.92
Adj. Flow (vph)	372	243	452	224	205	216
RTOR Reduction (vph)	0	0	90	0	0	166
Lane Group Flow (vph)	372	243	586	0	205	50
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	14.2	31.5	13.3		11.8	11.8
Effective Green, g (s)	14.2	31.5	13.3		11.8	11.8
Actuated g/C Ratio	0.28	0.61	0.26		0.23	0.23
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	490	2173	872		407	364
v/s Ratio Prot	c0.21	0.07	c0.17		c0.12	
v/s Ratio Perm						0.03
v/c Ratio	0.76	0.11	0.67		0.50	0.14
Uniform Delay, d1	17.0	4.1	17.0		17.2	15.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.7	0.0	2.0		1.0	0.2
Delay (s)	23.6	4.1	19.1		18.2	15.9
Level of Service	C	A	B		B	B
Approach Delay (s)		15.9	19.1		17.0	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	51.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	671	706	221	0	424	215	282	1398	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.98			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4932			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4932			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	729	767	240	0	456	234	307	1520	0
RTOR Reduction (vph)	0	0	0	20	0	0	0	182	0	0	0
Lane Group Flow (vph)	0	0	0	1716	0	0	456	52	307	1520	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				36.5			17.5	17.5	39.0	60.5	
Effective Green, g (s)				36.5			17.5	17.5	39.0	60.5	
Actuated g/C Ratio				0.34			0.17	0.17	0.37	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1698			584	261	651	2020	
v/s Ratio Prot				c0.35			0.13		0.17	c0.43	
v/s Ratio Perm								0.03			
v/c Ratio				1.16dl			0.78	0.20	0.47	0.75	
Uniform Delay, d1				34.8			42.4	38.2	25.6	17.1	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				24.4			10.0	1.7	2.4	2.6	
Delay (s)				59.2			52.4	39.9	28.1	19.8	
Level of Service				E			D	D	C	B	
Approach Delay (s)	0.0			59.2			48.2			21.2	
Approach LOS	A			E			D			C	

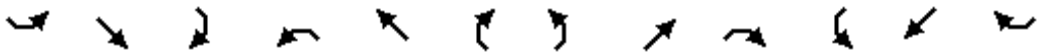
Intersection Summary			
HCM Average Control Delay	41.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	261	492	217	198	341	178	23	345	47	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.97	0.85		0.94				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3101	1441		3340				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3101	1441		3340				1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	284	535	236	215	363	193	25	375	51	500
RTOR Reduction (vph)	0	0	80	0	3	0	0	0	0	0
Lane Group Flow (vph)	256	705	229	0	578	0	0	0	426	500
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	30.6	30.6	30.6		34.1				28.8	66.4
Effective Green, g (s)	30.6	30.6	30.6		34.1				28.8	66.4
Actuated g/C Ratio	0.29	0.29	0.29		0.32				0.27	0.63
Clearance Time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	465	895	416		1074				481	2217
v/s Ratio Prot	0.16	c0.23	0.16		c0.17				c0.24	0.14
v/s Ratio Perm										
v/c Ratio	0.55	0.79	0.55		0.54				0.89	0.23
Uniform Delay, d1	31.9	34.7	31.9		29.5				37.0	8.6
Progression Factor	0.70	0.71	0.57		1.00				1.00	1.00
Incremental Delay, d2	0.8	2.7	0.9		1.9				17.5	0.2
Delay (s)	23.3	27.4	18.9		31.4				54.5	8.9
Level of Service	C	C	B		C				D	A
Approach Delay (s)		24.5			31.4					29.9
Approach LOS		C			C					C

Intersection Summary			
HCM Average Control Delay	27.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	2741	126	466	414	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.91	1.00		*0.88				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.97				
Satd. Flow (prot)					5085	1583		4790				
Flt Permitted					1.00	1.00		0.97				
Satd. Flow (perm)					5085	1583		4790				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.93	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2855	137	501	436	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	65	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2855	72	0	937	0	0	0	0
Turn Type						Perm	Perm					
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					38.0	38.0		34.0				
Effective Green, g (s)					38.0	38.0		34.0				
Actuated g/C Ratio					0.48	0.48		0.42				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					2415	752		2036				
v/s Ratio Prot					c0.56							
v/s Ratio Perm						0.05		0.20				
v/c Ratio					1.18	0.10		0.46				
Uniform Delay, d1					21.0	11.6		16.4				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					86.6	0.3		0.8				
Delay (s)					107.6	11.8		17.2				
Level of Service					F	B		B				
Approach Delay (s)		0.0			103.2			17.2			0.0	
Approach LOS		A			F			B			A	

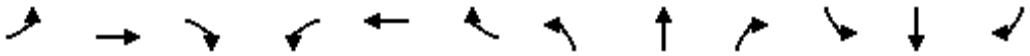
Intersection Summary			
HCM Average Control Delay	82.7	HCM Level of Service	F
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	1358	1734	0	0	0	0	0	1252	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4748						3524	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4748						3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	0	0	1400	1885	0	0	0	0	0	1332	39
RTOR Reduction (vph)	0	0	0	2	2	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	796	2485	0	0	0	0	0	1368	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				46.0	46.0						26.0	
Effective Green, g (s)				46.0	46.0						26.0	
Actuated g/C Ratio				0.57	0.57						0.32	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				875	2730						1145	
v/s Ratio Prot											c0.39	
v/s Ratio Perm				0.52	0.52							
v/c Ratio				0.91	0.91						1.20	
Uniform Delay, d1				15.2	15.2						27.0	
Progression Factor				1.41	1.40						1.00	
Incremental Delay, d2				1.8	0.6						96.5	
Delay (s)				23.2	21.8						123.5	
Level of Service				C	C						F	
Approach Delay (s)		0.0			22.1			0.0			123.5	
Approach LOS		A			C			A			F	

Intersection Summary			
HCM Average Control Delay	52.0	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	90	238	7	11	520	16	11	7	10	22	17	16
Peak Hour Factor	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	98	253	8	12	565	17	12	8	11	24	18	17

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	98	261	595	30	60
Volume Left (vph)	98	0	12	12	24
Volume Right (vph)	0	8	17	11	17
Hadj (s)	0.53	0.01	0.02	-0.10	-0.06
Departure Headway (s)	5.8	5.3	4.7	6.1	6.1
Degree Utilization, x	0.16	0.38	0.78	0.05	0.10
Capacity (veh/h)	602	659	751	529	531
Control Delay (s)	8.7	10.4	22.5	9.5	9.8
Approach Delay (s)	9.9		22.5	9.5	9.8
Approach LOS	A		C	A	A

Intersection Summary			
Delay	17.1		
HCM Level of Service	C		
Intersection Capacity Utilization	55.9%	ICU Level of Service	B
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp

Average Delay (sec/veh): 4.4 Worst Case Level Of Service: B[14.6]

Street Name:	Harrison Street						Stanley Place / I-580 EB Off-Ramp					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Yield Sign			Yield Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 3 0 0			0 0 0 0 1			0 0 0 0 0		
Volume Module:												
Base Vol:	0	0	0	0	816	0	0	0	349	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	816	0	0	0	349	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	816	0	0	0	349	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.92	1.00	1.00	1.00	0.92	1.00	1.00	1.00
PHF Volume:	0	0	0	0	887	0	0	0	379	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	887	0	0	0	379	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	296	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	748	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	748	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.51	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	2.9	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	14.6	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	B	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			14.6			xxxxxx		
ApproachLOS:	*			*			B			*		

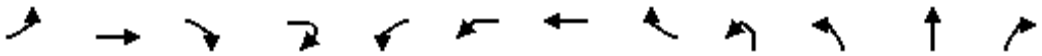
Note: Queue reported is the number of cars per lane.

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Movement	SEL2	SET	NET	NER	NER2
Lane Configurations					
Volume (vph)	738	349	1319	794	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	3.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	
Flt Protected	0.95	0.98	1.00	1.00	
Satd. Flow (prot)	1681	1738	3539	1583	
Flt Permitted	0.95	0.98	1.00	1.00	
Satd. Flow (perm)	1681	1738	3539	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	802	379	1434	863	107
RTOR Reduction (vph)	34	34	0	0	0
Lane Group Flow (vph)	551	562	1434	970	0
Confl. Peds. (#/hr)				2	
Confl. Bikes (#/hr)					
Turn Type	Perm			custom	
Protected Phases		4	5	1	
Permitted Phases	4			1	
Actuated Green, G (s)	16.0	16.0	36.5	13.5	
Effective Green, g (s)	16.0	16.0	36.5	13.5	
Actuated g/C Ratio	0.27	0.27	0.61	0.22	
Clearance Time (s)	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	448	463	2153	356	
v/s Ratio Prot			c0.41	c0.61	
v/s Ratio Perm	c0.33	0.32			
v/c Ratio	1.23	1.21	0.67	2.72	
Uniform Delay, d1	22.0	22.0	7.7	23.2	
Progression Factor	1.00	1.00	1.00	1.00	
Incremental Delay, d2	122.0	115.0	1.6	784.0	
Delay (s)	144.0	137.0	9.4	807.3	
Level of Service	F	F	A	F	
Approach Delay (s)		140.4	331.3		
Approach LOS		F	F		

Intersection Summary			
HCM Average Control Delay	268.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	91.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



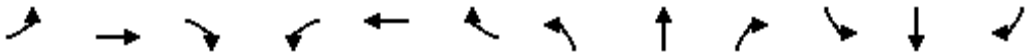
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	222	425	103	20	52	16	180	206	10	440	1240	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0			4.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00			1.00	1.00	1.00		0.97	0.95	
Frpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	0.96		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85			1.00	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583			1770	1863	1522		3433	3488	
Flt Permitted	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583			1770	1863	1522		3433	3488	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	236	452	110	21	57	17	196	224	11	478	1348	112
RTOR Reduction (vph)	0	0	7	0	0	0	0	187	0	0	7	0
Lane Group Flow (vph)	236	452	124	0	0	74	196	37	0	489	1453	0
Confl. Peds. (#/hr)	26											20
Confl. Bikes (#/hr)								20				9
Turn Type	Prot		Perm		Prot	Prot		Perm	Prot	Prot		
Protected Phases	3	8			7	7	4		1	1	6	
Permitted Phases			8					4				
Actuated Green, G (s)	18.9	26.1	26.1			7.7	14.9	14.9		14.8	27.2	
Effective Green, g (s)	18.9	26.1	26.1			7.7	14.9	14.9		14.8	27.2	
Actuated g/C Ratio	0.21	0.29	0.29			0.09	0.17	0.17		0.16	0.30	
Clearance Time (s)	4.0	5.0	5.0			4.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	372	1026	459			151	308	252		565	1054	
v/s Ratio Prot	c0.13	0.13				0.04	c0.11			0.14	c0.42	
v/s Ratio Perm			0.08					0.02				
v/c Ratio	0.63	0.44	0.27			0.49	0.64	0.15		0.87	1.38	
Uniform Delay, d1	32.4	26.0	24.6			39.3	35.0	32.1		36.6	31.4	
Progression Factor	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.5	0.3	0.3			2.5	4.3	0.3		13.1	176.4	
Delay (s)	35.9	26.3	24.9			41.8	39.3	32.4		49.7	207.8	
Level of Service	D	C	C			D	D	C		D	F	
Approach Delay (s)		28.9					36.5				168.1	
Approach LOS		C					D				F	

Intersection Summary			
HCM Average Control Delay	102.1	HCM Level of Service	F
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	86.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Volume (vph)	222	515	47	78
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.97		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3435		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3435		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93
Adj. Flow (vph)	239	554	51	84
RTOR Reduction (vph)	0	12	0	0
Lane Group Flow (vph)	239	677	0	0
Confl. Peds. (#/hr)	26			
Confl. Bikes (#/hr)				
Turn Type	Prot			
Protected Phases	5	2		
Permitted Phases				
Actuated Green, G (s)	11.0	22.4		
Effective Green, g (s)	11.0	22.4		
Actuated g/C Ratio	0.12	0.25		
Clearance Time (s)	4.0	5.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	216	855		
v/s Ratio Prot	c0.14	0.20		
v/s Ratio Perm				
v/c Ratio	1.11	0.79		
Uniform Delay, d1	39.5	31.6		
Progression Factor	1.00	1.00		
Incremental Delay, d2	92.7	7.4		
Delay (s)	132.2	39.0		
Level of Service	F	D		
Approach Delay (s)		63.0		
Approach LOS		E		

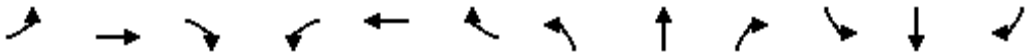
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	91	252	73	48	438	269	175	681	33	202	631	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97			1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1747	3383			3519	1536	1767	3511		1768	3448	
Flt Permitted	0.43	1.00			0.88	1.00	0.27	1.00		0.28	1.00	
Satd. Flow (perm)	783	3383			3097	1536	508	3511		520	3448	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	274	79	52	456	292	190	740	36	220	686	103
RTOR Reduction (vph)	0	31	0	0	0	68	0	4	0	0	14	0
Lane Group Flow (vph)	99	322	0	0	508	224	190	772	0	220	775	0
Confl. Peds. (#/hr)	32		32	10		10	6		6	5		5
Confl. Bikes (#/hr)			20			18			17			66
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			2	
Permitted Phases	4			8		8	2			2		
Actuated Green, G (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Effective Green, g (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Actuated g/C Ratio	0.42	0.42			0.42	0.42	0.45	0.45		0.45	0.45	
Clearance Time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	332	1433			1312	651	227	1570		232	1541	
v/s Ratio Prot		0.10						0.22			0.22	
v/s Ratio Perm	0.13				c0.16	0.15	0.37			c0.42		
v/c Ratio	0.30	0.22			0.39	0.34	0.84	0.49		0.95	0.50	
Uniform Delay, d1	16.2	15.6			16.9	16.5	20.8	16.7		22.6	16.8	
Progression Factor	0.85	0.84			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.9	0.3			0.9	1.4	29.1	1.1		47.1	1.2	
Delay (s)	15.6	13.4			17.8	18.0	49.9	17.8		69.6	17.9	
Level of Service	B	B			B	B	D	B		E	B	
Approach Delay (s)		13.9			17.8			24.1			29.2	
Approach LOS		B			B			C			C	

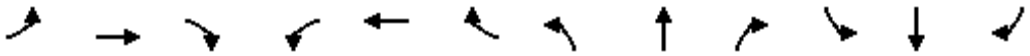
Intersection Summary			
HCM Average Control Delay	22.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	107.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	210	409	137	64	660	115	210	506	46	133	464	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1554	1769	1863	1552	1763	3484		1763	3258	
Flt Permitted	0.12	1.00	1.00	0.35	1.00	1.00	0.20	1.00		0.35	1.00	
Satd. Flow (perm)	226	1863	1554	648	1863	1552	368	3484		656	3258	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	228	445	149	70	717	125	228	550	50	145	504	380
RTOR Reduction (vph)	0	0	91	0	0	80	0	8	0	0	161	0
Lane Group Flow (vph)	228	445	58	70	717	45	228	592	0	145	723	0
Confl. Peds. (#/hr)	4		4	1		1	17		17	10		10
Confl. Bikes (#/hr)			4			10			17			28
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	43.0	33.1	33.1	33.8	28.4	28.4	33.0	33.0		33.0	33.0	
Effective Green, g (s)	43.0	33.1	33.1	33.8	28.4	28.4	33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.51	0.39	0.39	0.40	0.33	0.33	0.39	0.39		0.39	0.39	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	298	725	605	329	622	519	143	1353		255	1265	
v/s Ratio Prot	c0.09	0.24		0.01	c0.38			0.17			0.22	
v/s Ratio Perm	0.30		0.04	0.07		0.03	c0.62			0.22		
v/c Ratio	0.77	0.61	0.10	0.21	1.15	0.09	1.59	0.44		0.57	0.57	
Uniform Delay, d1	17.6	20.8	16.5	16.6	28.3	19.4	26.0	19.2		20.4	20.4	
Progression Factor	1.00	1.00	1.00	1.56	1.41	2.62	0.75	0.66		1.00	1.00	
Incremental Delay, d2	10.1	3.9	0.3	0.1	85.0	0.3	295.2	0.1		1.7	0.4	
Delay (s)	27.7	24.7	16.8	26.0	125.0	51.2	314.8	12.8		22.1	20.8	
Level of Service	C	C	B	C	F	D	F	B		C	C	
Approach Delay (s)		24.1			107.3			95.9			21.0	
Approach LOS		C			F			F			C	

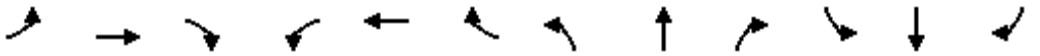
Intersection Summary			
HCM Average Control Delay	60.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	98.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	246	661	0	0	257	1069	21	876	75	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1609	3384			3539	2787		5013				
Flt Permitted	0.58	0.94			1.00	1.00		1.00				
Satd. Flow (perm)	983	3181			3539	2787		5013				
Peak-hour factor, PHF	0.93	0.92	0.25	0.25	0.92	0.97	0.92	0.92	0.92	0.25	0.25	0.25
Adj. Flow (vph)	265	718	0	0	279	1102	23	952	82	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	46	0	24	0	0	0	0
Lane Group Flow (vph)	238	745	0	0	279	1056	0	1033	0	0	0	0
Confl. Peds. (#/hr)	2		2				4		4	3		3
Confl. Bikes (#/hr)			4						5			7
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	16.0	16.0			16.0	16.0		16.0				
Effective Green, g (s)	16.0	16.0			16.0	16.0		16.0				
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.40				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)	393	1272			1416	1115		2005				
v/s Ratio Prot					0.08							
v/s Ratio Perm	0.24	0.23				c0.38		0.21				
v/c Ratio	0.61	0.59			0.20	0.95		0.52				
Uniform Delay, d1	9.5	9.4			7.8	11.6		9.1				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	6.8	2.0			0.3	17.0		0.9				
Delay (s)	16.3	11.4			8.1	28.5		10.0				
Level of Service	B	B			A	C		B				
Approach Delay (s)		12.6			24.4			10.0			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM Average Control Delay	16.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		

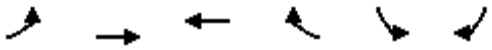
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	492	38	12	243	0	0	0	0	412	307	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00		0.95					0.91	0.91	1.00
Frpb, ped/bikes		1.00	0.98		1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00					1.00	1.00	1.00
Frt		1.00	0.85		1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00					0.95	0.98	1.00
Satd. Flow (prot)		3539	1552		3531					1605	3325	1558
Flt Permitted		1.00	1.00		0.93					0.95	0.98	1.00
Satd. Flow (perm)		3539	1552		3285					1605	3325	1558
Peak-hour factor, PHF	0.25	0.95	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	518	41	13	264	0	0	0	0	448	334	223
RTOR Reduction (vph)	0	0	27	0	0	0	0	0	0	0	0	108
Lane Group Flow (vph)	0	518	14	0	277	0	0	0	0	255	527	115
Confl. Peds. (#/hr)	4		4	4		4	1		1	3		3
Confl. Bikes (#/hr)			5			9			1			1
Turn Type			Perm	Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases			4	8						6		6
Actuated Green, G (s)		21.0	21.0		21.0					31.0	31.0	31.0
Effective Green, g (s)		21.0	21.0		21.0					31.0	31.0	31.0
Actuated g/C Ratio		0.35	0.35		0.35					0.52	0.52	0.52
Clearance Time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Grp Cap (vph)		1239	543		1150					829	1718	805
v/s Ratio Prot		c0.15										
v/s Ratio Perm			0.01		0.08					c0.16	0.16	0.07
v/c Ratio		0.42	0.03		0.24					0.31	0.31	0.14
Uniform Delay, d1		14.8	12.8		13.8					8.3	8.3	7.6
Progression Factor		1.00	1.00		1.00					1.00	1.00	1.00
Incremental Delay, d2		1.0	0.1		0.5					1.0	0.5	0.4
Delay (s)		15.9	12.9		14.3					9.3	8.8	7.9
Level of Service		B	B		B					A	A	A
Approach Delay (s)		15.7			14.3			0.0			8.7	
Approach LOS		B			B			A			A	

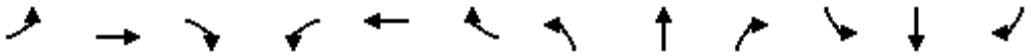
Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



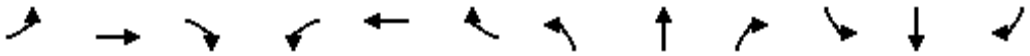
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	274	574	635	493	206	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.91
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.94		0.99	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3263		3421	1421
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3263		3421	1421
Peak-hour factor, PHF	0.92	0.93	0.92	0.97	0.92	0.92
Adj. Flow (vph)	298	617	690	508	224	115
RTOR Reduction (vph)	0	0	125	0	6	90
Lane Group Flow (vph)	298	617	1073	0	230	13
Confl. Peds. (#/hr)	14			18		
Confl. Bikes (#/hr)				7		1
Turn Type	Prot					Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	18.9	62.2	39.3		9.8	9.8
Effective Green, g (s)	18.9	62.2	39.3		9.8	9.8
Actuated g/C Ratio	0.24	0.78	0.49		0.12	0.12
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	418	2752	1603		419	174
v/s Ratio Prot	c0.17	0.17	c0.33		c0.07	
v/s Ratio Perm						0.01
v/c Ratio	0.71	0.22	0.67		0.55	0.07
Uniform Delay, d1	28.1	2.4	15.4		33.0	31.1
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.7	0.2	2.2		0.8	0.1
Delay (s)	32.8	2.6	17.7		33.8	31.1
Level of Service	C	A	B		C	C
Approach Delay (s)		12.4	17.7		33.0	
Approach LOS		B	B		C	

Intersection Summary			
HCM Average Control Delay	17.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



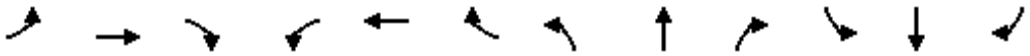
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	702	32	19	893	141	95	566	33	143	431	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3427	1532	1761	3340		1769	3506		1761	3406	
Flt Permitted	0.17	1.00	1.00	0.17	1.00		0.37	1.00		0.40	1.00	
Satd. Flow (perm)	308	3427	1532	306	3340		680	3506		750	3406	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	29	763	35	21	971	153	103	615	36	155	454	115
RTOR Reduction (vph)	0	0	25	0	14	0	0	5	0	0	22	0
Lane Group Flow (vph)	29	763	10	21	1110	0	103	646	0	155	547	0
Confl. Peds. (#/hr)	12		12	18		18	3		3	12		12
Confl. Bikes (#/hr)			8			6			10			28
Turn Type	Perm		Perm	Perm			pm+pt			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	24.2	24.2	24.2	24.2	24.2		50.3	50.3		40.2	40.2	
Effective Green, g (s)	24.2	24.2	24.2	24.2	24.2		50.3	50.3		40.2	40.2	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28		0.59	0.59		0.47	0.47	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	88	976	436	87	951		474	2075		355	1611	
v/s Ratio Prot		0.22			c0.33		0.01	c0.18			0.16	
v/s Ratio Perm	0.09		0.01	0.07			0.11			c0.21		
v/c Ratio	0.33	0.78	0.02	0.24	1.17		0.22	0.31		0.44	0.34	
Uniform Delay, d1	24.0	28.0	21.9	23.3	30.4		7.9	8.7		14.9	14.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.27	1.29	
Incremental Delay, d2	9.7	6.2	0.1	6.5	86.6		0.1	0.4		3.4	0.5	
Delay (s)	33.7	34.2	22.0	29.8	117.0		8.0	9.1		22.4	18.7	
Level of Service	C	C	C	C	F		A	A		C	B	
Approach Delay (s)		33.7			115.4			8.9			19.5	
Approach LOS		C			F			A			B	

Intersection Summary			
HCM Average Control Delay	52.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



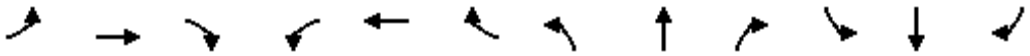
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	480	42	105	356	35	342	679	173	58	506	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	*0.92			*0.92		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	1.00	0.99	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1764	3379			3351		1765	3539	1551	1752	3415	
Flt Permitted	0.31	1.00			0.62		0.37	1.00	1.00	0.35	1.00	
Satd. Flow (perm)	572	3379			2091		686	3539	1551	640	3415	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	89	522	46	114	387	38	372	715	188	63	550	117
RTOR Reduction (vph)	0	11	0	0	9	0	0	0	68	0	16	0
Lane Group Flow (vph)	89	557	0	0	530	0	372	715	120	63	651	0
Confl. Peds. (#/hr)	8		8	2		2	8		8	32		32
Confl. Bikes (#/hr)			6			6			4			28
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	23.1	23.1			23.1		48.9	48.9	48.9	48.9	48.9	
Effective Green, g (s)	23.1	23.1			23.1		48.9	48.9	48.9	48.9	48.9	
Actuated g/C Ratio	0.29	0.29			0.29		0.61	0.61	0.61	0.61	0.61	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	165	976			604		419	2163	948	391	2087	
v/s Ratio Prot		0.16						0.20			0.19	
v/s Ratio Perm	0.16				c0.25		c0.54		0.08	0.10		
v/c Ratio	0.54	0.57			0.88		0.89	0.33	0.13	0.16	0.31	
Uniform Delay, d1	24.0	24.2			27.1		13.2	7.6	6.6	6.7	7.5	
Progression Factor	1.00	1.00			1.06		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.7	0.5			13.1		23.3	0.4	0.3	0.9	0.4	
Delay (s)	25.7	24.7			41.9		36.5	8.0	6.8	7.6	7.9	
Level of Service	C	C			D		D	A	A	A	A	
Approach Delay (s)		24.9			41.9			16.1			7.8	
Approach LOS		C			D			B			A	

Intersection Summary			
HCM Average Control Delay	20.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



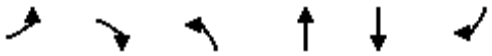
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	670	220	119	382	2	0	0	0	88	254	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						3.0	
Lane Util. Factor		*0.92		1.00	*0.92						0.95	
Frpb, ped/bikes		0.95		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.96		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		3121		1770	3424						3380	
Flt Permitted		0.95		0.15	1.00						0.99	
Satd. Flow (perm)		2971		274	3424						3380	
Peak-hour factor, PHF	0.92	0.99	0.92	0.93	0.92	0.92	0.25	0.25	0.25	0.92	0.94	0.92
Adj. Flow (vph)	7	677	239	128	415	2	0	0	0	96	270	82
RTOR Reduction (vph)	0	38	0	0	0	0	0	0	0	0	24	0
Lane Group Flow (vph)	0	885	0	128	417	0	0	0	0	0	424	0
Confl. Peds. (#/hr)	106		106	8		8	36		36	11		11
Confl. Bikes (#/hr)			18			14			2			8
Turn Type	Perm			pm+pt						Perm		
Protected Phases		2		1	6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)		31.6		43.0	43.0						29.0	
Effective Green, g (s)		31.6		43.0	43.0						29.0	
Actuated g/C Ratio		0.40		0.54	0.54						0.36	
Clearance Time (s)		5.0		5.0	5.0						3.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		1174		267	1840						1225	
v/s Ratio Prot				c0.04	0.12							
v/s Ratio Perm		c0.30		0.22							0.13	
v/c Ratio		0.75		0.48	0.23						0.35	
Uniform Delay, d1		20.8		12.1	9.7						18.6	
Progression Factor		1.66		1.00	1.00						1.00	
Incremental Delay, d2		4.4		0.5	0.3						0.8	
Delay (s)		39.0		12.6	10.0						19.4	
Level of Service		D		B	B						B	
Approach Delay (s)		39.0			10.6			0.0			19.4	
Approach LOS		D			B			A			B	

Intersection Summary			
HCM Average Control Delay	26.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	142	637	132	373	846	42	11	1495	1129	2	645	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	0.92		1.00	0.93		0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	
Satd. Flow (prot)	3433	3539	1483	3433	3539	1460		5083	1466		4987	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.93	1.00		0.94	
Satd. Flow (perm)	3433	3539	1483	3433	3539	1460		4738	1466		4665	
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.93	0.92	0.92	0.92	0.92	0.92	0.96	0.92
Adj. Flow (vph)	154	692	143	381	910	46	12	1625	1227	2	672	67
RTOR Reduction (vph)	0	0	41	0	0	27	0	0	250	0	12	0
Lane Group Flow (vph)	154	692	102	381	910	19	0	1637	977	0	729	0
Confl. Peds. (#/hr)	31		31	48		48	42		42	34		34
Confl. Bikes (#/hr)			22			15			22			20
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		
Protected Phases	1	6		5	2			4			4	
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	8.9	34.6	34.6	14.4	41.1	41.1		36.0	36.0		36.0	
Effective Green, g (s)	8.9	34.6	34.6	14.4	41.1	41.1		36.0	36.0		36.0	
Actuated g/C Ratio	0.09	0.35	0.35	0.14	0.41	0.41		0.36	0.36		0.36	
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	306	1224	513	494	1455	600		1706	528		1679	
v/s Ratio Prot	0.04	0.20		c0.11	c0.26							
v/s Ratio Perm			0.07			0.01		0.35	c0.67		0.16	
v/c Ratio	0.50	0.57	0.20	0.77	0.63	0.03		0.96	1.85		0.43	
Uniform Delay, d1	43.4	26.6	23.0	41.2	23.3	17.6		31.3	32.0		24.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.5	1.9	0.9	6.7	2.0	0.1		14.1	389.7		0.8	
Delay (s)	43.9	28.5	23.8	47.9	25.4	17.7		45.4	421.7		25.1	
Level of Service	D	C	C	D	C	B		D	F		C	
Approach Delay (s)		30.2			31.5			206.6			25.1	
Approach LOS		C			C			F			C	

Intersection Summary			
HCM Average Control Delay	115.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	126.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	756	159	103	1542	930	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.5	4.5	
Lane Util. Factor	0.97		1.00	*0.50	0.86	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.97		1.00	1.00	0.98	
Flt Protected	0.96		0.95	1.00	1.00	
Satd. Flow (prot)	3358		1763	3725	6261	
Flt Permitted	0.96		0.16	1.00	1.00	
Satd. Flow (perm)	3358		294	3725	6261	
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.92	0.92
Adj. Flow (vph)	822	173	112	1606	1011	183
RTOR Reduction (vph)	25	0	0	0	36	0
Lane Group Flow (vph)	970	0	112	1606	1158	0
Confl. Peds. (#/hr)	30	30	106			
Confl. Bikes (#/hr)		2				
Turn Type			pm+pt			
Protected Phases	4		1	2	2	
Permitted Phases			2			
Actuated Green, G (s)	29.3		37.2	30.5	30.5	
Effective Green, g (s)	29.3		37.2	30.5	30.5	
Actuated g/C Ratio	0.37		0.46	0.38	0.38	
Clearance Time (s)	5.0		4.0	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1230		260	1420	2387	
v/s Ratio Prot	c0.29		c0.04	c0.43	0.18	
v/s Ratio Perm			0.16			
v/c Ratio	0.79		0.43	1.13	0.49	
Uniform Delay, d1	22.6		12.7	24.8	18.8	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	3.4		1.1	68.4	0.7	
Delay (s)	26.0		13.8	93.1	19.5	
Level of Service	C		B	F	B	
Approach Delay (s)	26.0			88.0	19.5	
Approach LOS	C			F	B	

Intersection Summary			
HCM Average Control Delay	51.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	544	10	28	256	11	335
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	579	11	30	278	12	364
Pedestrians	18			18		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	533			360		
pX, platoon unblocked						
vC, conflicting volume			590		941	602
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			590		941	602
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		96	26
cM capacity (veh/h)			986		279	492

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	590	309	376
Volume Left	0	30	12
Volume Right	11	0	364
cSH	1700	986	480
Volume to Capacity	0.35	0.03	0.78
Queue Length 95th (ft)	0	2	176
Control Delay (s)	0.0	1.2	34.6
Lane LOS		A	D
Approach Delay (s)	0.0	1.2	34.6
Approach LOS			D

Intersection Summary			
Average Delay	10.5		
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	333	41	66	203	30	221
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	362	45	72	221	33	240
Pedestrians	27			27		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	470			423		
pX, platoon unblocked						
vC, conflicting volume			407		775	411
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			407		775	411
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			94		90	62
cM capacity (veh/h)			1152		336	626

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	407	292	273
Volume Left	0	72	33
Volume Right	45	0	240
cSH	1700	1152	567
Volume to Capacity	0.24	0.06	0.48
Queue Length 95th (ft)	0	5	65
Control Delay (s)	0.0	2.5	17.1
Lane LOS		A	C
Approach Delay (s)	0.0	2.5	17.1
Approach LOS			C

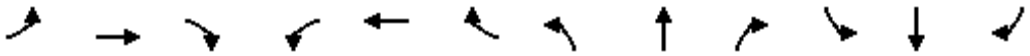
Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	398	32	34	151	114	207
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.92	0.92	0.94	0.92	0.92
Hourly flow rate (vph)	410	35	37	161	124	225
Pedestrians	20			20		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	80			813		
pX, platoon unblocked			0.89		0.89	0.89
vC, conflicting volume			445		682	448
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			314		581	317
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		69	64
cM capacity (veh/h)			1109		403	633

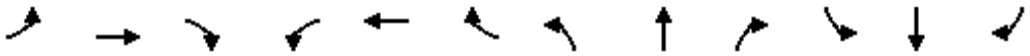
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	445	198	62	62	112	112
Volume Left	0	37	62	62	0	0
Volume Right	35	0	0	0	112	112
cSH	1700	1109	403	403	633	633
Volume to Capacity	0.26	0.03	0.15	0.15	0.18	0.18
Queue Length 95th (ft)	0	3	13	13	16	16
Control Delay (s)	0.0	1.8	15.6	15.6	11.9	11.9
Lane LOS		A	C	C	B	B
Approach Delay (s)	0.0	1.8	13.2			
Approach LOS			B			

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		



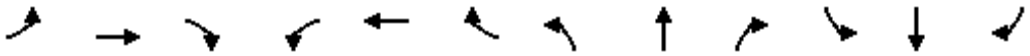
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	237	103	75	238	0	0	0	0	78	529	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.91	
Frpb, ped/bikes		1.00	0.91		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.98						0.97	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.99						0.99	
Satd. Flow (prot)		1863	1436		1805						4806	
Flt Permitted		1.00	1.00		0.79						0.99	
Satd. Flow (perm)		1863	1436		1442						4806	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.97	0.92
Adj. Flow (vph)	0	258	112	82	259	0	0	0	0	85	545	32
RTOR Reduction (vph)	0	0	19	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	258	93	0	341	0	0	0	0	0	658	0
Confl. Peds. (#/hr)	58		58	100		100	50		50	104		104
Confl. Bikes (#/hr)			8			6			10			28
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		25.0	25.0		25.0						47.0	
Effective Green, g (s)		25.0	25.0		25.0						47.0	
Actuated g/C Ratio		0.31	0.31		0.31						0.59	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		582	449		451						2824	
v/s Ratio Prot		0.14										
v/s Ratio Perm			0.07		c0.24						0.14	
v/c Ratio		0.44	0.21		0.76						0.23	
Uniform Delay, d1		21.9	20.2		24.8						7.9	
Progression Factor		1.00	1.00		1.00						1.24	
Incremental Delay, d2		0.5	0.2		7.1						0.2	
Delay (s)		22.5	20.5		31.8						10.0	
Level of Service		C	C		C						A	
Approach Delay (s)		21.9			31.8			0.0			10.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	18.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



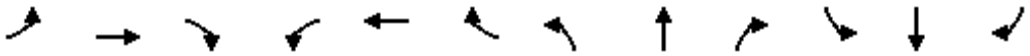
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	121	1	0	134	108	21	380	200	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.97			1.00	0.81			
Flpb, ped/bikes		1.00			1.00			0.99	1.00			
Frt		1.00			0.94			1.00	0.85			
Flt Protected		1.00			1.00			1.00	1.00			
Satd. Flow (prot)		1844			1694			3509	1290			
Flt Permitted		0.97			1.00			1.00	1.00			
Satd. Flow (perm)		1800			1694			3509	1290			
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	14	132	1	0	146	117	23	409	217	0	0	0
RTOR Reduction (vph)	0	0	0	0	44	0	0	0	167	0	0	0
Lane Group Flow (vph)	0	147	0	0	219	0	0	432	50	0	0	0
Confl. Peds. (#/hr)	71		71	82		82	88		88	75		75
Confl. Bikes (#/hr)			8			2			40			1
Turn Type	Perm						Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2						1		1			
Actuated Green, G (s)		26.7			26.7			10.3	10.3			
Effective Green, g (s)		26.7			26.7			10.3	10.3			
Actuated g/C Ratio		0.59			0.59			0.23	0.23			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)		1068			1005			803	295			
v/s Ratio Prot					c0.13							
v/s Ratio Perm		0.08						0.12	0.04			
v/c Ratio		0.14			0.22			0.54	0.17			
Uniform Delay, d1		4.1			4.3			15.3	13.9			
Progression Factor		0.40			1.00			1.00	1.00			
Incremental Delay, d2		0.3			0.5			0.3	0.1			
Delay (s)		1.9			4.8			15.6	14.0			
Level of Service		A			A			B	B			
Approach Delay (s)		1.9			4.8			15.1			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



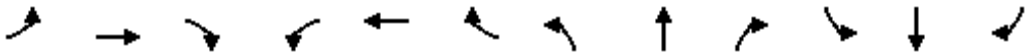
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	50	22	78	0	82	0	571	45	44	478	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frpb, ped/bikes	1.00	0.99			0.99			0.99			1.00	
Flpb, ped/bikes	0.99	1.00			0.99			1.00			1.00	
Frt	1.00	0.95			0.93			0.99			1.00	
Flt Protected	0.95	1.00			0.98			1.00			1.00	
Satd. Flow (prot)	1748	1761			1655			3478			3516	
Flt Permitted	0.70	1.00			0.84			1.00			0.85	
Satd. Flow (perm)	1295	1761			1431			3478			3009	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.99	0.92
Adj. Flow (vph)	15	54	24	85	0	89	0	621	49	48	483	0
RTOR Reduction (vph)	0	14	0	0	51	0	0	13	0	0	0	0
Lane Group Flow (vph)	15	64	0	0	123	0	0	657	0	0	531	0
Confl. Peds. (#/hr)	22		22	24		24	40		40	48		48
Confl. Bikes (#/hr)			3						17			7
Turn Type	Perm			Perm						Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2						4		
Actuated Green, G (s)	19.0	19.0			19.0			17.0			17.0	
Effective Green, g (s)	19.0	19.0			19.0			17.0			17.0	
Actuated g/C Ratio	0.42	0.42			0.42			0.38			0.38	
Clearance Time (s)	4.0	4.0			4.0			5.0			5.0	
Vehicle Extension (s)	2.0	2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)	547	744			604			1314			1137	
v/s Ratio Prot		0.04						c0.19				
v/s Ratio Perm	0.01				c0.09						0.18	
v/c Ratio	0.03	0.09			0.20			0.50			0.47	
Uniform Delay, d1	7.6	7.8			8.2			10.7			10.6	
Progression Factor	1.00	1.00			1.03			1.00			1.00	
Incremental Delay, d2	0.1	0.2			0.7			1.4			1.4	
Delay (s)	7.7	8.0			9.2			12.1			12.0	
Level of Service	A	A			A			B			B	
Approach Delay (s)		8.0			9.2			12.1			12.0	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	11.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	169	30	12	218	227	26	657	31	41	180	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5		4.5	4.5	
Lane Util. Factor		0.95			0.95			0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.98			1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00			1.00		1.00	1.00	
Frt		0.98			0.93			0.99		1.00	0.96	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3420			3210			3502		1767	3370	
Flt Permitted		0.78			0.94			0.94		0.28	1.00	
Satd. Flow (perm)		2702			3029			3293		519	3370	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92	0.92
Adj. Flow (vph)	32	184	33	13	237	247	28	714	34	42	196	70
RTOR Reduction (vph)	0	25	0	0	200	0	0	4	0	0	24	0
Lane Group Flow (vph)	0	224	0	0	297	0	0	772	0	42	242	0
Confl. Peds. (#/hr)	32		32	24		24	16		16	19		19
Confl. Bikes (#/hr)			6			4			25			3
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		11.4			11.4			32.4		39.6	39.6	
Effective Green, g (s)		11.4			11.4			32.4		39.6	39.6	
Actuated g/C Ratio		0.19			0.19			0.54		0.66	0.66	
Clearance Time (s)		4.5			4.5			4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		513			576			1778		399	2224	
v/s Ratio Prot										0.00	c0.07	
v/s Ratio Perm		0.08			c0.10			c0.23		0.06		
v/c Ratio		0.44			0.52			0.43		0.11	0.11	
Uniform Delay, d1		21.5			21.8			8.3		4.1	3.7	
Progression Factor		1.00			0.61			1.00		1.00	1.00	
Incremental Delay, d2		0.6			0.6			0.8		0.1	0.1	
Delay (s)		22.1			13.9			9.1		4.3	3.8	
Level of Service		C			B			A		A	A	
Approach Delay (s)		22.1			13.9			9.1			3.9	
Approach LOS		C			B			A			A	

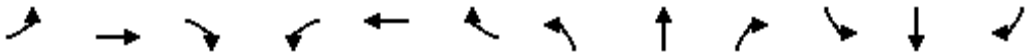
Intersection Summary			
HCM Average Control Delay	11.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	162	95	61	294	124	109	804	117	45	568	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.97			0.97			0.99			0.99	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.95			0.96			0.98			0.99	
Flt Protected		1.00			0.99			0.99			1.00	
Satd. Flow (prot)		3228			3236			3410			4989	
Flt Permitted		0.90			0.87			0.72			0.80	
Satd. Flow (perm)		2914			2843			2474			4026	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	25	176	103	66	320	135	118	874	123	49	617	42
RTOR Reduction (vph)	0	65	0	0	46	0	0	16	0	0	12	0
Lane Group Flow (vph)	0	239	0	0	475	0	0	1099	0	0	696	0
Confl. Peds. (#/hr)	74		74	120		120	85		85	65		65
Confl. Bikes (#/hr)			30			13			10			6
Turn Type	Perm			Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						6		
Actuated Green, G (s)		22.0			22.0			29.0			18.0	
Effective Green, g (s)		22.0			22.0			29.0			18.0	
Actuated g/C Ratio		0.37			0.37			0.48			0.30	
Clearance Time (s)		4.0			4.0			5.0			5.0	
Lane Grp Cap (vph)		1068			1042			1305			1208	
v/s Ratio Prot								c0.10				
v/s Ratio Perm		0.08			c0.17			c0.31			0.17	
v/c Ratio		0.22			0.46			0.84			0.58	
Uniform Delay, d1		13.1			14.4			13.5			17.8	
Progression Factor		2.11			1.00			1.00			1.00	
Incremental Delay, d2		0.5			1.4			6.7			2.0	
Delay (s)		28.1			15.9			20.2			19.8	
Level of Service		C			B			C			B	
Approach Delay (s)		28.1			15.9			20.2			19.8	
Approach LOS		C			B			C			B	

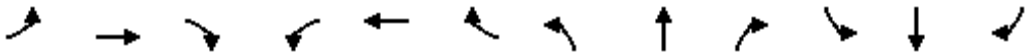
Intersection Summary			
HCM Average Control Delay	20.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	346	0	0	453	129	80	417	298	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.91	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3513			3368	1319		4993	1458			
Flt Permitted		0.88			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3097			3368	1319		4993	1458			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	41	376	0	0	492	137	87	453	320	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	36	0	0	212	0	0	0
Lane Group Flow (vph)	0	417	0	0	505	87	0	540	108	0	0	0
Confl. Peds. (#/hr)	42		42	54		54	58		58	194		194
Confl. Bikes (#/hr)			12			7			5			8
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		56.9			56.9	56.9		16.1	16.1			
Effective Green, g (s)		56.9			56.9	56.9		16.1	16.1			
Actuated g/C Ratio		0.71			0.71	0.71		0.20	0.20			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2203			2395	938		1005	293			
v/s Ratio Prot					c0.15							
v/s Ratio Perm		0.13				0.07		0.11	0.07			
v/c Ratio		0.19			0.21	0.09		0.54	0.37			
Uniform Delay, d1		3.9			3.9	3.6		28.6	27.6			
Progression Factor		1.00			0.71	0.27		1.00	1.00			
Incremental Delay, d2		0.2			0.2	0.2		0.6	0.8			
Delay (s)		4.0			3.0	1.2		29.2	28.3			
Level of Service		A			A	A		C	C			
Approach Delay (s)		4.0			2.6			28.9			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.28		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	450	192	157	462	0	0	0	0	82	531	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	0.91	0.91						0.91	
Frpb, ped/bikes		1.00	0.91	1.00	1.00						0.95	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						0.97	
Frt		1.00	0.85	1.00	1.00						0.98	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		3539	1439	1610	3378						4528	
Flt Permitted		1.00	1.00	0.95	0.94						0.99	
Satd. Flow (perm)		3539	1439	1610	3193						4528	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	489	209	171	502	0	0	0	0	89	577	129
RTOR Reduction (vph)	0	0	38	0	0	0	0	0	0	0	36	0
Lane Group Flow (vph)	0	489	171	154	519	0	0	0	0	0	759	0
Confl. Peds. (#/hr)	51		51	114		114	115		115	333		333
Confl. Bikes (#/hr)			8			3			17			6
Turn Type			Perm	Prot						Perm		
Protected Phases		2		1	6						4	
Permitted Phases			2							4		
Actuated Green, G (s)		28.0	28.0	10.0	42.0						30.0	
Effective Green, g (s)		28.0	28.0	10.0	42.0						30.0	
Actuated g/C Ratio		0.35	0.35	0.12	0.52						0.38	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		1239	504	201	1699						1698	
v/s Ratio Prot		c0.14		c0.10	0.04							
v/s Ratio Perm			0.12		0.12						0.17	
v/c Ratio		0.39	0.34	0.77	0.31						0.45	
Uniform Delay, d1		19.6	19.2	33.9	10.7						18.8	
Progression Factor		1.10	1.13	1.00	1.00						1.42	
Incremental Delay, d2		0.9	1.8	14.4	0.0						0.1	
Delay (s)		22.5	23.4	48.3	10.8						26.7	
Level of Service		C	C	D	B						C	
Approach Delay (s)		22.8			19.4			0.0			26.7	
Approach LOS		C			B			A			C	

Intersection Summary			
HCM Average Control Delay	23.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL2	EBL	EBR	NBL2	NBL	NBT	SBT	SBR	SBR2	SEL	SER	SER2
Lane Configurations												
Volume (vph)	14	416	103	97	31	829	190	272	51	0	160	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0				4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.94				0.95	0.91	0.91	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00				1.00	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	0.48	1.00				1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.97				1.00	0.94	0.85	0.85		0.85	0.85
Flt Protected	0.95	0.96				0.99	1.00	1.00	1.00		1.00	1.00
Satd. Flow (prot)	841	4900				3516	3186	1441	1583		1583	1554
Flt Permitted	0.95	0.96				0.99	1.00	1.00	1.00		1.00	1.00
Satd. Flow (perm)	841	4900				3516	3186	1441	1583		1583	1554
Peak-hour factor, PHF	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95
Adj. Flow (vph)	15	452	112	105	34	901	207	296	55	0	168	115
RTOR Reduction (vph)	0	68	0	0	0	0	0	0	32	0	0	87
Lane Group Flow (vph)	15	496	0	0	0	1040	346	157	23	0	168	28
Confl. Peds. (#/hr)	22								74			
Confl. Bikes (#/hr)						7			8			7
Turn Type	Prot			Split	Split			custom	custom		custom	custom
Protected Phases	5	1		8	8	8	2	6	6			
Permitted Phases		1						6			9	2
Actuated Green, G (s)	0.8	12.8				16.0	17.2	29.2	29.2		8.0	17.2
Effective Green, g (s)	0.8	12.8				16.0	17.2	29.2	29.2		8.0	17.2
Actuated g/C Ratio	0.01	0.18				0.23	0.25	0.42	0.42		0.11	0.25
Clearance Time (s)	4.0	4.0				4.0	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	2.0				2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	10	896				804	783	601	660		181	382
v/s Ratio Prot	0.02	c0.10				c0.30	c0.11	0.11	0.01			
v/s Ratio Perm											c0.11	0.02
v/c Ratio	1.50	0.55				1.29	0.44	0.26	0.03		0.93	0.07
Uniform Delay, d1	34.6	26.0				27.0	22.3	13.3	12.1		30.7	20.3
Progression Factor	1.00	1.00				1.00	1.41	1.63	2.66		1.00	1.00
Incremental Delay, d2	478.8	2.5				141.3	0.1	1.0	0.1		45.6	0.0
Delay (s)	513.4	28.5				168.3	31.7	22.9	32.2		76.3	20.3
Level of Service	F	C				F	C	C	C		E	C
Approach Delay (s)		41.0				168.3	29.3			53.6		
Approach LOS		D				F	C			D		

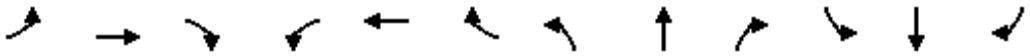
Intersection Summary			
HCM Average Control Delay	93.6	HCM Level of Service	F
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1099	71	830	332	153	845
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.91		0.97	0.91	0.97	0.91
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	0.89	0.85
Flt Protected	1.00		0.95	1.00	0.99	1.00
Satd. Flow (prot)	5038		3433	5085	3174	1441
Flt Permitted	1.00		0.95	1.00	0.99	1.00
Satd. Flow (perm)	5038		3433	5085	3174	1441
Peak-hour factor, PHF	0.95	0.92	0.99	0.92	0.92	0.93
Adj. Flow (vph)	1157	77	838	361	166	909
RTOR Reduction (vph)	10	0	0	0	319	318
Lane Group Flow (vph)	1224	0	838	361	303	136
Confl. Bikes (#/hr)				16		
Turn Type			Prot			Perm
Protected Phases	8		7	4	6	
Permitted Phases						6
Actuated Green, G (s)	18.0		19.0	41.0	21.0	21.0
Effective Green, g (s)	18.0		19.0	41.0	21.0	21.0
Actuated g/C Ratio	0.26		0.27	0.59	0.30	0.30
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1295		932	2978	952	432
v/s Ratio Prot	c0.24		c0.24	0.07	c0.10	
v/s Ratio Perm						0.09
v/c Ratio	0.94		0.90	0.12	0.32	0.32
Uniform Delay, d1	25.5		24.6	6.5	19.0	18.9
Progression Factor	1.05		1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0		13.3	0.1	0.9	1.9
Delay (s)	28.7		37.9	6.5	19.8	20.8
Level of Service	C		D	A	B	C
Approach Delay (s)	28.7			28.5	20.3	
Approach LOS	C			C	C	

Intersection Summary			
HCM Average Control Delay	26.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	150	168	0	0	0	0	0	1270	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0						6.0	
Lane Util. Factor				1.00	0.95						0.86	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				1.00	1.00						1.00	
Frt				1.00	1.00						0.98	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1766	3539						6292	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1766	3539						6292	
Peak-hour factor, PHF	0.25	0.95	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.92	0.97	0.92
Adj. Flow (vph)	0	0	0	163	183	0	0	0	0	0	1309	160
RTOR Reduction (vph)	0	0	0	3	0	0	0	0	0	0	19	0
Lane Group Flow (vph)	0	0	0	160	183	0	0	0	0	0	1450	0
Confl. Peds. (#/hr)	15		15	2		2				2		2
Confl. Bikes (#/hr)			4									2
Turn Type				Perm								
Protected Phases					4						6	
Permitted Phases				4								
Actuated Green, G (s)				23.6	23.6						42.4	
Effective Green, g (s)				23.6	23.6						42.4	
Actuated g/C Ratio				0.31	0.31						0.57	
Clearance Time (s)				3.0	3.0						6.0	
Vehicle Extension (s)				3.0	3.0						4.0	
Lane Grp Cap (vph)				556	1114						3557	
v/s Ratio Prot					0.05						c0.23	
v/s Ratio Perm				c0.09								
v/c Ratio				0.29	0.16						0.41	
Uniform Delay, d1				19.4	18.6						9.2	
Progression Factor				1.00	1.00						0.73	
Incremental Delay, d2				1.3	0.3						0.1	
Delay (s)				20.7	18.9						6.8	
Level of Service				C	B						A	
Approach Delay (s)		0.0			19.7			0.0			6.8	
Approach LOS		A			B			A			A	

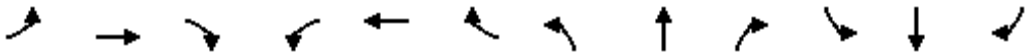
Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	200	397	1220	78	346	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0		5.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.98	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	5085	5027		3404	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1770	5085	5027		3404	
Peak-hour factor, PHF	0.92	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	217	427	1312	85	376	45
RTOR Reduction (vph)	2	0	9	0	0	0
Lane Group Flow (vph)	215	427	1388	0	421	0
Confl. Peds. (#/hr)				17		
Confl. Bikes (#/hr)				6		
Turn Type	Perm					
Protected Phases		4	2		1	
Permitted Phases	4					
Actuated Green, G (s)	15.9	15.9	26.0		21.1	
Effective Green, g (s)	15.9	15.9	26.0		21.1	
Actuated g/C Ratio	0.21	0.21	0.35		0.28	
Clearance Time (s)	3.0	3.0	4.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	375	1078	1743		958	
v/s Ratio Prot		0.08	c0.28		c0.12	
v/s Ratio Perm	c0.12					
v/c Ratio	0.57	0.40	0.80		0.44	
Uniform Delay, d1	26.5	25.4	22.1		22.1	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	6.2	1.1	2.6		0.3	
Delay (s)	32.7	26.5	24.7		22.4	
Level of Service	C	C	C		C	
Approach Delay (s)		28.6	24.7		22.4	
Approach LOS		C	C		C	

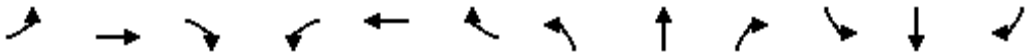
Intersection Summary			
HCM Average Control Delay	25.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



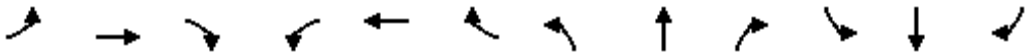
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	274	878	1024	528	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	5.0	5.0				
Lane Util. Factor					0.91	0.91	0.81	0.81				
Frpb, ped/bikes					0.99	0.98	1.00	1.00				
Flpb, ped/bikes					1.00	1.00	0.98	0.99				
Frt					0.91	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	0.98				
Satd. Flow (prot)					3046	1417	1403	5828				
Flt Permitted					1.00	1.00	0.95	0.98				
Satd. Flow (perm)					3046	1417	1403	5828				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.92	0.92	0.92	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	298	954	1113	568	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	62	62	337	271	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	713	415	219	854	0	0	0	0
Confl. Peds. (#/hr)	1		1	4		4	14		14			
Confl. Bikes (#/hr)						1						4
Turn Type						Perm	Perm					
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					42.6	42.6	22.4	22.4				
Effective Green, g (s)					42.6	42.6	22.4	22.4				
Actuated g/C Ratio					0.57	0.57	0.30	0.30				
Clearance Time (s)					5.0	5.0	5.0	5.0				
Vehicle Extension (s)					3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)					1730	805	419	1741				
v/s Ratio Prot					0.23							
v/s Ratio Perm						c0.29	c0.16	0.15				
v/c Ratio					0.41	0.52	0.52	0.49				
Uniform Delay, d1					9.1	9.9	21.9	21.6				
Progression Factor					1.00	1.00	1.00	1.00				
Incremental Delay, d2					0.7	2.4	1.2	0.2				
Delay (s)					9.9	12.3	23.0	21.8				
Level of Service					A	B	C	C				
Approach Delay (s)		0.0			10.8			22.2			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM Average Control Delay	17.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	251	72	0	0	0	0	0	0	561	908	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		0.95								0.86	0.86	
Frpb, ped/bikes		1.00								1.00	1.00	
Flpb, ped/bikes		1.00								1.00	1.00	
Frt		0.97								1.00	0.99	
Flt Protected		1.00								0.95	0.99	
Satd. Flow (prot)		3407								1522	4729	
Flt Permitted		1.00								0.95	0.99	
Satd. Flow (perm)		3407								1522	4729	
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	273	78	0	0	0	0	0	0	610	987	60
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	0	231	42	0
Lane Group Flow (vph)	0	325	0	0	0	0	0	0	0	172	1212	0
Confl. Peds. (#/hr)	5		5									
Confl. Bikes (#/hr)			2									2
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		35.0								32.0	32.0	
Effective Green, g (s)		35.0								32.0	32.0	
Actuated g/C Ratio		0.47								0.43	0.43	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		1590								649	2018	
v/s Ratio Prot		c0.10										
v/s Ratio Perm										0.11	0.26	
v/c Ratio		0.20								0.26	0.60	
Uniform Delay, d1		11.8								13.9	16.6	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.3								1.0	1.3	
Delay (s)		12.1								14.9	17.9	
Level of Service		B								B	B	
Approach Delay (s)		12.1			0.0			0.0			17.2	
Approach LOS		B			A			A			B	

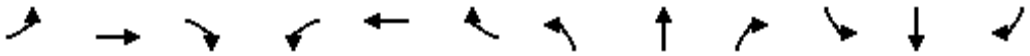
Intersection Summary			
HCM Average Control Delay	16.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	918	0	0	425	261	205	637	42	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Util. Factor		0.95			0.95	1.00		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.96			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3524			3539	1461		3472	1520			
Flt Permitted		0.89			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3130			3539	1461		3472	1520			
Peak-hour factor, PHF	0.92	0.92	0.25	0.99	0.96	0.96	0.92	0.92	0.92	0.25	0.25	0.25
Adj. Flow (vph)	68	998	0	0	443	272	223	692	46	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	117	0	0	4	0	0	0
Lane Group Flow (vph)	0	1066	0	0	443	155	0	915	42	0	0	0
Confl. Peds. (#/hr)	36		36	52		52	35		35	10		10
Confl. Bikes (#/hr)			5			21						22
Turn Type	Perm			Perm		Perm	Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4			8		8	2		2			
Actuated Green, G (s)		18.0			18.0	18.0		32.0	32.0			
Effective Green, g (s)		18.0			18.0	18.0		32.0	32.0			
Actuated g/C Ratio		0.30			0.30	0.30		0.53	0.53			
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Grp Cap (vph)		939			1062	438		1852	811			
v/s Ratio Prot					0.13							
v/s Ratio Perm		c0.34				0.11		0.26	0.03			
v/c Ratio		1.14			0.42	0.35		0.49	0.05			
Uniform Delay, d1		21.0			16.8	16.4		8.9	6.7			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		74.1			1.2	2.2		0.9	0.1			
Delay (s)		95.1			18.0	18.7		9.8	6.8			
Level of Service		F			B	B		A	A			
Approach Delay (s)		95.1			18.3			9.7			0.0	
Approach LOS		F			B			A			A	

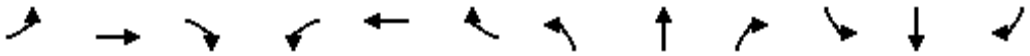
Intersection Summary			
HCM Average Control Delay	45.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



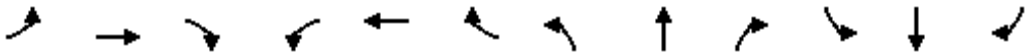
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	644	73	26	560	0	0	0	0	344	683	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0					4.0	4.0	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frpb, ped/bikes		0.99			1.00					1.00	1.00	
Flpb, ped/bikes		1.00			1.00					0.98	1.00	
Frt		0.98			1.00					1.00	1.00	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		3464			3531					1734	3521	
Flt Permitted		1.00			0.91					0.95	1.00	
Satd. Flow (perm)		3464			3232					1734	3521	
Peak-hour factor, PHF	0.25	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.94	0.96	0.92
Adj. Flow (vph)	0	700	79	28	609	0	0	0	0	366	711	21
RTOR Reduction (vph)	0	19	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	760	0	0	637	0	0	0	0	366	727	0
Confl. Peds. (#/hr)	50		50	25		25	17		17	24		24
Confl. Bikes (#/hr)			16			17			2			
Turn Type				Perm						Perm		
Protected Phases		8			4						6	
Permitted Phases				4						6		
Actuated Green, G (s)		19.0			19.0					19.0	19.0	
Effective Green, g (s)		19.0			19.0					19.0	19.0	
Actuated g/C Ratio		0.42			0.42					0.42	0.42	
Clearance Time (s)		3.0			3.0					4.0	4.0	
Vehicle Extension (s)		2.0			2.0					2.0	2.0	
Lane Grp Cap (vph)		1463			1365					732	1487	
v/s Ratio Prot		c0.22									0.21	
v/s Ratio Perm					0.20					c0.21		
v/c Ratio		0.52			0.47					0.50	0.49	
Uniform Delay, d1		9.6			9.4					9.5	9.5	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		1.3			1.1					2.4	1.2	
Delay (s)		10.9			10.5					12.0	10.6	
Level of Service		B			B					B	B	
Approach Delay (s)		10.9			10.5			0.0			11.1	
Approach LOS		B			B			A			B	

Intersection Summary			
HCM Average Control Delay	10.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	430	8	19	401	44	69	449	25	114	196	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.99			0.98	
Flt Protected		0.99			1.00			0.99			0.98	
Satd. Flow (prot)		3484			3457			3475			3369	
Flt Permitted		0.84			0.93			0.86			0.65	
Satd. Flow (perm)		2949			3221			3001			2223	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92
Adj. Flow (vph)	79	467	9	21	436	48	75	488	27	124	202	54
RTOR Reduction (vph)	0	2	0	0	15	0	0	9	0	0	33	0
Lane Group Flow (vph)	0	553	0	0	490	0	0	581	0	0	347	0
Confl. Peds. (#/hr)	80		80	58		58	44		44	41		41
Confl. Bikes (#/hr)			14			10			7			4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		22.8			22.8			14.7			14.7	
Effective Green, g (s)		22.8			22.8			14.7			14.7	
Actuated g/C Ratio		0.51			0.51			0.33			0.33	
Clearance Time (s)		3.5			3.5			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1494			1632			980			726	
v/s Ratio Prot												
v/s Ratio Perm		c0.19			0.15			c0.19			0.16	
v/c Ratio		0.37			0.30			0.59			0.48	
Uniform Delay, d1		6.7			6.5			12.7			12.1	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.7			0.5			1.0			0.5	
Delay (s)		7.4			6.9			13.6			12.6	
Level of Service		A			A			B			B	
Approach Delay (s)		7.4			6.9			13.6			12.6	
Approach LOS		A			A			B			B	

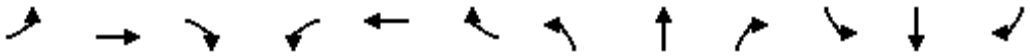
Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	249	941	0	0	0	0	0	780	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.86						0.91	
Frpb, ped/bikes					1.00						1.00	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.99	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					6270						5030	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					6270						5030	
Peak-hour factor, PHF	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25	0.25	0.25	0.92	0.92
Adj. Flow (vph)	0	0	0	271	970	0	0	0	0	0	848	50
RTOR Reduction (vph)	0	0	0	0	40	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	0	1201	0	0	0	0	0	887	0
Confl. Peds. (#/hr)	32		32	47		47	36		36	29		29
Confl. Bikes (#/hr)			3			13			9			2
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2717						2222	
v/s Ratio Prot											c0.18	
v/s Ratio Perm					0.19							
v/c Ratio					0.44						0.40	
Uniform Delay, d1					11.9						11.4	
Progression Factor					0.46						1.00	
Incremental Delay, d2					0.5						0.5	
Delay (s)					5.9						11.9	
Level of Service					A						B	
Approach Delay (s)		0.0			5.9			0.0			11.9	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		

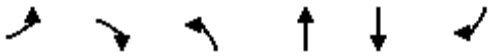
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1015	60	178	989	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5			4.0				
Lane Util. Factor					0.86			0.86				
Frpb, ped/bikes					1.00			1.00				
Flpb, ped/bikes					1.00			0.98				
Frt					0.99			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6330			6239				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6330			6239				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.95	0.92	0.92	0.96	0.25	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	1068	65	193	1030	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	28	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1129	0	0	1195	0	0	0	0
Confl. Peds. (#/hr)	121		121	69		69	118		118	84		84
Confl. Bikes (#/hr)			3									15
Turn Type							Perm					
Protected Phases					6			4				
Permitted Phases							4					
Actuated Green, G (s)					29.9			20.6				
Effective Green, g (s)					29.9			20.6				
Actuated g/C Ratio					0.50			0.34				
Clearance Time (s)					5.5			4.0				
Lane Grp Cap (vph)					3154			2142				
v/s Ratio Prot					c0.18							
v/s Ratio Perm								0.19				
v/c Ratio					0.36			0.56				
Uniform Delay, d1					9.2			16.0				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.3			1.1				
Delay (s)					9.5			17.1				
Level of Service					A			B				
Approach Delay (s)		0.0			9.5			17.1			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

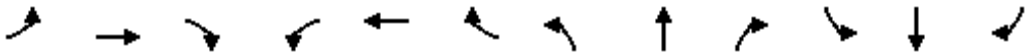
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	68	0	0	1084	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.25	0.92	0.25	0.25
Hourly flow rate (vph)	74	0	0	1178	0	0
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1055	320	
pX, platoon unblocked						
vC, conflicting volume	301	6	6			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	301	6	6			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	100	100			
cM capacity (veh/h)	663	1069	1605			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	74	295	295	295	295
Volume Left	74	0	0	0	0
Volume Right	0	0	0	0	0
cSH	663	1700	1700	1700	1700
Volume to Capacity	0.11	0.17	0.17	0.17	0.17
Queue Length 95th (ft)	9	0	0	0	0
Control Delay (s)	11.1	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.1	0.0			
Approach LOS	B				

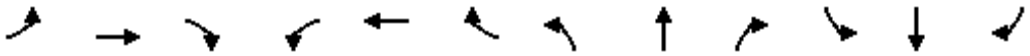
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	26.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	910	194	0	0	0	0	0	0	51	956	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5									5.5	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.97									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		6193									5068	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		6193									5068	
Peak-hour factor, PHF	0.25	0.96	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.93	0.25
Adj. Flow (vph)	0	948	211	0	0	0	0	0	0	55	1028	0
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	1134	0	0	0	0	0	0	0	0	1073	0
Confl. Peds. (#/hr)	20		20	30		30	12		12	17		17
Confl. Bikes (#/hr)			5			7			3			
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		23.0									26.0	
Effective Green, g (s)		23.0									26.0	
Actuated g/C Ratio		0.38									0.43	
Clearance Time (s)		5.5									5.5	
Lane Grp Cap (vph)		2374									2196	
v/s Ratio Prot		c0.18										
v/s Ratio Perm											0.21	
v/c Ratio		0.48									0.49	
Uniform Delay, d1		14.0									12.2	
Progression Factor		0.83									0.56	
Incremental Delay, d2		0.7									0.7	
Delay (s)		12.2									7.6	
Level of Service		B									A	
Approach Delay (s)		12.2			0.0			0.0			7.6	
Approach LOS		B			A			A			A	

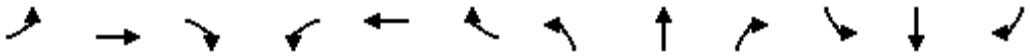
Intersection Summary			
HCM Average Control Delay	10.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	724	0	0	0	0	0	335	134	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.86						0.86				
Frpb, ped/bikes		1.00						0.98				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		6384						6045				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		6384						6045				
Peak-hour factor, PHF	0.92	0.92	0.25	0.25	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25
Adj. Flow (vph)	34	787	0	0	0	0	0	364	138	0	0	0
RTOR Reduction (vph)	0	13	0	0	0	0	0	20	0	0	0	0
Lane Group Flow (vph)	0	808	0	0	0	0	0	482	0	0	0	0
Confl. Peds. (#/hr)	46		46	17		17	53		53	68		68
Confl. Bikes (#/hr)			1			1			6			2
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		13.4						39.6				
Effective Green, g (s)		13.4						39.6				
Actuated g/C Ratio		0.22						0.66				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		1426						3990				
v/s Ratio Prot								c0.08				
v/s Ratio Perm		0.13										
v/c Ratio		0.57						0.12				
Uniform Delay, d1		20.7						3.8				
Progression Factor		1.00						1.00				
Incremental Delay, d2		0.3						0.1				
Delay (s)		21.0						3.8				
Level of Service		C						A				
Approach Delay (s)		21.0			0.0			3.8			0.0	
Approach LOS		C			A			A			A	

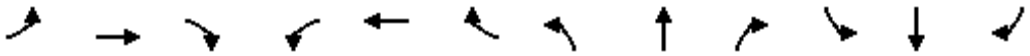
Intersection Summary			
HCM Average Control Delay	14.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	178	1117	0	0	0	0	0	947	394	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		0.86						0.91				
Frpb, ped/bikes		1.00						0.99				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6347						4832				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6347						4832				
Peak-hour factor, PHF	0.92	0.98	0.25	0.25	0.25	0.25	0.25	0.94	0.96	0.25	0.25	0.25
Adj. Flow (vph)	193	1140	0	0	0	0	0	1007	410	0	0	0
RTOR Reduction (vph)	0	20	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	1313	0	0	0	0	0	1406	0	0	0	0
Confl. Peds. (#/hr)	22		22	50		50	14		14	6		6
Confl. Bikes (#/hr)			16			1			2			2
Turn Type	Perm											
Protected Phases		1						2				
Permitted Phases	1											
Actuated Green, G (s)		18.0						18.0				
Effective Green, g (s)		18.0						18.0				
Actuated g/C Ratio		0.40						0.40				
Clearance Time (s)		4.5						4.5				
Lane Grp Cap (vph)		2539						1933				
v/s Ratio Prot								c0.29				
v/s Ratio Perm		0.21										
v/c Ratio		0.52						0.73				
Uniform Delay, d1		10.2						11.4				
Progression Factor		0.98						1.56				
Incremental Delay, d2		0.6						1.9				
Delay (s)		10.6						19.7				
Level of Service		B						B				
Approach Delay (s)		10.6			0.0			19.7			0.0	
Approach LOS		B			A			B			A	

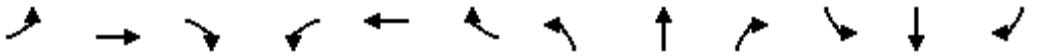
Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



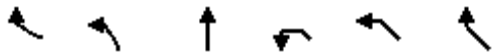
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	976	289	0	0	0	0	0	0	472	1514	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									3.0	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		1.00									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.96									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6152									5014	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6152									5014	
Peak-hour factor, PHF	0.25	0.99	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.95	0.25
Adj. Flow (vph)	0	986	314	0	0	0	0	0	0	513	1594	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	21	0
Lane Group Flow (vph)	0	1296	0	0	0	0	0	0	0	0	2086	0
Confl. Peds. (#/hr)	4		4	8		8	2		2	12		12
Confl. Bikes (#/hr)			2			2			2			
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		18.0									20.0	
Effective Green, g (s)		18.0									20.0	
Actuated g/C Ratio		0.40									0.44	
Clearance Time (s)		4.0									3.0	
Vehicle Extension (s)		2.0									2.0	
Lane Grp Cap (vph)		2461									2228	
v/s Ratio Prot		c0.21										
v/s Ratio Perm											0.42	
v/c Ratio		0.53									0.94	
Uniform Delay, d1		10.3									11.9	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.8									9.0	
Delay (s)		11.1									20.9	
Level of Service		B									C	
Approach Delay (s)		11.1			0.0			0.0			20.9	
Approach LOS		B			A			A			C	

Intersection Summary			
HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	7	369	56	351	352	0	0	216	1648
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.93		1.00			1.00	0.98
Flpb, ped/bikes				0.98	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1726	1863	1471		1817			1863	1559
Flt Permitted				0.95	1.00	1.00		0.72			1.00	1.00
Satd. Flow (perm)				1726	1863	1471		1350			1863	1559
Peak-hour factor, PHF	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.98
Adj. Flow (vph)	0	0	0	8	401	61	382	383	0	0	235	1682
RTOR Reduction (vph)	0	0	0	0	0	46	0	0	0	0	0	41
Lane Group Flow (vph)	0	0	0	8	401	15	0	765	0	0	235	1641
Confl. Peds. (#/hr)	4		4	20		20	1		1	6		6
Confl. Bikes (#/hr)			10			7						
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					1			2			2	
Permitted Phases				1		1	2					2
Actuated Green, G (s)				14.4	14.4	14.4		34.6			34.6	34.6
Effective Green, g (s)				14.4	14.4	14.4		34.6			34.6	34.6
Actuated g/C Ratio				0.24	0.24	0.24		0.58			0.58	0.58
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				414	447	353		779			1074	899
v/s Ratio Prot					c0.22						0.13	
v/s Ratio Perm				0.00		0.01		0.57				c1.05
v/c Ratio				0.02	0.90	0.04		0.98			0.22	1.83
Uniform Delay, d1				17.4	22.1	17.5		12.4			6.2	12.7
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.0	20.2	0.0		28.2			0.5	375.8
Delay (s)				17.4	42.2	17.6		40.6			6.6	388.5
Level of Service				B	D	B		D			A	F
Approach Delay (s)		0.0			38.6			40.6			341.6	
Approach LOS		A			D			D			F	

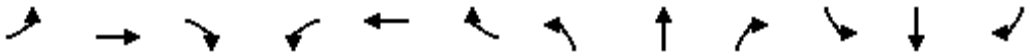
Intersection Summary			
HCM Average Control Delay	223.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.55		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	173.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBR	NBL	NBT	NWL2	NWL	NWR
Lane Configurations						
Volume (vph)	0	184	627	66	56	735
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5		2.0	2.0
Lane Util. Factor			0.95		0.97	0.91
Frpb, ped/bikes			1.00		1.00	1.00
Flpb, ped/bikes			1.00		1.00	1.00
Frt			1.00		0.89	0.85
Flt Protected			0.99		0.99	1.00
Satd. Flow (prot)			3500		3169	1441
Flt Permitted			0.99		0.99	1.00
Satd. Flow (perm)			3500		3169	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.94
Adj. Flow (vph)	0	200	682	72	61	782
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	882	0	524	391
Confl. Peds. (#/hr)	46					
Confl. Bikes (#/hr)	3					
Turn Type	custom	Perm		Perm		Perm
Protected Phases			3		1	
Permitted Phases	2	3		1		1
Actuated Green, G (s)			16.3		16.2	16.2
Effective Green, g (s)			16.3		16.2	16.2
Actuated g/C Ratio			0.36		0.36	0.36
Clearance Time (s)			3.5		2.0	2.0
Lane Grp Cap (vph)			1268		1141	519
v/s Ratio Prot						
v/s Ratio Perm			0.25		0.17	c0.27
v/c Ratio			0.70		0.46	0.75
Uniform Delay, d1			12.2		11.0	12.6
Progression Factor			0.75		1.00	1.00
Incremental Delay, d2			0.3		1.3	9.7
Delay (s)			9.5		12.4	22.4
Level of Service			A		B	C
Approach Delay (s)			9.5		16.7	
Approach LOS			A		B	

Intersection Summary			
HCM Average Control Delay	13.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	291	617	83	0	0	0	0	534	74	1	69	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5			3.5	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						1.00			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		0.99						0.98			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4925						1832			1862	
Flt Permitted		0.99						1.00			0.84	
Satd. Flow (perm)		1000						1300			1300	
Peak-hour factor, PHF	0.92	0.93	0.92	0.25	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.25
Adj. Flow (vph)	316	663	90	0	0	0	0	580	80	1	75	0
RTOR Reduction (vph)	0	24	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	1045	0	0	0	0	0	649	0	0	76	0
Confl. Peds. (#/hr)	9		9	38		38				2		2
Confl. Bikes (#/hr)			11			4						2
Turn Type	Perm									Perm		
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		22.5						15.5			15.5	
Effective Green, g (s)		22.5						15.5			15.5	
Actuated g/C Ratio		0.50						0.34			0.34	
Clearance Time (s)		3.5						3.5			3.5	
Lane Grp Cap (vph)		500						631			448	
v/s Ratio Prot								c0.35				
v/s Ratio Perm		c1.05									0.06	
v/c Ratio		2.09						1.03			0.17	
Uniform Delay, d1		11.2						14.8			10.3	
Progression Factor		1.00						1.00			0.08	
Incremental Delay, d2		497.3						43.3			0.8	
Delay (s)		508.6						58.0			1.5	
Level of Service		F						E			A	
Approach Delay (s)		508.6			0.0			58.0			1.5	
Approach LOS		F			A			E			A	

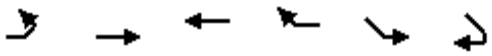
Intersection Summary			
HCM Average Control Delay	322.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.66		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	192	170	1237	903	149	870
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.94		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3312		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3312		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.94	0.92	0.92	0.92
Adj. Flow (vph)	209	185	1316	982	162	946
RTOR Reduction (vph)	0	152	139	0	0	0
Lane Group Flow (vph)	209	33	2159	0	162	946
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	16.0	16.0	39.9		22.1	66.0
Effective Green, g (s)	16.0	16.0	39.9		22.1	66.0
Actuated g/C Ratio	0.18	0.18	0.44		0.25	0.73
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	315	281	1468		435	2595
v/s Ratio Prot	c0.12		c0.65		0.09	c0.27
v/s Ratio Perm		0.02				
v/c Ratio	0.66	0.12	1.47		0.37	0.36
Uniform Delay, d1	34.5	31.1	25.0		28.2	4.4
Progression Factor	1.00	1.00	1.00		0.66	0.45
Incremental Delay, d2	5.2	0.2	215.7		1.8	0.3
Delay (s)	39.7	31.3	240.8		20.6	2.3
Level of Service	D	C	F		C	A
Approach Delay (s)	35.7		240.8			4.9
Approach LOS	D		F			A

Intersection Summary			
HCM Average Control Delay	150.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	254	299	247	109	532	447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3377		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3377		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	276	325	268	118	578	486
RTOR Reduction (vph)	0	0	82	0	0	296
Lane Group Flow (vph)	276	325	304	0	578	190
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	12.6	27.2	10.6		22.6	22.6
Effective Green, g (s)	12.6	27.2	10.6		22.6	22.6
Actuated g/C Ratio	0.22	0.47	0.18		0.39	0.39
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	386	1665	619		692	619
v/s Ratio Prot	c0.16	0.09	c0.09		c0.33	
v/s Ratio Perm						0.12
v/c Ratio	0.72	0.20	0.49		0.84	0.31
Uniform Delay, d1	20.9	8.9	21.2		15.9	12.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	6.2	0.1	0.6		8.6	0.3
Delay (s)	27.1	9.0	21.8		24.5	12.5
Level of Service	C	A	C		C	B
Approach Delay (s)		17.3	21.8		19.0	
Approach LOS		B	C		B	

Intersection Summary			
HCM Average Control Delay	19.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	57.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	316	1362	142	0	571	741	490	1085	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.99			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4962			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4962			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.96	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	329	1480	154	0	614	805	533	1179	0
RTOR Reduction (vph)	0	0	0	11	0	0	0	52	0	0	0
Lane Group Flow (vph)	0	0	0	1952	0	0	614	753	533	1179	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				30.0			17.5	17.5	29.5	51.0	
Effective Green, g (s)				30.0			17.5	17.5	29.5	51.0	
Actuated g/C Ratio				0.33			0.19	0.19	0.33	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1654			688	308	580	2005	
v/s Ratio Prot				c0.39			0.17		c0.30	0.33	
v/s Ratio Perm								c0.48			
v/c Ratio				1.18			0.89	2.45	0.92	0.59	
Uniform Delay, d1				30.0			35.3	36.2	29.1	12.7	
Progression Factor				1.00			1.48	1.55	1.00	1.00	
Incremental Delay, d2				87.6			1.9	651.7	19.6	0.4	
Delay (s)				117.6			54.0	707.9	48.7	13.1	
Level of Service				F			D	F	D	B	
Approach Delay (s)	0.0			117.6			424.9			24.2	
Approach LOS	A			F			F			C	

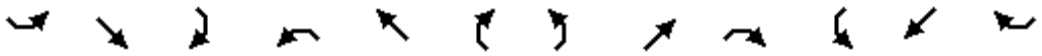
Intersection Summary			
HCM Average Control Delay	171.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.37		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	414	1236	609	169	346	550	143	329	24	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.98	0.85		0.90				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3143	1441		3185				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3143	1441		3185				1770	3539
Peak-hour factor, PHF	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	450	1315	662	184	376	598	155	358	26	264
RTOR Reduction (vph)	0	0	15	0	14	0	0	0	0	0
Lane Group Flow (vph)	405	1539	652	0	1115	0	0	0	384	264
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	28.0	28.0	28.0		37.0				12.0	53.0
Effective Green, g (s)	28.0	28.0	28.0		37.0				12.0	53.0
Actuated g/C Ratio	0.31	0.31	0.31		0.41				0.13	0.59
Clearance Time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	501	978	448		1309				236	2084
v/s Ratio Prot	0.25	c0.49	0.45		c0.35				c0.22	0.07
v/s Ratio Perm										
v/c Ratio	0.81	1.57	1.46		1.11dr				1.63	0.13
Uniform Delay, d1	28.5	31.0	31.0		24.0				39.0	8.2
Progression Factor	0.65	0.67	0.65		1.00				1.00	1.00
Incremental Delay, d2	1.3	258.6	205.9		7.1				300.8	0.1
Delay (s)	20.0	279.3	226.1		31.1				339.8	8.3
Level of Service	B	F	F		C				F	A
Approach Delay (s)		225.5			31.1					204.7
Approach LOS		F			C					F

Intersection Summary			
HCM Average Control Delay	172.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		

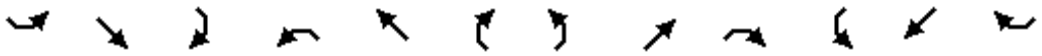
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	1677	234	329	1088	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.91	1.00		*0.88				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1583		4863				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1583		4863				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.98	0.94	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1747	254	336	1157	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	8	0	6	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1747	247	0	1487	0	0	0	0
Turn Type						Perm	Perm					
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					30.0	30.0		22.0				
Effective Green, g (s)					30.0	30.0		22.0				
Actuated g/C Ratio					0.50	0.50		0.37				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					2543	792		1783				
v/s Ratio Prot					c0.34							
v/s Ratio Perm						0.16		0.31				
v/c Ratio					0.69	0.31		0.83				
Uniform Delay, d1					11.4	8.9		17.3				
Progression Factor					1.00	1.00		1.19				
Incremental Delay, d2					1.5	1.0		2.4				
Delay (s)					13.0	9.9		23.0				
Level of Service					B	A		C				
Approach Delay (s)		0.0			12.6			23.0			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM Average Control Delay	17.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

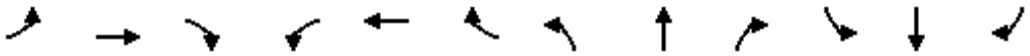
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	673	1371	0	0	0	0	0	722	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4775						3495	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4775						3495	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	732	1413	0	0	0	0	0	785	71
RTOR Reduction (vph)	0	0	0	37	30	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	483	1595	0	0	0	0	0	845	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				29.0	29.0						23.0	
Effective Green, g (s)				29.0	29.0						23.0	
Actuated g/C Ratio				0.48	0.48						0.38	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				736	2308						1340	
v/s Ratio Prot											c0.24	
v/s Ratio Perm				0.32	0.33							
v/c Ratio				0.66	0.69						0.63	
Uniform Delay, d1				11.7	12.0						15.0	
Progression Factor				1.43	1.38						1.00	
Incremental Delay, d2				3.3	1.2						2.3	
Delay (s)				20.0	17.8						17.3	
Level of Service				C	B						B	
Approach Delay (s)		0.0			18.4			0.0			17.3	
Approach LOS		A			B			A			B	

Intersection Summary			
HCM Average Control Delay	18.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	230	567	11	18	249	20	16	24	30	68	50	45
Peak Hour Factor	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	250	603	12	20	271	22	17	26	33	74	54	49

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	250	615	312	76	177
Volume Left (vph)	250	0	20	17	74
Volume Right (vph)	0	12	22	33	49
Hadj (s)	0.53	0.02	0.00	-0.18	-0.05
Departure Headway (s)	6.4	5.9	5.9	6.9	6.7
Degree Utilization, x	0.44	1.00	0.52	0.15	0.33
Capacity (veh/h)	553	615	597	487	517
Control Delay (s)	13.2	59.3	15.1	11.1	12.9
Approach Delay (s)	46.0		15.1	11.1	12.9
Approach LOS	E		C	B	B

Intersection Summary			
Delay	33.3		
HCM Level of Service	D		
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp

Average Delay (sec/veh): 21.6 Worst Case Level Of Service: F[68.7]

Street Name:	Harrison Street						Stanley Place / I-580 EB Off-Ramp					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Yield Sign			Yield Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 3 0 0			0 0 0 0 1			0 0 0 0 0		
Volume Module:												
Base Vol:	0	0	0	0	1253	0	0	0	581	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	1253	0	0	0	581	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	1253	0	0	0	581	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.92	1.00	1.00	1.00	0.93	1.00	1.00	1.00
PHF Volume:	0	0	0	0	1362	0	0	0	625	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	1362	0	0	0	625	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	454	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	610	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	610	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	1.02	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	16.2	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	68.7	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	F	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			68.7			xxxxxx		
ApproachLOS:	*			*			F			*		

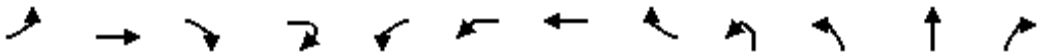
Note: Queue reported is the number of cars per lane.

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to DMJM HARRIS, OAKLAND, CA



Movement	SEL2	SET	NET	NER	NER2
Lane Configurations					
Volume (vph)	553	195	1186	498	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	3.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	
Flt Protected	0.95	0.98	1.00	1.00	
Satd. Flow (prot)	1681	1730	3539	1583	
Flt Permitted	0.95	0.98	1.00	1.00	
Satd. Flow (perm)	1681	1730	3539	1583	
Peak-hour factor, PHF	0.97	0.92	0.92	0.92	0.92
Adj. Flow (vph)	570	212	1289	541	36
RTOR Reduction (vph)	49	49	0	0	0
Lane Group Flow (vph)	339	345	1289	577	0
Confl. Peds. (#/hr)					2
Confl. Bikes (#/hr)					
Turn Type	Perm			custom	
Protected Phases		4	5	1	
Permitted Phases	4			1	
Actuated Green, G (s)	14.4	14.4	38.1	15.1	
Effective Green, g (s)	14.4	14.4	38.1	15.1	
Actuated g/C Ratio	0.24	0.24	0.64	0.25	
Clearance Time (s)	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	403	415	2247	398	
v/s Ratio Prot			c0.36	c0.36	
v/s Ratio Perm	c0.20	0.20			
v/c Ratio	0.84	0.83	0.57	1.45	
Uniform Delay, d1	21.7	21.7	6.3	22.4	
Progression Factor	1.00	1.00	1.00	1.00	
Incremental Delay, d2	14.1	12.8	1.1	216.0	
Delay (s)	35.9	34.4	7.4	238.5	
Level of Service	D	C	A	F	
Approach Delay (s)		35.1	78.8		
Approach LOS		D	E		

Intersection Summary			
HCM Average Control Delay	65.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	60.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



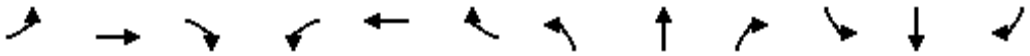
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	81	141	132	36	84	31	200	177	16	487	620	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00			1.00	1.00	1.00		0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.95			1.00	1.00	0.92		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85			1.00	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1497			1770	1863	1462		3433	3497	
Flt Permitted	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1497			1770	1863	1462		3433	3497	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	153	143	39	91	34	217	186	17	529	674	51
RTOR Reduction (vph)	0	0	12	0	0	0	0	149	0	0	6	0
Lane Group Flow (vph)	88	153	170	0	0	125	217	37	0	546	719	0
Confl. Peds. (#/hr)	21		21					27		9		8
Confl. Bikes (#/hr)			8					24				1
Turn Type	Prot		Perm		Prot	Prot		Perm	Prot	Prot		
Protected Phases	3	8			7	7	4		1	1	6	
Permitted Phases			8					4				
Actuated Green, G (s)	8.6	16.5	16.5			10.0	17.9	17.9		18.1	34.6	
Effective Green, g (s)	8.6	16.5	16.5			10.0	17.9	17.9		18.1	34.6	
Actuated g/C Ratio	0.10	0.18	0.18			0.11	0.20	0.20		0.20	0.38	
Clearance Time (s)	4.0	4.0	4.0			4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	169	649	274			197	371	291		690	1344	
v/s Ratio Prot	0.05	0.04				0.07	c0.12			c0.16	0.21	
v/s Ratio Perm			c0.11					0.03				
v/c Ratio	0.52	0.24	0.62			0.63	0.58	0.13		0.79	0.54	
Uniform Delay, d1	38.7	31.4	33.9			38.3	32.7	29.6		34.2	21.5	
Progression Factor	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.9	0.2	4.1			6.5	2.3	0.2		6.2	1.5	
Delay (s)	41.6	31.6	38.0			44.8	35.0	29.8		40.3	23.0	
Level of Service	D	C	D			D	D	C		D	C	
Approach Delay (s)		36.4					35.5				30.4	
Approach LOS		D					D				C	

Intersection Summary			
HCM Average Control Delay	97.0	HCM Level of Service	F
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Volume (vph)	163	1145	155	108
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.97		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3440		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3440		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	177	1245	168	117
RTOR Reduction (vph)	0	6	0	0
Lane Group Flow (vph)	177	1524	0	0
Confl. Peds. (#/hr)	18			
Confl. Bikes (#/hr)				
Turn Type	Prot			
Protected Phases	5	2		
Permitted Phases				
Actuated Green, G (s)	12.9	29.4		
Effective Green, g (s)	12.9	29.4		
Actuated g/C Ratio	0.14	0.33		
Clearance Time (s)	4.0	4.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	254	1124		
v/s Ratio Prot	0.10	c0.44		
v/s Ratio Perm				
v/c Ratio	0.70	1.36		
Uniform Delay, d1	36.7	30.3		
Progression Factor	1.00	1.00		
Incremental Delay, d2	8.1	166.0		
Delay (s)	44.7	196.3		
Level of Service	D	F		
Approach Delay (s)		180.6		
Approach LOS		F		

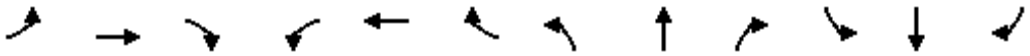
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	184	89	38	321	332	56	527	42	109	590	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.95			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1748	3319			3516	1543	1761	3484		1766	3493	
Flt Permitted	0.52	1.00			0.89	1.00	0.32	1.00		0.38	1.00	
Satd. Flow (perm)	953	3319			3140	1543	596	3484		709	3493	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.95	0.92	0.92	0.97	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	198	97	41	338	361	61	543	46	118	641	53
RTOR Reduction (vph)	0	56	0	0	0	119	0	7	0	0	7	0
Lane Group Flow (vph)	71	239	0	0	379	242	61	582	0	118	687	0
Confl. Peds. (#/hr)	25		25	18		13	19		13	6		6
Confl. Bikes (#/hr)		16	16	59		5		5	59			6
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			2	
Permitted Phases	4			8		8	2			2		
Actuated Green, G (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Effective Green, g (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Actuated g/C Ratio	0.42	0.42			0.42	0.42	0.45	0.45		0.45	0.45	
Clearance Time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	404	1406			1330	654	266	1558		317	1562	
v/s Ratio Prot		0.07						0.17			c0.20	
v/s Ratio Perm	0.07				0.12	c0.16	0.10			0.17		
v/c Ratio	0.18	0.17			0.28	0.37	0.23	0.37		0.37	0.44	
Uniform Delay, d1	15.3	15.2			16.1	16.8	14.5	15.6		15.6	16.2	
Progression Factor	1.29	1.28			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.2			0.5	1.6	2.0	0.7		3.3	0.9	
Delay (s)	20.5	19.7			16.6	18.4	16.5	16.3		18.9	17.1	
Level of Service	C	B			B	B	B	B		B	B	
Approach Delay (s)		19.8			17.5			16.3			17.3	
Approach LOS		B			B			B			B	

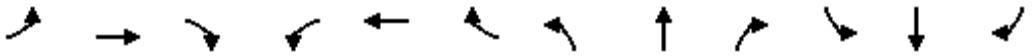
Intersection Summary			
HCM Average Control Delay	17.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	101.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	394	406	153	50	280	122	94	415	26	53	377	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	1863	1561	1765	1863	1546	1762	3498		1765	3363	
Flt Permitted	0.42	1.00	1.00	0.51	1.00	1.00	0.26	1.00		0.35	1.00	
Satd. Flow (perm)	788	1863	1561	942	1863	1546	476	3498		647	3363	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	428	441	166	54	304	133	98	451	28	58	410	167
RTOR Reduction (vph)	0	0	71	0	0	76	0	7	0	0	65	0
Lane Group Flow (vph)	428	441	95	54	304	57	98	472	0	58	512	0
Confl. Peds. (#/hr)	1		1	8		8	12		12	6		6
Confl. Bikes (#/hr)			2			5			27			6
Turn Type	pm+pt		Permpm+pt			Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	56.8	48.6	48.6	40.3	36.6	36.6	19.2	19.2		19.2	19.2	
Effective Green, g (s)	56.8	48.6	48.6	40.3	36.6	36.6	19.2	19.2		19.2	19.2	
Actuated g/C Ratio	0.67	0.57	0.57	0.47	0.43	0.43	0.23	0.23		0.23	0.23	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	708	1065	893	482	802	666	108	790		146	760	
v/s Ratio Prot	c0.11	0.24		0.00	0.16			0.13			0.15	
v/s Ratio Perm	c0.29		0.06	0.05		0.04	c0.21			0.09		
v/c Ratio	0.60	0.41	0.11	0.11	0.38	0.09	0.91	0.60		0.40	0.67	
Uniform Delay, d1	7.3	10.2	8.3	12.1	16.5	14.3	32.0	29.4		28.0	30.0	
Progression Factor	1.00	1.00	1.00	0.65	0.65	0.27	0.92	0.90		1.00	1.00	
Incremental Delay, d2	1.0	1.2	0.2	0.0	1.3	0.2	54.4	0.8		0.6	1.9	
Delay (s)	8.3	11.4	8.5	7.9	12.1	4.1	83.9	27.3		28.6	31.9	
Level of Service	A	B	A	A	B	A	F	C		C	C	
Approach Delay (s)		9.7			9.5			36.9			31.6	
Approach LOS		A			A			D			C	

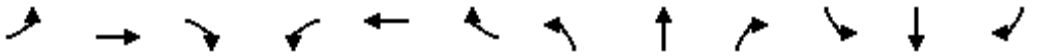
Intersection Summary			
HCM Average Control Delay	20.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	177	943	0	0	171	328	5	298	29	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1608	3387			3539	2787		5006				
Flt Permitted	0.63	0.95			1.00	1.00		1.00				
Satd. Flow (perm)	1074	3217			3539	2787		5006				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	1025	0	0	186	357	5	324	32	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	214	0	19	0	0	0	0
Lane Group Flow (vph)	173	1044	0	0	186	143	0	342	0	0	0	0
Confl. Peds. (#/hr)	2		2				6		6	4		4
Confl. Bikes (#/hr)									4			3
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	16.0	16.0			16.0	16.0		16.0				
Effective Green, g (s)	16.0	16.0			16.0	16.0		16.0				
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.40				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)	430	1287			1416	1115		2002				
v/s Ratio Prot					0.05							
v/s Ratio Perm	0.16	c0.32				0.05		0.07				
v/c Ratio	0.40	0.81			0.13	0.13		0.17				
Uniform Delay, d1	8.6	10.7			7.6	7.6		7.7				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	2.8	5.6			0.2	0.2		0.2				
Delay (s)	11.4	16.3			7.8	7.8		7.9				
Level of Service	B	B			A	A		A				
Approach Delay (s)		15.6			7.8			7.9			0.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

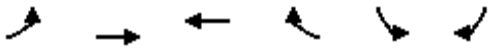
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	321	31	12	181	0	0	0	0	786	1141	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00		0.95					0.91	0.91	1.00
Frpb, ped/bikes		1.00	0.98		1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00					1.00	1.00	1.00
Frt		1.00	0.85		1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00					0.95	0.99	1.00
Satd. Flow (prot)		3539	1558		3527					1610	3369	1583
Flt Permitted		1.00	1.00		0.93					0.95	0.99	1.00
Satd. Flow (perm)		3539	1558		3290					1610	3369	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92
Adj. Flow (vph)	0	349	34	13	197	0	0	0	0	854	1227	440
RTOR Reduction (vph)	0	0	22	0	0	0	0	0	0	0	0	213
Lane Group Flow (vph)	0	349	12	0	210	0	0	0	0	675	1406	227
Confl. Peds. (#/hr)	2		2	10		10	6		6			
Confl. Bikes (#/hr)			3			4			1			
Turn Type			Perm	Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases			4	8						6		6
Actuated Green, G (s)		21.0	21.0		21.0					31.0	31.0	31.0
Effective Green, g (s)		21.0	21.0		21.0					31.0	31.0	31.0
Actuated g/C Ratio		0.35	0.35		0.35					0.52	0.52	0.52
Clearance Time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Grp Cap (vph)		1239	545		1152					832	1741	818
v/s Ratio Prot		c0.10										
v/s Ratio Perm			0.01		0.06					c0.42	0.42	0.14
v/c Ratio		0.28	0.02		0.18					0.81	0.81	0.28
Uniform Delay, d1		14.1	12.8		13.5					12.1	12.0	8.2
Progression Factor		1.00	1.00		1.00					1.00	1.00	1.00
Incremental Delay, d2		0.6	0.1		0.3					8.5	4.1	0.8
Delay (s)		14.6	12.8		13.9					20.5	16.2	9.0
Level of Service		B	B		B					C	B	A
Approach Delay (s)		14.5			13.9			0.0			16.1	
Approach LOS		B			B			A			B	

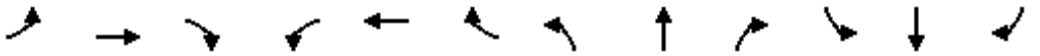
Intersection Summary			
HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



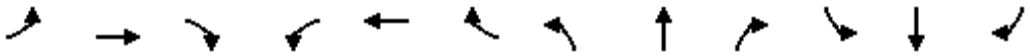
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	225	654	769	141	883	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.91
Frpb, ped/bikes	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3440		3431	1414
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3440		3431	1414
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	245	711	836	153	960	247
RTOR Reduction (vph)	0	0	18	0	3	151
Lane Group Flow (vph)	245	711	971	0	982	71
Confl. Peds. (#/hr)	14			11	6	6
Confl. Bikes (#/hr)				10		1
Turn Type	Prot					Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	13.7	46.3	28.6		25.7	25.7
Effective Green, g (s)	13.7	46.3	28.6		25.7	25.7
Actuated g/C Ratio	0.17	0.58	0.36		0.32	0.32
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	303	2048	1230		1102	454
v/s Ratio Prot	c0.14	0.20	c0.28		c0.29	
v/s Ratio Perm						0.05
v/c Ratio	0.81	0.35	0.79		0.89	0.16
Uniform Delay, d1	31.9	8.9	23.0		25.8	19.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	13.8	0.5	5.2		9.1	0.1
Delay (s)	45.7	9.3	28.2		34.9	19.5
Level of Service	D	A	C		C	B
Approach Delay (s)		18.7	28.2		32.1	
Approach LOS		B	C		C	

Intersection Summary			
HCM Average Control Delay	26.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



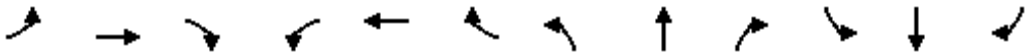
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	892	410	79	482	74	232	296	35	99	409	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1767	3427	1553	1768	3350		1769	3473		1757	3430	
Flt Permitted	0.27	1.00	1.00	0.16	1.00		0.36	1.00		0.54	1.00	
Satd. Flow (perm)	500	3427	1553	297	3350		669	3473		1003	3430	
Peak-hour factor, PHF	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	929	446	86	524	80	252	312	38	108	445	97
RTOR Reduction (vph)	0	0	314	0	13	0	0	6	0	0	21	0
Lane Group Flow (vph)	136	929	132	86	591	0	252	344	0	108	521	0
Confl. Peds. (#/hr)	4		4	4		4	4		4	11		11
Confl. Bikes (#/hr)			3			7			21			1
Turn Type	Perm		Perm	Perm			pm+pt			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	25.1	25.1	25.1	25.1	25.1		49.4	49.4		34.9	34.9	
Effective Green, g (s)	25.1	25.1	25.1	25.1	25.1		49.4	49.4		34.9	34.9	
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30		0.58	0.58		0.41	0.41	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	148	1012	459	88	989		518	2018		412	1408	
v/s Ratio Prot		0.27			0.18		c0.06	0.10			0.15	
v/s Ratio Perm	0.27		0.08	c0.29			c0.23			0.11		
v/c Ratio	0.92	0.92	0.29	0.98	0.60		0.49	0.17		0.26	0.37	
Uniform Delay, d1	29.0	29.0	23.1	29.7	25.6		9.2	8.3		16.5	17.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.11	1.15	
Incremental Delay, d2	55.0	14.3	1.6	89.9	2.7		0.3	0.2		1.5	0.7	
Delay (s)	83.9	43.3	24.6	119.5	28.3		9.5	8.5		19.9	20.8	
Level of Service	F	D	C	F	C		A	A		B	C	
Approach Delay (s)		41.4			39.7			8.9			20.6	
Approach LOS		D			D			A			C	

Intersection Summary			
HCM Average Control Delay	31.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



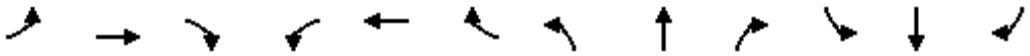
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	751	72	108	556	83	116	479	104	69	415	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	*0.92			*0.92		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.96	1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99			0.98		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1755	3368			3324		1764	3539	1527	1762	3430	
Flt Permitted	0.23	1.00			0.61		0.40	1.00	1.00	0.42	1.00	
Satd. Flow (perm)	424	3368			2040		741	3539	1527	772	3430	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	816	78	117	604	90	126	521	113	75	451	98
RTOR Reduction (vph)	0	9	0	0	12	0	0	0	45	0	22	0
Lane Group Flow (vph)	109	885	0	0	799	0	126	521	68	75	527	0
Confl. Peds. (#/hr)	34		34	37		37	8		8	10		10
Confl. Bikes (#/hr)			11			8			35			7
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	34.1	34.1			34.1		37.9	37.9	37.9	37.9	37.9	
Effective Green, g (s)	34.1	34.1			34.1		37.9	37.9	37.9	37.9	37.9	
Actuated g/C Ratio	0.43	0.43			0.43		0.47	0.47	0.47	0.47	0.47	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	181	1436			870		351	1677	723	366	1625	
v/s Ratio Prot		0.26						0.15			0.15	
v/s Ratio Perm	0.26				c0.39		c0.17		0.04	0.10		
v/c Ratio	0.60	0.62			0.92		0.36	0.31	0.09	0.20	0.32	
Uniform Delay, d1	17.7	17.9			21.6		13.3	13.0	11.6	12.3	13.1	
Progression Factor	1.00	1.00			1.31		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.8	0.6			14.0		2.8	0.5	0.3	1.3	0.5	
Delay (s)	21.5	18.4			42.4		16.2	13.5	11.8	13.5	13.6	
Level of Service	C	B			D		B	B	B	B	B	
Approach Delay (s)		18.8			42.4			13.7			13.6	
Approach LOS		B			D			B			B	

Intersection Summary			
HCM Average Control Delay	22.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	444	359	137	505	0	0	0	0	12	188	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						3.0	
Lane Util. Factor		*0.92		1.00	*0.92						0.95	
Frpb, ped/bikes		0.97		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						0.99	
Frt		0.93		1.00	1.00						0.99	
Flt Protected		1.00		0.95	1.00						1.00	
Satd. Flow (prot)		3113		1770	3427						3419	
Flt Permitted		1.00		0.16	1.00						1.00	
Satd. Flow (perm)		3113		295	3427						3419	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	477	390	149	549	0	0	0	0	13	204	24
RTOR Reduction (vph)	0	177	0	0	0	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	690	0	149	549	0	0	0	0	0	231	0
Confl. Peds. (#/hr)	26		26	28		28	21		21	101		101
Confl. Bikes (#/hr)			4			4			3			6
Turn Type	Perm			pm+pt						Perm		
Protected Phases		2		1	6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)		30.2		43.0	43.0						29.0	
Effective Green, g (s)		30.2		43.0	43.0						29.0	
Actuated g/C Ratio		0.38		0.54	0.54						0.36	
Clearance Time (s)		5.0		5.0	5.0						3.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		1175		302	1842						1239	
v/s Ratio Prot		c0.22		c0.05	0.16							
v/s Ratio Perm				0.22							0.07	
v/c Ratio		0.59		0.49	0.30						0.19	
Uniform Delay, d1		19.9		11.9	10.2						17.4	
Progression Factor		2.34		1.00	1.00						1.00	
Incremental Delay, d2		1.9		0.5	0.4						0.3	
Delay (s)		48.5		12.4	10.6						17.8	
Level of Service		D		B	B						B	
Approach Delay (s)		48.5			11.0			0.0			17.8	
Approach LOS		D			B			A			B	

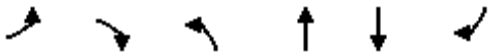
Intersection Summary			
HCM Average Control Delay	29.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	257	100	618	834	137	265	1023	392	48	1183	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	
Frpb, ped/bikes	1.00	1.00	0.93	1.00	1.00	0.94		1.00	0.90		0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	
Satd. Flow (prot)	3433	3539	1479	3433	3539	1484		5034	1419		4880	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.68	1.00		0.74	
Satd. Flow (perm)	3433	3539	1479	3433	3539	1484		3460	1419		3595	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92
Adj. Flow (vph)	126	279	109	672	907	149	288	1112	426	52	1272	320
RTOR Reduction (vph)	0	0	4	0	0	74	0	0	273	0	41	0
Lane Group Flow (vph)	126	279	105	672	907	75	0	1400	153	0	1603	0
Confl. Peds. (#/hr)	38		38	34		34	60		60	28		28
Confl. Bikes (#/hr)			12			18			39			9
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		
Protected Phases	1	6		5	2			4			4	
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	8.1	33.0	33.0	16.0	41.9	41.9		36.0	36.0		36.0	
Effective Green, g (s)	8.1	33.0	33.0	16.0	41.9	41.9		36.0	36.0		36.0	
Actuated g/C Ratio	0.08	0.33	0.33	0.16	0.42	0.42		0.36	0.36		0.36	
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	278	1168	488	549	1483	622		1246	511		1294	
v/s Ratio Prot	0.04	0.08		c0.20	c0.26							
v/s Ratio Perm			0.07			0.05		0.40	0.11		c0.45	
v/c Ratio	0.45	0.24	0.22	1.22	0.61	0.12		3.84dl	0.30		1.24	
Uniform Delay, d1	43.8	24.4	24.2	42.0	22.7	17.8		32.0	23.0		32.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.5	1.0	116.3	1.9	0.4		66.6	1.5		114.3	
Delay (s)	44.3	24.8	25.2	158.3	24.6	18.2		98.6	24.5		146.3	
Level of Service	D	C	C	F	C	B		F	C		F	
Approach Delay (s)		29.7			76.0			81.3			146.3	
Approach LOS		C			E			F			F	

Intersection Summary			
HCM Average Control Delay	93.8	HCM Level of Service	F
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	110.3%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	68	43	114	1089	1252	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.5	4.5	
Lane Util. Factor	0.97		1.00	*0.50	0.86	
Frpb, ped/bikes	0.97		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.94		1.00	1.00	0.97	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	3202		1768	3725	6191	
Flt Permitted	0.97		0.10	1.00	1.00	
Satd. Flow (perm)	3202		188	3725	6191	
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.93	0.92
Adj. Flow (vph)	74	47	124	1134	1346	391
RTOR Reduction (vph)	43	0	0	0	30	0
Lane Group Flow (vph)	78	0	124	1134	1707	0
Confl. Peds. (#/hr)	36	36	109			
Confl. Bikes (#/hr)		14				
Turn Type			pm+pt			
Protected Phases	4		1	2	2	
Permitted Phases			2			
Actuated Green, G (s)	6.3		60.2	53.8	53.8	
Effective Green, g (s)	6.3		60.2	53.8	53.8	
Actuated g/C Ratio	0.08		0.75	0.67	0.67	
Clearance Time (s)	5.0		4.0	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	252		268	2505	4163	
v/s Ratio Prot	c0.02		c0.04	0.30	0.28	
v/s Ratio Perm			c0.31			
v/c Ratio	0.31		0.46	0.45	0.41	
Uniform Delay, d1	34.8		3.1	6.2	5.9	
Progression Factor	1.00		1.48	1.01	1.00	
Incremental Delay, d2	0.7		1.0	0.5	0.3	
Delay (s)	35.5		5.6	6.7	6.2	
Level of Service	D		A	A	A	
Approach Delay (s)	35.5			6.6	6.2	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	7.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	120	30	89	390	1	1
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	130	33	97	424	1	1
Pedestrians	7			7	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	533			360		
pX, platoon unblocked						
vC, conflicting volume			165		773	156
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			165		773	156
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		100	100
cM capacity (veh/h)			1411		340	883

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	163	521	2
Volume Left	0	97	1
Volume Right	33	0	1
cSH	1700	1411	491
Volume to Capacity	0.10	0.07	0.00
Queue Length 95th (ft)	0	6	0
Control Delay (s)	0.0	2.0	12.4
Lane LOS		A	B
Approach Delay (s)	0.0	2.0	12.4
Approach LOS			B

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	148	105	150	241	2	2
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	161	114	163	262	2	2
Pedestrians	24			24	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	2			2	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	470			423		
pX, platoon unblocked						
vC, conflicting volume			277		832	244
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			277		832	244
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		99	100
cM capacity (veh/h)			1284		290	778

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	275	425	4
Volume Left	0	163	2
Volume Right	114	0	2
cSH	1700	1284	422
Volume to Capacity	0.16	0.13	0.01
Queue Length 95th (ft)	0	11	1
Control Delay (s)	0.0	3.9	13.6
Lane LOS		A	B
Approach Delay (s)	0.0	3.9	13.6
Approach LOS			B

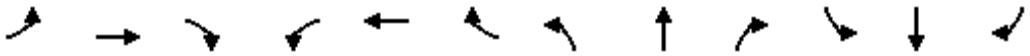
Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	111	8	40	473	25	16
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	1.00	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	121	8	43	514	27	17
Pedestrians	16			16	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	80			813		
pX, platoon unblocked						
vC, conflicting volume			131		744	143
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			131		744	143
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		93	98
cM capacity (veh/h)			1452		365	891

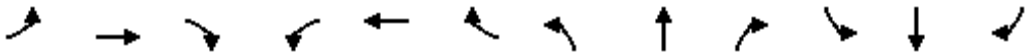
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	129	558	14	14	9	9
Volume Left	0	43	14	14	0	0
Volume Right	8	0	0	0	9	9
cSH	1700	1452	365	365	891	891
Volume to Capacity	0.08	0.03	0.04	0.04	0.01	0.01
Queue Length 95th (ft)	0	2	3	3	1	1
Control Delay (s)	0.0	0.9	15.2	15.2	9.1	9.1
Lane LOS		A	C	C	A	A
Approach Delay (s)	0.0	0.9	12.8			
Approach LOS			B			

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		



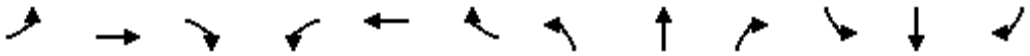
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	227	67	59	61	0	0	0	0	184	477	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.91	
Frpb, ped/bikes		1.00	0.85		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.95						0.97	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.98						0.99	
Satd. Flow (prot)		1863	1341		1724						4795	
Flt Permitted		1.00	1.00		0.56						0.99	
Satd. Flow (perm)		1863	1341		992						4795	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	247	73	64	66	0	0	0	0	200	518	39
RTOR Reduction (vph)	0	0	42	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	247	31	0	130	0	0	0	0	0	754	0
Confl. Peds. (#/hr)	106		106	134		134	73		73	52		52
Confl. Bikes (#/hr)			3			7			21			1
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		16.7	16.7		16.7						55.3	
Effective Green, g (s)		16.7	16.7		16.7						55.3	
Actuated g/C Ratio		0.21	0.21		0.21						0.69	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		389	280		207						3315	
v/s Ratio Prot		c0.13										
v/s Ratio Perm			0.02		0.13						0.16	
v/c Ratio		0.63	0.11		0.63						0.23	
Uniform Delay, d1		28.9	25.6		28.8						4.5	
Progression Factor		1.00	1.00		1.00						0.86	
Incremental Delay, d2		3.4	0.2		5.8						0.1	
Delay (s)		32.2	25.8		34.7						4.0	
Level of Service		C	C		C						A	
Approach Delay (s)		30.8			34.7			0.0			4.0	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	14.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



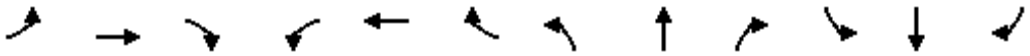
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	198	4	0	45	39	12	242	96	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.94			1.00	0.87			
Flpb, ped/bikes		1.00			1.00			1.00	1.00			
Frt		1.00			0.94			1.00	0.85			
Flt Protected		1.00			1.00			1.00	1.00			
Satd. Flow (prot)		1848			1647			3514	1377			
Flt Permitted		0.99			1.00			1.00	1.00			
Satd. Flow (perm)		1840			1647			3514	1377			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	215	4	0	49	42	13	263	104	0	0	0
RTOR Reduction (vph)	0	1	0	0	15	0	0	0	86	0	0	0
Lane Group Flow (vph)	0	227	0	0	76	0	0	276	18	0	0	0
Confl. Peds. (#/hr)	58		58	134		134	73		73	87		87
Confl. Bikes (#/hr)						5			5			2
Turn Type	Perm						Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2						1		1			
Actuated Green, G (s)		29.1			29.1			7.9	7.9			
Effective Green, g (s)		29.1			29.1			7.9	7.9			
Actuated g/C Ratio		0.65			0.65			0.18	0.18			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)		1190			1065			617	242			
v/s Ratio Prot					0.05							
v/s Ratio Perm		c0.12						0.08	0.01			
v/c Ratio		0.19			0.07			0.45	0.08			
Uniform Delay, d1		3.2			2.9			16.6	15.5			
Progression Factor		0.81			1.00			1.00	1.00			
Incremental Delay, d2		0.3			0.1			0.2	0.0			
Delay (s)		3.0			3.1			16.8	15.5			
Level of Service		A			A			B	B			
Approach Delay (s)		3.0			3.1			16.4			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	10.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



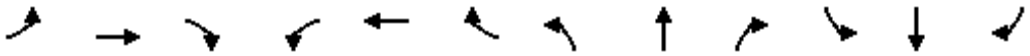
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	136	21	28	0	41	0	381	46	50	422	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	
Flpb, ped/bikes	0.99	1.00			1.00			1.00			1.00	
Frt	1.00	0.98			0.92			0.98			1.00	
Flt Protected	0.95	1.00			0.98			1.00			0.99	
Satd. Flow (prot)	1751	1819			1648			3453			3509	
Flt Permitted	0.71	1.00			0.88			1.00			0.87	
Satd. Flow (perm)	1306	1819			1480			3453			3052	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	14	148	23	30	0	45	0	414	50	54	459	0
RTOR Reduction (vph)	0	13	0	0	26	0	0	21	0	0	0	0
Lane Group Flow (vph)	14	158	0	0	49	0	0	443	0	0	513	0
Confl. Peds. (#/hr)	16		16	17		17	43		43	44		44
Confl. Bikes (#/hr)			2						2			16
Turn Type	Perm			Perm						Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2						4		
Actuated Green, G (s)	19.0	19.0			19.0			17.0			17.0	
Effective Green, g (s)	19.0	19.0			19.0			17.0			17.0	
Actuated g/C Ratio	0.42	0.42			0.42			0.38			0.38	
Clearance Time (s)	4.0	4.0			4.0			5.0			5.0	
Vehicle Extension (s)	2.0	2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)	551	768			625			1304			1153	
v/s Ratio Prot		c0.09						0.13				
v/s Ratio Perm	0.01				0.03						c0.17	
v/c Ratio	0.03	0.21			0.08			0.34			0.44	
Uniform Delay, d1	7.6	8.2			7.8			10.0			10.5	
Progression Factor	1.00	1.00			1.28			1.00			1.00	
Incremental Delay, d2	0.1	0.6			0.2			0.7			1.2	
Delay (s)	7.7	8.8			10.2			10.7			11.7	
Level of Service	A	A			B			B			B	
Approach Delay (s)		8.7			10.2			10.7			11.7	
Approach LOS		A			B			B			B	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	92	24	15	234	119	40	547	28	188	194	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5		4.5	4.5	
Lane Util. Factor		0.95			0.95			0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99			1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00			1.00		1.00	1.00	
Frt		0.97			0.95			0.99		1.00	0.96	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3402			3325			3498		1769	3381	
Flt Permitted		0.85			0.94			0.92		0.32	1.00	
Satd. Flow (perm)		2921			3128			3216		589	3381	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	100	26	16	249	129	43	558	30	204	211	76
RTOR Reduction (vph)	0	21	0	0	106	0	0	5	0	0	25	0
Lane Group Flow (vph)	0	129	0	0	288	0	0	626	0	204	262	0
Confl. Peds. (#/hr)	10		10	19		19	5		5	4		4
Confl. Bikes (#/hr)			4			1			3			9
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		10.9			10.9			27.3		40.1	40.1	
Effective Green, g (s)		10.9			10.9			27.3		40.1	40.1	
Actuated g/C Ratio		0.18			0.18			0.46		0.67	0.67	
Clearance Time (s)		4.5			4.5			4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		531			568			1463		557	2260	
v/s Ratio Prot										c0.05	0.08	
v/s Ratio Perm		0.04			c0.09			c0.19		0.19		
v/c Ratio		0.24			0.51			0.43		0.37	0.12	
Uniform Delay, d1		21.0			22.1			11.1		4.4	3.6	
Progression Factor		1.00			1.02			1.00		1.00	1.00	
Incremental Delay, d2		0.2			0.7			0.9		0.4	0.1	
Delay (s)		21.3			23.1			12.0		4.8	3.7	
Level of Service		C			C			B		A	A	
Approach Delay (s)		21.3			23.1			12.0			4.1	
Approach LOS		C			C			B			A	

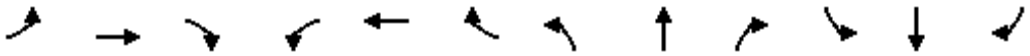
Intersection Summary			
HCM Average Control Delay	13.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	176	71	56	177	128	69	552	79	72	477	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.98			0.96			0.99			1.00	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.96			0.95			0.98			0.99	
Flt Protected		1.00			0.99			1.00			0.99	
Satd. Flow (prot)		3317			3151			3413			4982	
Flt Permitted		0.94			0.87			0.84			0.78	
Satd. Flow (perm)		3118			2752			2888			3896	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	191	77	61	192	139	75	594	86	78	518	33
RTOR Reduction (vph)	0	49	0	0	88	0	0	17	0	0	10	0
Lane Group Flow (vph)	0	230	0	0	304	0	0	738	0	0	619	0
Confl. Peds. (#/hr)	58		58	99		99	72		72	49		49
Confl. Bikes (#/hr)			7			33			10			6
Turn Type	Perm			Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						6		
Actuated Green, G (s)		22.0			22.0			29.0			18.0	
Effective Green, g (s)		22.0			22.0			29.0			18.0	
Actuated g/C Ratio		0.37			0.37			0.48			0.30	
Clearance Time (s)		4.0			4.0			5.0			5.0	
Lane Grp Cap (vph)		1143			1009			1457			1169	
v/s Ratio Prot								c0.06				
v/s Ratio Perm		0.07			c0.11			c0.19			0.16	
v/c Ratio		0.20			0.30			0.51			0.53	
Uniform Delay, d1		13.0			13.5			10.6			17.5	
Progression Factor		0.85			1.00			1.00			1.00	
Incremental Delay, d2		0.4			0.8			1.3			1.7	
Delay (s)		11.4			14.3			11.9			19.2	
Level of Service		B			B			B			B	
Approach Delay (s)		11.4			14.3			11.9			19.2	
Approach LOS		B			B			B			B	

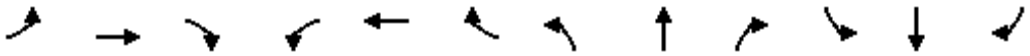
Intersection Summary			
HCM Average Control Delay	14.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



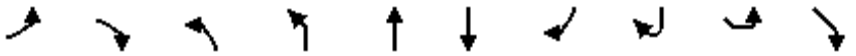
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	330	0	0	301	102	39	227	113	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.91	1.00			
Frpb, ped/bikes		1.00			1.00	0.93		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3513			3366	1337		5008	1458			
Flt Permitted		0.91			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3198			3366	1337		5008	1458			
Peak-hour factor, PHF	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	359	0	0	327	111	42	247	123	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	22	0	0	107	0	0	0
Lane Group Flow (vph)	0	394	0	0	337	79	0	289	16	0	0	0
Confl. Peds. (#/hr)	40		40	45		45	51		51	207		207
Confl. Bikes (#/hr)			5			6			8			12
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		62.8			62.8	62.8		10.2	10.2			
Effective Green, g (s)		62.8			62.8	62.8		10.2	10.2			
Actuated g/C Ratio		0.78			0.78	0.78		0.13	0.13			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2510			2642	1050		639	186			
v/s Ratio Prot					0.10							
v/s Ratio Perm		c0.12				0.06		0.06	0.01			
v/c Ratio		0.16			0.13	0.07		0.45	0.08			
Uniform Delay, d1		2.1			2.1	2.0		32.3	30.8			
Progression Factor		1.00			0.28	0.14		1.00	1.00			
Incremental Delay, d2		0.1			0.1	0.1		0.5	0.2			
Delay (s)		2.2			0.7	0.4		32.8	31.0			
Level of Service		A			A	A		C	C			
Approach Delay (s)		2.2			0.6			32.3			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



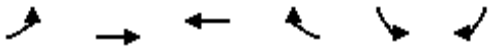
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	270	179	188	298	0	0	0	0	80	406	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	0.91	0.91						0.91	
Frpb, ped/bikes		1.00	0.90	1.00	1.00						0.94	
Flpb, ped/bikes		1.00	1.00	1.00	0.99						0.96	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		3539	1422	1610	3354						4451	
Flt Permitted		1.00	1.00	0.95	0.93						0.99	
Satd. Flow (perm)		3539	1422	1610	3134						4451	
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	293	188	204	324	0	0	0	0	87	441	116
RTOR Reduction (vph)	0	0	91	0	0	0	0	0	0	0	43	0
Lane Group Flow (vph)	0	293	97	171	357	0	0	0	0	0	601	0
Confl. Peds. (#/hr)	53		53	86		86	105		105	331		331
Confl. Bikes (#/hr)			16			2			1			14
Turn Type			Perm	Prot						Perm		
Protected Phases		2		1	6						4	
Permitted Phases			2							4		
Actuated Green, G (s)		21.0	21.0	16.0	41.0						31.0	
Effective Green, g (s)		21.0	21.0	16.0	41.0						31.0	
Actuated g/C Ratio		0.26	0.26	0.20	0.51						0.39	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		929	373	322	1650						1725	
v/s Ratio Prot		c0.08		c0.11	0.04							
v/s Ratio Perm			0.07		0.07						0.13	
v/c Ratio		0.32	0.26	0.53	0.22						0.35	
Uniform Delay, d1		23.7	23.4	28.6	10.7						17.3	
Progression Factor		1.05	1.25	1.17	1.93						1.16	
Incremental Delay, d2		0.9	1.7	0.7	0.0						0.0	
Delay (s)		25.7	31.0	34.3	20.6						20.2	
Level of Service		C	C	C	C						C	
Approach Delay (s)		27.8			25.0			0.0			20.2	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL2	NBL	NBT	SBT	SBR	SBR2	SEL	SER
Lane Configurations										
Volume (vph)	175	204	102	62	451	516	555	116	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0				4.0	4.0	4.0	4.0		
Lane Util. Factor	0.94				0.95	0.91	0.91	1.00		
Frpb, ped/bikes	1.00				1.00	1.00	1.00	1.00		
Flpb, ped/bikes	1.00				1.00	1.00	1.00	1.00		
Frt	0.92				1.00	0.96	0.85	0.85		
Flt Protected	0.98				0.99	1.00	1.00	1.00		
Satd. Flow (prot)	4720				3492	3245	1441	1583		
Flt Permitted	0.98				0.99	1.00	1.00	1.00		
Satd. Flow (perm)	4720				3492	3245	1441	1583		
Peak-hour factor, PHF	0.92	0.92	0.94	0.94	0.96	0.92	0.96	0.96	0.92	0.92
Adj. Flow (vph)	190	222	109	66	470	561	578	121	0	0
RTOR Reduction (vph)	169	0	0	0	0	0	0	48	0	0
Lane Group Flow (vph)	243	0	0	0	645	786	353	73	0	0
Confl. Peds. (#/hr)								102		
Confl. Bikes (#/hr)					6			10		
Turn Type			Split	Split			custom	custom		
Protected Phases	1		8	8	8	2	6	6		
Permitted Phases	1						6			
Actuated Green, G (s)	19.0				24.0	25.0	48.0	48.0		
Effective Green, g (s)	19.0				24.0	25.0	48.0	48.0		
Actuated g/C Ratio	0.24				0.30	0.31	0.60	0.60		
Clearance Time (s)	4.0				4.0	4.0	4.0	4.0		
Vehicle Extension (s)	2.0				2.0	2.0	2.0	2.0		
Lane Grp Cap (vph)	1121				1048	1014	865	950		
v/s Ratio Prot	0.05				c0.18	c0.24	c0.24	0.05		
v/s Ratio Perm										
v/c Ratio	0.22				0.62	0.78	0.41	0.08		
Uniform Delay, d1	24.5				24.0	24.9	8.5	6.7		
Progression Factor	2.62				1.00	0.59	0.65	0.27		
Incremental Delay, d2	0.4				0.8	3.2	1.3	0.1		
Delay (s)	64.6				24.8	18.0	6.8	2.0		
Level of Service	E				C	B	A	A		
Approach Delay (s)	64.6				24.8	13.4			0.0	
Approach LOS	E				C	B			A	

Intersection Summary			
HCM Average Control Delay	25.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	40	350	550	0	0	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	43	380	598	0	0	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		431	98			
pX, platoon unblocked						
vC, conflicting volume	598				812	299
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	598				812	299
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				100	94
cM capacity (veh/h)	975				303	697

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	SB 1
Volume Total	43	127	127	127	299	299	41
Volume Left	43	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	41
cSH	975	1700	1700	1700	1700	1700	697
Volume to Capacity	0.04	0.07	0.07	0.07	0.18	0.18	0.06
Queue Length 95th (ft)	3	0	0	0	0	0	5
Control Delay (s)	8.9	0.0	0.0	0.0	0.0	0.0	10.5
Lane LOS	A						B
Approach Delay (s)	0.9				0.0		10.5
Approach LOS							B

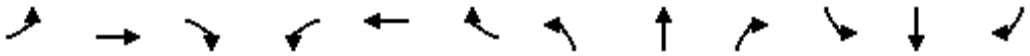
Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	570	56	532	995	192	1129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.91		0.97	0.91	0.97	0.91
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	0.89	0.85
Flt Protected	1.00		0.95	1.00	0.99	1.00
Satd. Flow (prot)	5017		3433	5085	3173	1441
Flt Permitted	1.00		0.95	1.00	0.99	1.00
Satd. Flow (perm)	5017		3433	5085	3173	1441
Peak-hour factor, PHF	0.92	0.92	0.96	0.92	0.92	0.97
Adj. Flow (vph)	620	61	554	1082	209	1164
RTOR Reduction (vph)	15	0	0	0	347	347
Lane Group Flow (vph)	666	0	554	1082	444	235
Confl. Bikes (#/hr)				2		
Turn Type			Prot			Perm
Protected Phases	8		7	4	6	
Permitted Phases						6
Actuated Green, G (s)	33.0		16.4	54.4	17.6	17.6
Effective Green, g (s)	33.0		16.4	54.4	17.6	17.6
Actuated g/C Ratio	0.41		0.20	0.68	0.22	0.22
Clearance Time (s)	5.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2070		704	3458	698	317
v/s Ratio Prot	0.13		c0.16	c0.21	0.14	
v/s Ratio Perm						c0.16
v/c Ratio	0.32		0.79	0.31	0.64	0.74
Uniform Delay, d1	15.9		30.1	5.2	28.3	29.1
Progression Factor	0.59		0.83	1.29	1.00	1.00
Incremental Delay, d2	0.4		8.3	0.2	1.9	9.0
Delay (s)	9.8		33.5	6.9	30.2	38.1
Level of Service	A		C	A	C	D
Approach Delay (s)	9.8			15.9	33.5	
Approach LOS	A			B	C	

Intersection Summary			
HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



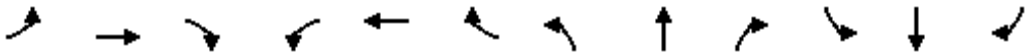
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	82	110	0	0	0	0	0	3648	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0						6.0	
Lane Util. Factor				1.00	0.95						0.86	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				1.00	1.00						1.00	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1770	3539						6403	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1770	3539						6403	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92
Adj. Flow (vph)	0	0	0	88	120	0	0	0	0	0	3800	15
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	88	120	0	0	0	0	0	3815	0
Confl. Peds. (#/hr)												14
Confl. Bikes (#/hr)			1									
Turn Type				Perm								
Protected Phases					4						6	
Permitted Phases				4								
Actuated Green, G (s)				9.2	9.2						56.8	
Effective Green, g (s)				9.2	9.2						56.8	
Actuated g/C Ratio				0.12	0.12						0.76	
Clearance Time (s)				3.0	3.0						6.0	
Vehicle Extension (s)				3.0	3.0						4.0	
Lane Grp Cap (vph)				217	434						4849	
v/s Ratio Prot					0.03						c0.60	
v/s Ratio Perm				c0.05								
v/c Ratio				0.41	0.28						0.79	
Uniform Delay, d1				30.4	29.9						5.5	
Progression Factor				1.00	1.00						0.97	
Incremental Delay, d2				5.5	1.6						0.9	
Delay (s)				35.9	31.5						6.2	
Level of Service				D	C						A	
Approach Delay (s)		0.0			33.3			0.0			6.2	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM Average Control Delay	7.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



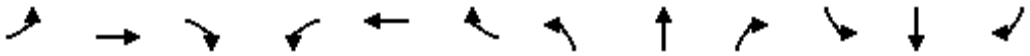
Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	219	1172	646	84	594	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0		5.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.98		0.97	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	5085	4970		3376	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1770	5085	4970		3376	
Peak-hour factor, PHF	0.92	0.96	0.95	0.92	0.94	0.92
Adj. Flow (vph)	238	1221	680	91	632	142
RTOR Reduction (vph)	30	0	25	0	0	0
Lane Group Flow (vph)	208	1221	746	0	774	0
Confl. Peds. (#/hr)				22		
Confl. Bikes (#/hr)				2		
Turn Type	Perm					
Protected Phases		4	2		1	
Permitted Phases	4					
Actuated Green, G (s)	32.1	32.1	17.4		13.5	
Effective Green, g (s)	32.1	32.1	17.4		13.5	
Actuated g/C Ratio	0.43	0.43	0.23		0.18	
Clearance Time (s)	3.0	3.0	4.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	758	2176	1153		608	
v/s Ratio Prot		c0.24	c0.15		c0.23	
v/s Ratio Perm	0.12					
v/c Ratio	0.27	0.56	0.65		1.27	
Uniform Delay, d1	13.9	16.1	26.0		30.8	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.9	1.1	1.3		135.4	
Delay (s)	14.8	17.2	27.3		166.1	
Level of Service	B	B	C		F	
Approach Delay (s)		16.8	27.3		166.1	
Approach LOS		B	C		F	

Intersection Summary			
HCM Average Control Delay	58.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



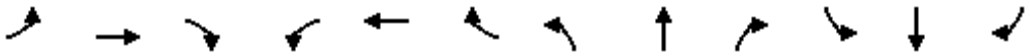
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	180	281	357	358	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	5.0	5.0				
Lane Util. Factor					0.91	0.91	0.81	0.81				
Frpb, ped/bikes					0.99	0.99	1.00	1.00				
Flpb, ped/bikes					1.00	1.00	0.99	1.00				
Frt					0.93	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	0.98				
Satd. Flow (prot)					3150	1423	1425	5925				
Flt Permitted					1.00	1.00	0.95	0.98				
Satd. Flow (perm)					3150	1423	1425	5925				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	191	305	388	389	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	56	59	154	154	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	284	98	40	429	0	0	0	0
Confl. Peds. (#/hr)							5		5			
Confl. Bikes (#/hr)			6			2			5			
Turn Type						Perm	Perm					
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					37.5	37.5	12.5	12.5				
Effective Green, g (s)					37.5	37.5	12.5	12.5				
Actuated g/C Ratio					0.62	0.62	0.21	0.21				
Clearance Time (s)					5.0	5.0	5.0	5.0				
Vehicle Extension (s)					3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)					1969	889	297	1234				
v/s Ratio Prot					c0.09							
v/s Ratio Perm						0.07	0.03	0.07				
v/c Ratio					0.14	0.11	0.14	0.35				
Uniform Delay, d1					4.6	4.5	19.4	20.3				
Progression Factor					3.81	6.84	1.00	1.00				
Incremental Delay, d2					0.1	0.1	0.2	0.2				
Delay (s)					17.8	31.1	19.6	20.4				
Level of Service					B	C	B	C				
Approach Delay (s)		0.0			22.0			20.2			0.0	
Approach LOS		A			C			C			A	

Intersection Summary			
HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	30.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	198	44	0	0	0	0	0	0	1216	1366	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		0.95								0.86	0.86	
Frpb, ped/bikes		1.00								1.00	1.00	
Flpb, ped/bikes		1.00								1.00	1.00	
Frt		0.97								1.00	1.00	
Flt Protected		1.00								0.95	0.99	
Satd. Flow (prot)		3427								1522	4723	
Flt Permitted		1.00								0.95	0.99	
Satd. Flow (perm)		3427								1522	4723	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	213	48	0	0	0	0	0	0	1322	1485	41
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	345	63	0
Lane Group Flow (vph)	0	257	0	0	0	0	0	0	0	356	2084	0
Confl. Peds. (#/hr)	6		6									
Confl. Bikes (#/hr)			1						1			1
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		62.0								50.0	50.0	
Effective Green, g (s)		62.0								50.0	50.0	
Actuated g/C Ratio		0.52								0.42	0.42	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		1771								634	1968	
v/s Ratio Prot		c0.08										
v/s Ratio Perm										0.23	0.44	
v/c Ratio		0.15								0.56	1.06	
Uniform Delay, d1		15.2								26.7	35.0	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.2								3.6	38.0	
Delay (s)		15.3								30.2	73.0	
Level of Service		B								C	E	
Approach Delay (s)		15.3			0.0			0.0			62.5	
Approach LOS		B			A			A			E	

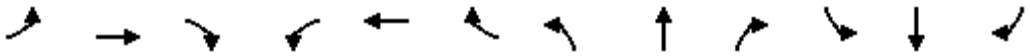
Intersection Summary			
HCM Average Control Delay	58.5	HCM Level of Service	E
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	353	0	0	740	649	157	683	31	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Util. Factor		0.95			0.95	1.00		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.98		1.00	0.97			
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3515			3539	1548		3491	1531			
Flt Permitted		0.71			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		2520			3539	1548		3491	1531			
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92	0.92
Adj. Flow (vph)	50	384	0	0	804	676	171	711	34	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	117	0	0	16	0	0	0
Lane Group Flow (vph)	0	434	0	0	804	559	0	882	18	0	0	0
Confl. Peds. (#/hr)	35		35	6		6	26		26	2		2
Confl. Bikes (#/hr)			33			6		10				5
Turn Type	Perm			Perm		Perm	Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4			8		8	2		2			
Actuated Green, G (s)		18.0			18.0	18.0		32.0	32.0			
Effective Green, g (s)		18.0			18.0	18.0		32.0	32.0			
Actuated g/C Ratio		0.30			0.30	0.30		0.53	0.53			
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Grp Cap (vph)		756			1062	464		1862	817			
v/s Ratio Prot					0.23							
v/s Ratio Perm		0.17				c0.36		0.25	0.01			
v/c Ratio		0.57			0.76	1.20		0.47	0.02			
Uniform Delay, d1		17.8			19.0	21.0		8.7	6.6			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		3.2			5.0	111.2		0.9	0.1			
Delay (s)		20.9			24.1	132.2		9.6	6.7			
Level of Service		C			C	F		A	A			
Approach Delay (s)		20.9			73.4			9.5			0.0	
Approach LOS		C			E			A			A	

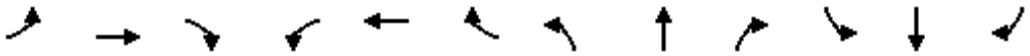
Intersection Summary			
HCM Average Control Delay	44.7	HCM Level of Service	D
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	91.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



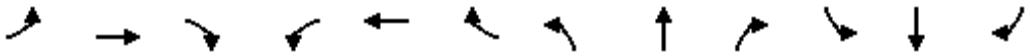
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	315	135	156	930	0	0	0	0	212	417	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0					4.0	4.0	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frpb, ped/bikes		0.99			1.00					1.00	1.00	
Flpb, ped/bikes		1.00			1.00					0.99	1.00	
Frt		0.95			1.00					1.00	0.99	
Flt Protected		1.00			0.99					0.95	1.00	
Satd. Flow (prot)		3335			3507					1746	3505	
Flt Permitted		1.00			0.80					0.95	1.00	
Satd. Flow (perm)		3335			2819					1746	3505	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.96	0.92
Adj. Flow (vph)	0	342	147	170	969	0	0	0	0	230	434	25
RTOR Reduction (vph)	0	85	0	0	0	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	404	0	0	1139	0	0	0	0	230	450	0
Confl. Peds. (#/hr)	36		36	28		28	18		18	16		16
Confl. Bikes (#/hr)			4			10			3			1
Turn Type				Perm						Perm		
Protected Phases		8			4						6	
Permitted Phases				4						6		
Actuated Green, G (s)		19.0			19.0					19.0	19.0	
Effective Green, g (s)		19.0			19.0					19.0	19.0	
Actuated g/C Ratio		0.42			0.42					0.42	0.42	
Clearance Time (s)		3.0			3.0					4.0	4.0	
Vehicle Extension (s)		2.0			2.0					2.0	2.0	
Lane Grp Cap (vph)		1408			1190					737	1480	
v/s Ratio Prot		0.12									0.13	
v/s Ratio Perm					c0.40					c0.13		
v/c Ratio		0.29			0.96					0.31	0.30	
Uniform Delay, d1		8.5			12.6					8.7	8.6	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		0.5			17.6					1.1	0.5	
Delay (s)		9.1			30.2					9.8	9.1	
Level of Service		A			C					A	A	
Approach Delay (s)		9.1			30.2			0.0			9.3	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM Average Control Delay	19.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	191	14	9	460	114	76	478	31	34	85	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.97			0.99			0.97	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		3462			3387			3466			3344	
Flt Permitted		0.81			0.95			0.89			0.80	
Satd. Flow (perm)		2846			3222			3109			2721	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	208	15	10	500	124	83	520	34	37	92	35
RTOR Reduction (vph)	0	8	0	0	42	0	0	10	0	0	23	0
Lane Group Flow (vph)	0	270	0	0	592	0	0	627	0	0	141	0
Confl. Peds. (#/hr)	30		30	55		55	41		41	40		40
Confl. Bikes (#/hr)			7			19			6			4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		22.2			22.2			15.3			15.3	
Effective Green, g (s)		22.2			22.2			15.3			15.3	
Actuated g/C Ratio		0.49			0.49			0.34			0.34	
Clearance Time (s)		3.5			3.5			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1404			1590			1057			925	
v/s Ratio Prot												
v/s Ratio Perm		0.10			c0.18			c0.20			0.05	
v/c Ratio		0.19			0.37			0.59			0.15	
Uniform Delay, d1		6.4			7.1			12.3			10.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			0.7			0.9			0.1	
Delay (s)		6.7			7.7			13.2			10.4	
Level of Service		A			A			B			B	
Approach Delay (s)		6.7			7.7			13.2			10.4	
Approach LOS		A			A			B			B	

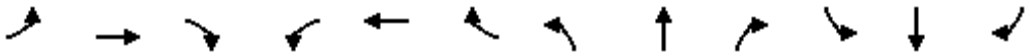
Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	478	1728	0	0	0	0	0	591	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.86						0.91	
Frpb, ped/bikes					1.00						0.99	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.98	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					6291						4933	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					6291						4933	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.98	0.92
Adj. Flow (vph)	0	0	0	520	1781	0	0	0	0	0	603	113
RTOR Reduction (vph)	0	0	0	0	87	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	0	0	2214	0	0	0	0	0	714	0
Confl. Peds. (#/hr)	48		48	30		30	54		54	27		27
Confl. Bikes (#/hr)			9			5			4			1
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2726						2179	
v/s Ratio Prot											c0.14	
v/s Ratio Perm					0.35							
v/c Ratio					0.81						0.33	
Uniform Delay, d1					14.9						10.9	
Progression Factor					0.48						1.00	
Incremental Delay, d2					2.1						0.4	
Delay (s)					9.1						11.3	
Level of Service					A						B	
Approach Delay (s)		0.0			9.1			0.0			11.3	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

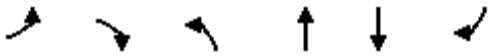
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1936	89	372	904	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5			4.0				
Lane Util. Factor					0.86			0.86				
Frpb, ped/bikes					1.00			1.00				
Flpb, ped/bikes					1.00			0.98				
Frt					0.99			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6342			6163				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6342			6163				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.93	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1996	97	400	983	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	6	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2087	0	0	1382	0	0	0	0
Confl. Peds. (#/hr)	102		102	84		84	84		84	168		168
Confl. Bikes (#/hr)			1									1
Turn Type							Perm					
Protected Phases					6			4				
Permitted Phases							4					
Actuated Green, G (s)					29.9			20.6				
Effective Green, g (s)					29.9			20.6				
Actuated g/C Ratio					0.50			0.34				
Clearance Time (s)					5.5			4.0				
Lane Grp Cap (vph)					3160			2116				
v/s Ratio Prot					c0.33							
v/s Ratio Perm								0.22				
v/c Ratio					0.66			0.65				
Uniform Delay, d1					11.3			16.7				
Progression Factor					1.00			1.00				
Incremental Delay, d2					1.1			1.6				
Delay (s)					12.4			18.3				
Level of Service					B			B				
Approach Delay (s)		0.0			12.4			18.3			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

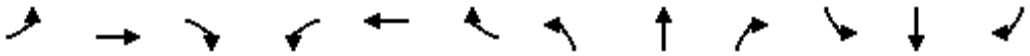
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	76	0	0	1222	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.99	0.92	0.92
Hourly flow rate (vph)	83	0	0	1234	0	0
Pedestrians	12					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1055	320	
pX, platoon unblocked						
vC, conflicting volume	321	12	12			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	321	12	12			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	100	100			
cM capacity (veh/h)	641	1055	1589			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	83	309	309	309	309
Volume Left	83	0	0	0	0
Volume Right	0	0	0	0	0
cSH	641	1700	1700	1700	1700
Volume to Capacity	0.13	0.18	0.18	0.18	0.18
Queue Length 95th (ft)	11	0	0	0	0
Control Delay (s)	11.4	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.4	0.0			
Approach LOS	B				

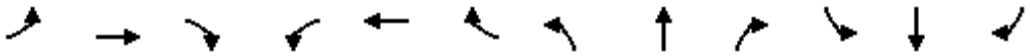
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	457	174	0	0	0	0	0	0	64	949	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5									5.5	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.96									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		6057									5063	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		6057									5063	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	0	497	189	0	0	0	0	0	0	70	999	0
RTOR Reduction (vph)	0	27	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	659	0	0	0	0	0	0	0	0	1056	0
Confl. Peds. (#/hr)	32		32	21		21	23		23	17		17
Confl. Bikes (#/hr)			10			10			2			3
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		23.0									26.0	
Effective Green, g (s)		23.0									26.0	
Actuated g/C Ratio		0.38									0.43	
Clearance Time (s)		5.5									5.5	
Lane Grp Cap (vph)		2322									2194	
v/s Ratio Prot		c0.11										
v/s Ratio Perm											0.21	
v/c Ratio		0.28									0.48	
Uniform Delay, d1		12.8									12.2	
Progression Factor		0.78									0.96	
Incremental Delay, d2		0.3									0.6	
Delay (s)		10.3									12.4	
Level of Service		B									B	
Approach Delay (s)		10.3			0.0			0.0			12.4	
Approach LOS		B			A			A			B	

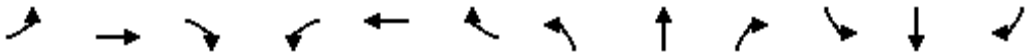
Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	463	0	0	0	0	0	377	68	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.86						0.86				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6304						6231				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6304						6231				
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	498	0	0	0	0	0	410	74	0	0	0
RTOR Reduction (vph)	0	90	0	0	0	0	0	21	0	0	0	0
Lane Group Flow (vph)	0	516	0	0	0	0	0	463	0	0	0	0
Confl. Peds. (#/hr)	46		46	56		56	21		21	52		52
Confl. Bikes (#/hr)			2			2			5			
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		10.0						43.0				
Effective Green, g (s)		10.0						43.0				
Actuated g/C Ratio		0.17						0.72				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		1051						4466				
v/s Ratio Prot								c0.07				
v/s Ratio Perm		0.08										
v/c Ratio		0.49						0.10				
Uniform Delay, d1		22.7						2.6				
Progression Factor		1.03						1.00				
Incremental Delay, d2		0.1						0.0				
Delay (s)		23.5						2.6				
Level of Service		C						A				
Approach Delay (s)		23.5			0.0			2.6			0.0	
Approach LOS		C			A			A			A	

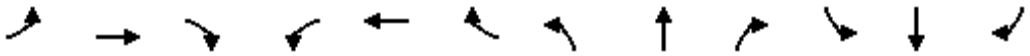
Intersection Summary			
HCM Average Control Delay	14.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	739	0	0	0	0	0	1269	334	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		0.86						0.91				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.97				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6335						4904				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6335						4904				
Peak-hour factor, PHF	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	803	0	0	0	0	0	1379	363	0	0	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	39	0	0	0	0
Lane Group Flow (vph)	0	966	0	0	0	0	0	1703	0	0	0	0
Confl. Peds. (#/hr)	22		22	59		59	12		12	5		5
Confl. Bikes (#/hr)			6			4			2			1
Turn Type	Perm											
Protected Phases		1						2				
Permitted Phases	1											
Actuated Green, G (s)		18.0						18.0				
Effective Green, g (s)		18.0						18.0				
Actuated g/C Ratio		0.40						0.40				
Clearance Time (s)		4.5						4.5				
Lane Grp Cap (vph)		2534						1962				
v/s Ratio Prot								c0.35				
v/s Ratio Perm		0.15										
v/c Ratio		0.38						0.87				
Uniform Delay, d1		9.6						12.4				
Progression Factor		0.85						0.77				
Incremental Delay, d2		0.3						3.6				
Delay (s)		8.4						13.2				
Level of Service		A						B				
Approach Delay (s)		8.4			0.0			13.2			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		

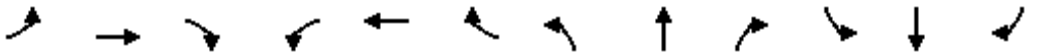
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	647	564	0	0	0	0	0	0	270	1578	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									3.0	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.93									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		5917									5041	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		5917									5041	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.92
Adj. Flow (vph)	0	703	613	0	0	0	0	0	0	293	1610	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	57	0
Lane Group Flow (vph)	0	1312	0	0	0	0	0	0	0	0	1846	0
Confl. Peds. (#/hr)	4		4	10		10	8		8	11		11
Confl. Bikes (#/hr)			1						7			2
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		18.0									20.0	
Effective Green, g (s)		18.0									20.0	
Actuated g/C Ratio		0.40									0.44	
Clearance Time (s)		4.0									3.0	
Vehicle Extension (s)		2.0									2.0	
Lane Grp Cap (vph)		2367									2240	
v/s Ratio Prot		c0.22										
v/s Ratio Perm											0.37	
v/c Ratio		0.95dr									0.82	
Uniform Delay, d1		10.4									11.0	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.9									3.6	
Delay (s)		11.3									14.6	
Level of Service		B									B	
Approach Delay (s)		11.3			0.0			0.0			14.6	
Approach LOS		B			A			A			B	

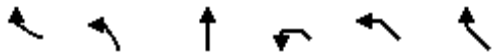
Intersection Summary			
HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	27	400	61	260	325	0	0	192	2043
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.95		1.00			1.00	0.98
Flpb, ped/bikes				0.98	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1736	1863	1503		1821			1863	1558
Flt Permitted				0.95	1.00	1.00		0.76			1.00	1.00
Satd. Flow (perm)				1736	1863	1503		1413			1863	1558
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.95
Adj. Flow (vph)	0	0	0	29	417	66	283	353	0	0	209	2151
RTOR Reduction (vph)	0	0	0	0	0	47	0	0	0	0	0	76
Lane Group Flow (vph)	0	0	0	29	417	19	0	636	0	0	209	2075
Confl. Peds. (#/hr)	1		1	23		23	2		2	5		5
Confl. Bikes (#/hr)			2									
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					1			2			2	
Permitted Phases				1		1	2					2
Actuated Green, G (s)				12.8	12.8	12.8		21.2			21.2	21.2
Effective Green, g (s)				12.8	12.8	12.8		21.2			21.2	21.2
Actuated g/C Ratio				0.28	0.28	0.28		0.47			0.47	0.47
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				494	530	428		666			878	734
v/s Ratio Prot					c0.22						0.11	
v/s Ratio Perm				0.02		0.01		0.45				c1.33
v/c Ratio				0.06	0.79	0.04		0.95			0.24	2.83
Uniform Delay, d1				11.7	14.8	11.7		11.4			7.1	11.9
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.0	7.6	0.0		25.4			0.6	826.1
Delay (s)				11.8	22.4	11.7		36.9			7.7	838.0
Level of Service				B	C	B		D			A	F
Approach Delay (s)		0.0			20.4			36.9			764.5	
Approach LOS		A			C			D			F	

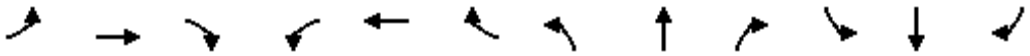
Intersection Summary			
HCM Average Control Delay	524.0	HCM Level of Service	F
HCM Volume to Capacity ratio	2.06		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	193.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBR	NBL	NBT	NWL2	NWL	NWR
Lane Configurations						
Volume (vph)	0	166	580	162	65	997
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5		2.0	2.0
Lane Util. Factor			0.95		0.97	0.91
Frpb, ped/bikes			1.00		1.00	1.00
Flpb, ped/bikes			1.00		1.00	1.00
Frt			1.00		0.90	0.85
Flt Protected			0.99		0.98	1.00
Satd. Flow (prot)			3497		3191	1441
Flt Permitted			0.99		0.98	1.00
Satd. Flow (perm)			3497		3191	1441
Peak-hour factor, PHF	0.92	0.92	0.96	0.92	0.92	0.92
Adj. Flow (vph)	0	180	604	176	71	1084
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	784	0	789	542
Confl. Peds. (#/hr)	51	2				
Confl. Bikes (#/hr)	2					
Turn Type	custom	Perm		Perm		Perm
Protected Phases			3		1	
Permitted Phases	2	3		1		1
Actuated Green, G (s)			16.3		16.2	16.2
Effective Green, g (s)			16.3		16.2	16.2
Actuated g/C Ratio			0.36		0.36	0.36
Clearance Time (s)			3.5		2.0	2.0
Lane Grp Cap (vph)			1267		1149	519
v/s Ratio Prot						
v/s Ratio Perm			0.22		0.25	c0.38
v/c Ratio			0.62		0.95dr	1.04
Uniform Delay, d1			11.8		12.2	14.4
Progression Factor			0.85		1.00	1.00
Incremental Delay, d2			0.2		3.4	51.6
Delay (s)			10.2		15.6	66.0
Level of Service			B		B	E
Approach Delay (s)			10.2		36.1	
Approach LOS			B		D	

Intersection Summary			
HCM Average Control Delay	26.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	410	746	206	0	0	0	0	311	92	4	158	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5			3.5	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		0.99						1.00			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		0.98						0.97			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4857						1800			1861	
Flt Permitted		0.99						1.00			0.99	
Satd. Flow (perm)		1850						1500			1600	
Peak-hour factor, PHF	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	432	811	224	0	0	0	0	338	100	4	172	0
RTOR Reduction (vph)	0	58	0	0	0	0	0	24	0	0	0	0
Lane Group Flow (vph)	0	1410	0	0	0	0	0	414	0	0	176	0
Confl. Peds. (#/hr)	14		14	52		52	1		1	4		4
Confl. Bikes (#/hr)			5			2						
Turn Type	Perm									Perm		
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		22.5						15.5			15.5	
Effective Green, g (s)		22.5						15.5			15.5	
Actuated g/C Ratio		0.50						0.34			0.34	
Clearance Time (s)		3.5						3.5			3.5	
Lane Grp Cap (vph)		925						620			551	
v/s Ratio Prot								c0.23				
v/s Ratio Perm		c0.76									0.11	
v/c Ratio		1.52						0.67			0.32	
Uniform Delay, d1		11.2						12.6			10.9	
Progression Factor		1.00						1.00			0.91	
Incremental Delay, d2		241.2						5.6			1.1	
Delay (s)		252.5						18.2			10.9	
Level of Service		F						B			B	
Approach Delay (s)		252.5			0.0			18.2			10.9	
Approach LOS		F			A			B			B	

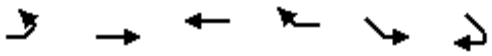
Intersection Summary			
HCM Average Control Delay	182.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	418	267	629	307	154	1364
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3365		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3365		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	454	290	684	334	167	1483
RTOR Reduction (vph)	0	209	62	0	0	0
Lane Group Flow (vph)	454	81	956	0	167	1483
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	25.1	25.1	38.9		14.0	56.9
Effective Green, g (s)	25.1	25.1	38.9		14.0	56.9
Actuated g/C Ratio	0.28	0.28	0.43		0.16	0.63
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	494	441	1454		275	2237
v/s Ratio Prot	c0.26		0.28		0.09	c0.42
v/s Ratio Perm		0.05				
v/c Ratio	0.92	0.18	0.66		0.61	0.66
Uniform Delay, d1	31.5	24.7	20.3		35.4	10.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	22.1	0.2	2.3		9.6	1.6
Delay (s)	53.5	24.9	22.6		45.0	12.0
Level of Service	D	C	C		D	B
Approach Delay (s)	42.3		22.6			15.4
Approach LOS	D		C			B

Intersection Summary			
HCM Average Control Delay	23.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	427	437	466	220	221	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3369		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3369		1770	1583
Peak-hour factor, PHF	0.94	0.96	0.92	0.92	0.92	0.92
Adj. Flow (vph)	454	455	507	239	240	238
RTOR Reduction (vph)	0	0	82	0	0	181
Lane Group Flow (vph)	454	455	664	0	240	57
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	14.1	32.4	14.3		12.7	12.7
Effective Green, g (s)	14.1	32.4	14.3		12.7	12.7
Actuated g/C Ratio	0.27	0.61	0.27		0.24	0.24
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	470	2159	907		423	379
v/s Ratio Prot	c0.26	0.13	c0.20		c0.14	
v/s Ratio Perm						0.04
v/c Ratio	0.97	0.21	0.73		0.57	0.15
Uniform Delay, d1	19.3	4.6	17.7		17.8	15.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	32.6	0.0	3.1		1.7	0.2
Delay (s)	51.8	4.7	20.7		19.5	16.1
Level of Service	D	A	C		B	B
Approach Delay (s)		28.2	20.7		17.8	
Approach LOS		C	C		B	

Intersection Summary			
HCM Average Control Delay	23.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	53.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	722	760	349	0	490	274	374	1367	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.97			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4904			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4904			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	785	826	379	0	527	298	407	1486	0
RTOR Reduction (vph)	0	0	0	22	0	0	0	129	0	0	0
Lane Group Flow (vph)	0	0	0	1968	0	0	527	169	407	1486	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				36.5			17.5	17.5	39.0	60.5	
Effective Green, g (s)				36.5			17.5	17.5	39.0	60.5	
Actuated g/C Ratio				0.34			0.17	0.17	0.37	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1689			584	261	651	2020	
v/s Ratio Prot				c0.40			c0.15		0.23	c0.42	
v/s Ratio Perm								0.11			
v/c Ratio				1.24dl			0.90	0.65	0.63	0.74	
Uniform Delay, d1				34.8			43.4	41.4	27.5	16.8	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				81.3			19.7	11.9	4.5	2.4	
Delay (s)				116.1			63.1	53.2	32.0	19.3	
Level of Service				F			E	D	C	B	
Approach Delay (s)	0.0			116.1			59.5			22.0	
Approach LOS	A			F			E			C	

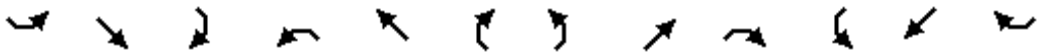
Intersection Summary			
HCM Average Control Delay	68.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	291	589	239	228	398	323	24	739	50	516
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.97	0.85		0.93				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3111	1441		3289				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3111	1441		3289				1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	316	640	260	248	423	351	26	803	54	561
RTOR Reduction (vph)	0	0	76	0	2	0	0	0	0	0
Lane Group Flow (vph)	284	820	284	0	798	0	0	0	857	561
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	32.0	32.0	32.0		29.0				32.5	65.0
Effective Green, g (s)	32.0	32.0	32.0		29.0				32.5	65.0
Actuated g/C Ratio	0.30	0.30	0.30		0.27				0.31	0.61
Clearance Time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	486	939	435		900				543	2170
v/s Ratio Prot	0.18	c0.26	0.20		c0.24				c0.48	0.16
v/s Ratio Perm										
v/c Ratio	0.58	0.87	0.65		0.89				1.58	0.26
Uniform Delay, d1	31.4	35.1	32.2		36.9				36.8	9.4
Progression Factor	0.77	0.78	0.70		1.00				1.00	1.00
Incremental Delay, d2	0.6	3.3	1.2		12.5				269.0	0.3
Delay (s)	24.8	30.8	23.7		49.5				305.7	9.7
Level of Service	C	C	C		D				F	A
Approach Delay (s)		27.9			49.5					188.6
Approach LOS		C			D					F

Intersection Summary			
HCM Average Control Delay	94.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	98.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	3040	149	551	481	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.91	1.00		*0.88				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.97				
Satd. Flow (prot)					5085	1583		4789				
Flt Permitted					1.00	1.00		0.97				
Satd. Flow (perm)					5085	1583		4789				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.93	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	3167	162	592	506	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	69	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	3167	93	0	1098	0	0	0	0
Turn Type						Perm	Perm					
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					38.0	38.0		34.0				
Effective Green, g (s)					38.0	38.0		34.0				
Actuated g/C Ratio					0.48	0.48		0.42				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					2415	752		2035				
v/s Ratio Prot					c0.62							
v/s Ratio Perm						0.06		0.23				
v/c Ratio					1.31	0.12		0.89dl				
Uniform Delay, d1					21.0	11.7		17.2				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					143.2	0.3		1.0				
Delay (s)					164.2	12.0		18.2				
Level of Service					F	B		B				
Approach Delay (s)		0.0			156.8			18.2			0.0	
Approach LOS		A			F			B			A	

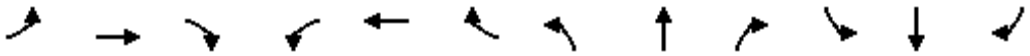
Intersection Summary			
HCM Average Control Delay	122.4	HCM Level of Service	F
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	127.7%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	1406	2049	0	0	0	0	0	1431	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4759						3524	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4759						3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	0	0	1449	2227	0	0	0	0	0	1522	46
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	898	2778	0	0	0	0	0	1565	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				46.0	46.0						26.0	
Effective Green, g (s)				46.0	46.0						26.0	
Actuated g/C Ratio				0.57	0.57						0.32	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				875	2736						1145	
v/s Ratio Prot											c0.44	
v/s Ratio Perm				c0.59	0.58							
v/c Ratio				1.03	1.02						1.37	
Uniform Delay, d1				17.0	17.0						27.0	
Progression Factor				1.36	1.34						1.00	
Incremental Delay, d2				16.7	9.6						170.8	
Delay (s)				39.8	32.5						197.8	
Level of Service				D	C						F	
Approach Delay (s)		0.0			34.3			0.0			197.8	
Approach LOS		A			C			A			F	

Intersection Summary			
HCM Average Control Delay	83.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	138.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	107	273	9	13	565	19	13	9	12	26	20	19
Peak Hour Factor	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	116	290	10	14	614	21	14	10	13	28	22	21

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	116	300	649	37	71
Volume Left (vph)	116	0	14	14	28
Volume Right (vph)	0	10	21	13	21
Hadj (s)	0.53	0.01	0.02	-0.10	-0.06
Departure Headway (s)	6.0	5.5	4.9	6.5	6.4
Degree Utilization, x	0.19	0.46	0.88	0.07	0.13
Capacity (veh/h)	576	641	731	515	521
Control Delay (s)	9.2	11.8	32.6	9.9	10.3
Approach Delay (s)	11.1		32.6	9.9	10.3
Approach LOS	B		D	A	B

Intersection Summary			
Delay	22.9		
HCM Level of Service	C		
Intersection Capacity Utilization	61.3%	ICU Level of Service	B
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp

Average Delay (sec/veh): 6.3 Worst Case Level Of Service: C[20.6]

Street Name:	Harrison Street						Stanley Place / I-580 EB Off-Ramp					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Yield Sign			Yield Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0	0 0	0	0 0	3 0	0	0 0	0 1		0 0	0 0	0
Volume Module:												
Base Vol:	0	0	0	0	987	0	0	0	433	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	987	0	0	0	433	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	987	0	0	0	433	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.92	1.00	1.00	1.00	0.92	1.00	1.00	1.00
PHF Volume:	0	0	0	0	1073	0	0	0	471	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	1073	0	0	0	471	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	358	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	691	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	691	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.68	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	5.4	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	20.6	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	C	*	*	*
Movement:	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT	LT -	LTR -	RT
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			20.6			xxxxxx		
ApproachLOS:	*			*			C			*		

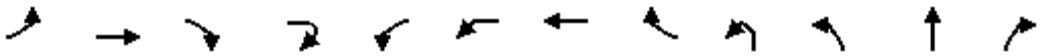
Note: Queue reported is the number of cars per lane.

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Movement	SEL2	SET	NET	NER	NER2
Lane Configurations					
Volume (vph)	934	442	1574	644	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	3.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	
Flt Protected	0.95	0.98	1.00	1.00	
Satd. Flow (prot)	1681	1738	3539	1583	
Flt Permitted	0.95	0.98	1.00	1.00	
Satd. Flow (perm)	1681	1738	3539	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1015	480	1711	700	135
RTOR Reduction (vph)	18	18	0	0	0
Lane Group Flow (vph)	723	736	1711	835	0
Confl. Peds. (#/hr)				2	
Confl. Bikes (#/hr)					
Turn Type	Perm			custom	
Protected Phases		4	5	1	
Permitted Phases	4			1	
Actuated Green, G (s)	16.0	16.0	36.5	13.5	
Effective Green, g (s)	16.0	16.0	36.5	13.5	
Actuated g/C Ratio	0.27	0.27	0.61	0.22	
Clearance Time (s)	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	448	463	2153	356	
v/s Ratio Prot			c0.48	c0.53	
v/s Ratio Perm	c0.43	0.42			
v/c Ratio	1.61	1.59	0.79	2.35	
Uniform Delay, d1	22.0	22.0	8.9	23.2	
Progression Factor	1.00	1.00	1.00	1.00	
Incremental Delay, d2	286.8	275.8	3.1	614.2	
Delay (s)	308.8	297.8	12.0	637.4	
Level of Service	F	F	B	F	
Approach Delay (s)		303.3	217.1		
Approach LOS		F	F		

Intersection Summary			
HCM Average Control Delay	249.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.43		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



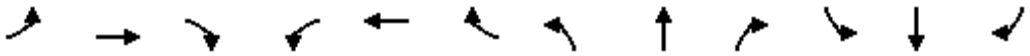
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	242	485	154	23	60	19	206	235	11	399	1069	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0			4.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00			1.00	1.00	1.00		0.97	0.95	
Frpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	0.96		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85			1.00	1.00	0.85		1.00	0.98	
Flt Protected	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583			1770	1863	1525		3433	3473	
Flt Permitted	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583			1770	1863	1525		3433	3473	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	257	516	164	24	65	21	224	255	12	434	1162	130
RTOR Reduction (vph)	0	0	6	0	0	0	0	209	0	0	10	0
Lane Group Flow (vph)	257	516	182	0	0	86	224	46	0	446	1282	0
Confl. Peds. (#/hr)	26											20
Confl. Bikes (#/hr)								20				9
Turn Type	Prot		Perm		Prot	Prot		Perm	Prot	Prot		
Protected Phases	3	8			7	7	4		1	1	6	
Permitted Phases			8					4				
Actuated Green, G (s)	17.6	25.8	25.8			8.0	16.2	16.2		14.5	27.2	
Effective Green, g (s)	17.6	25.8	25.8			8.0	16.2	16.2		14.5	27.2	
Actuated g/C Ratio	0.20	0.29	0.29			0.09	0.18	0.18		0.16	0.30	
Clearance Time (s)	4.0	5.0	5.0			4.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	346	1015	454			157	335	275		553	1050	
v/s Ratio Prot	c0.15	0.15				0.05	c0.12			0.13	c0.37	
v/s Ratio Perm			0.12					0.03				
v/c Ratio	0.74	0.51	0.40			0.55	0.67	0.17		0.81	1.22	
Uniform Delay, d1	34.1	26.8	25.9			39.3	34.4	31.2		36.4	31.4	
Progression Factor	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.4	0.4	0.6			3.9	5.0	0.3		8.4	108.2	
Delay (s)	42.4	27.2	26.5			43.1	39.4	31.5		44.8	139.6	
Level of Service	D	C	C			D	D	C		D	F	
Approach Delay (s)		31.1					36.4				115.3	
Approach LOS		C					D				F	

Intersection Summary			
HCM Average Control Delay	78.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Volume (vph)	258	584	54	91
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.97		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3434		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3434		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93
Adj. Flow (vph)	277	628	58	98
RTOR Reduction (vph)	0	13	0	0
Lane Group Flow (vph)	277	771	0	0
Confl. Peds. (#/hr)	26			
Confl. Bikes (#/hr)				
Turn Type	Prot			
Protected Phases	5	2		
Permitted Phases				
Actuated Green, G (s)	11.0	22.7		
Effective Green, g (s)	11.0	22.7		
Actuated g/C Ratio	0.12	0.25		
Clearance Time (s)	4.0	5.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	216	866		
v/s Ratio Prot	c0.16	0.22		
v/s Ratio Perm				
v/c Ratio	1.28	0.89		
Uniform Delay, d1	39.5	32.5		
Progression Factor	1.00	1.00		
Incremental Delay, d2	157.6	13.3		
Delay (s)	197.1	45.8		
Level of Service	F	D		
Approach Delay (s)		85.3		
Approach LOS		F		

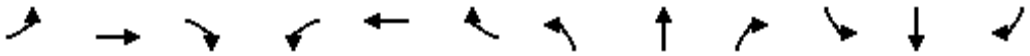
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	283	80	54	389	307	164	745	39	234	714	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97			1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1745	3386			3515	1536	1768	3509		1768	3446	
Flt Permitted	0.46	1.00			0.85	1.00	0.22	1.00		0.24	1.00	
Satd. Flow (perm)	837	3386			3000	1536	417	3509		454	3446	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	308	87	59	405	334	178	810	42	254	776	120
RTOR Reduction (vph)	0	31	0	0	0	55	0	4	0	0	14	0
Lane Group Flow (vph)	113	364	0	0	464	279	178	848	0	254	882	0
Confl. Peds. (#/hr)	32		32	10		10	6		6	5		5
Confl. Bikes (#/hr)			20			18			17			66
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			2	
Permitted Phases	4			8		8	2			2		
Actuated Green, G (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Effective Green, g (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Actuated g/C Ratio	0.42	0.42			0.42	0.42	0.45	0.45		0.45	0.45	
Clearance Time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	354	1434			1271	651	186	1569		203	1541	
v/s Ratio Prot		0.11						0.24			0.26	
v/s Ratio Perm	0.13				0.15	c0.18	0.43			c0.56		
v/c Ratio	0.32	0.25			0.37	0.43	0.96	0.54		1.25	0.57	
Uniform Delay, d1	16.3	15.8			16.7	17.3	22.7	17.1		23.5	17.5	
Progression Factor	0.92	0.91			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.7	0.3			0.8	2.1	55.6	1.3		147.0	1.5	
Delay (s)	16.8	14.7			17.5	19.3	78.3	18.5		170.5	19.0	
Level of Service	B	B			B	B	E	B		F	B	
Approach Delay (s)		15.2			18.3			28.8			52.5	
Approach LOS		B			B			C			D	

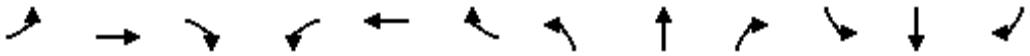
Intersection Summary			
HCM Average Control Delay	32.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	108.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	239	459	155	73	604	130	203	555	54	154	532	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1554	1769	1863	1552	1765	3480		1764	3257	
Flt Permitted	0.12	1.00	1.00	0.28	1.00	1.00	0.14	1.00		0.32	1.00	
Satd. Flow (perm)	230	1863	1554	527	1863	1552	261	3480		586	3257	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	260	499	168	79	657	141	221	603	59	167	578	440
RTOR Reduction (vph)	0	0	103	0	0	87	0	9	0	0	162	0
Lane Group Flow (vph)	260	499	65	79	657	54	221	653	0	167	856	0
Confl. Peds. (#/hr)	4		4	1		1	17		17	10		10
Confl. Bikes (#/hr)			4			10			17			28
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	43.0	32.9	32.9	33.5	27.9	27.9	33.0	33.0		33.0	33.0	
Effective Green, g (s)	43.0	32.9	32.9	33.5	27.9	27.9	33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.51	0.39	0.39	0.39	0.33	0.33	0.39	0.39		0.39	0.39	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	308	721	601	290	612	509	101	1351		228	1264	
v/s Ratio Prot	c0.11	0.27		0.02	c0.35			0.19			0.26	
v/s Ratio Perm	0.32		0.04	0.09		0.03	c0.85			0.29		
v/c Ratio	0.84	0.69	0.11	0.27	1.07	0.11	2.19	0.48		0.73	0.68	
Uniform Delay, d1	19.8	21.8	16.7	17.2	28.6	19.9	26.0	19.6		22.2	21.6	
Progression Factor	1.00	1.00	1.00	1.49	1.35	2.32	0.74	0.65		1.00	1.00	
Incremental Delay, d2	17.9	5.4	0.4	0.2	56.2	0.4	562.7	0.1		10.0	1.1	
Delay (s)	37.8	27.2	17.0	25.7	94.8	46.5	582.1	12.8		32.2	22.7	
Level of Service	D	C	B	C	F	D	F	B		C	C	
Approach Delay (s)		28.3			80.8			155.3			24.1	
Approach LOS		C			F			F			C	

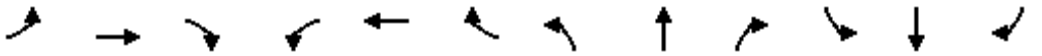
Intersection Summary			
HCM Average Control Delay	67.9	HCM Level of Service	E
HCM Volume to Capacity ratio	1.55		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	100.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	280	745	0	0	293	1032	25	940	87	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1609	3383			3539	2787		5008				
Flt Permitted	0.56	0.93			1.00	1.00		1.00				
Satd. Flow (perm)	947	3158			3539	2787		5008				
Peak-hour factor, PHF	0.93	0.92	0.25	0.25	0.92	0.97	0.92	0.92	0.92	0.25	0.25	0.25
Adj. Flow (vph)	301	810	0	0	318	1064	27	1022	95	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	35	0	26	0	0	0	0
Lane Group Flow (vph)	265	846	0	0	318	1029	0	1118	0	0	0	0
Confl. Peds. (#/hr)	2		2				4		4	3		3
Confl. Bikes (#/hr)			4						5			7
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	16.0	16.0			16.0	16.0		16.0				
Effective Green, g (s)	16.0	16.0			16.0	16.0		16.0				
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.40				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)	379	1263			1416	1115		2003				
v/s Ratio Prot					0.09							
v/s Ratio Perm	0.28	0.27				c0.37		0.22				
v/c Ratio	0.70	0.67			0.22	0.92		0.56				
Uniform Delay, d1	10.0	9.8			7.9	11.4		9.3				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	10.3	2.8			0.4	13.8		1.1				
Delay (s)	20.3	12.7			8.3	25.2		10.4				
Level of Service	C	B			A	C		B				
Approach Delay (s)		14.5			21.3			10.4			0.0	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

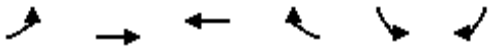
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	562	44	13	278	0	0	0	0	469	333	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00		0.95					0.91	0.91	1.00
Frpb, ped/bikes		1.00	0.98		1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00					1.00	1.00	1.00
Frt		1.00	0.85		1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00					0.95	0.98	1.00
Satd. Flow (prot)		3539	1552		3531					1605	3322	1558
Flt Permitted		1.00	1.00		0.93					0.95	0.98	1.00
Satd. Flow (perm)		3539	1552		3276					1605	3322	1558
Peak-hour factor, PHF	0.25	0.95	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	592	48	14	302	0	0	0	0	510	362	258
RTOR Reduction (vph)	0	0	31	0	0	0	0	0	0	0	0	125
Lane Group Flow (vph)	0	592	17	0	316	0	0	0	0	286	586	133
Confl. Peds. (#/hr)	4		4	4		4	1		1	3		3
Confl. Bikes (#/hr)			5			9			1			1
Turn Type			Perm	Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases			4	8						6		6
Actuated Green, G (s)		21.0	21.0		21.0					31.0	31.0	31.0
Effective Green, g (s)		21.0	21.0		21.0					31.0	31.0	31.0
Actuated g/C Ratio		0.35	0.35		0.35					0.52	0.52	0.52
Clearance Time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Grp Cap (vph)		1239	543		1147					829	1716	805
v/s Ratio Prot		c0.17										
v/s Ratio Perm			0.01		0.10					c0.18	0.18	0.09
v/c Ratio		0.48	0.03		0.28					0.34	0.34	0.17
Uniform Delay, d1		15.2	12.8		14.0					8.5	8.5	7.7
Progression Factor		1.00	1.00		1.00					1.00	1.00	1.00
Incremental Delay, d2		1.3	0.1		0.6					1.1	0.5	0.4
Delay (s)		16.5	12.9		14.6					9.7	9.1	8.1
Level of Service		B	B		B					A	A	A
Approach Delay (s)		16.3			14.6			0.0			9.0	
Approach LOS		B			B			A			A	

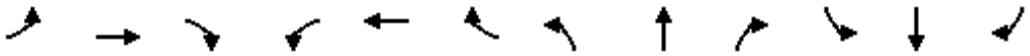
Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



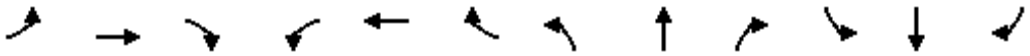
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	313	649	706	490	218	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.91
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.94		0.99	0.85
Flt Protected	0.95	1.00	1.00		0.96	1.00
Satd. Flow (prot)	1770	3539	3280		3412	1421
Flt Permitted	0.95	1.00	1.00		0.96	1.00
Satd. Flow (perm)	1770	3539	3280		3412	1421
Peak-hour factor, PHF	0.92	0.93	0.92	0.97	0.92	0.92
Adj. Flow (vph)	340	698	767	505	237	134
RTOR Reduction (vph)	0	0	115	0	10	100
Lane Group Flow (vph)	340	698	1157	0	246	15
Confl. Peds. (#/hr)	14			18		
Confl. Bikes (#/hr)				7		1
Turn Type	Prot					Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	22.8	61.8	35.0		10.2	10.2
Effective Green, g (s)	22.8	61.8	35.0		10.2	10.2
Actuated g/C Ratio	0.29	0.77	0.44		0.13	0.13
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	504	2734	1435		435	181
v/s Ratio Prot	c0.19	0.20	c0.35		c0.07	
v/s Ratio Perm						0.01
v/c Ratio	0.67	0.26	0.81		0.57	0.08
Uniform Delay, d1	25.3	2.6	19.6		32.8	30.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.8	0.2	4.9		1.0	0.1
Delay (s)	28.1	2.8	24.5		33.8	30.8
Level of Service	C	A	C		C	C
Approach Delay (s)		11.1	24.5		32.9	
Approach LOS		B	C		C	

Intersection Summary			
HCM Average Control Delay	20.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



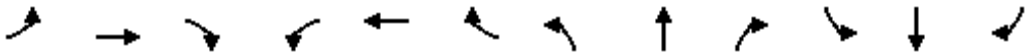
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	775	36	21	927	132	110	616	39	158	497	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3427	1532	1762	3348		1769	3504		1762	3405	
Flt Permitted	0.16	1.00	1.00	0.16	1.00		0.32	1.00		0.38	1.00	
Satd. Flow (perm)	303	3427	1532	302	3348		589	3504		706	3405	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	34	842	39	23	1008	143	120	670	42	172	523	134
RTOR Reduction (vph)	0	0	28	0	13	0	0	5	0	0	23	0
Lane Group Flow (vph)	34	842	11	23	1138	0	120	707	0	172	634	0
Confl. Peds. (#/hr)	12		12	18		18	3		3	12		12
Confl. Bikes (#/hr)			8			6			10			28
Turn Type	Perm		Perm	Perm			pm+pt			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	24.6	24.6	24.6	24.6	24.6		49.9	49.9		39.4	39.4	
Effective Green, g (s)	24.6	24.6	24.6	24.6	24.6		49.9	49.9		39.4	39.4	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29		0.59	0.59		0.46	0.46	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	88	992	443	87	969		429	2057		327	1578	
v/s Ratio Prot		0.25			c0.34		0.02	c0.20			0.19	
v/s Ratio Perm	0.11		0.01	0.08			0.14			c0.24		
v/c Ratio	0.39	0.85	0.03	0.26	1.17		0.28	0.34		0.53	0.40	
Uniform Delay, d1	24.2	28.4	21.6	23.2	30.2		8.4	9.1		16.2	15.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.25	1.27	
Incremental Delay, d2	12.3	9.0	0.1	7.3	89.5		0.1	0.5		5.0	0.6	
Delay (s)	36.5	37.4	21.7	30.5	119.7		8.5	9.5		25.2	19.7	
Level of Service	D	D	C	C	F		A	A		C	B	
Approach Delay (s)		36.7			118.0			9.4			20.8	
Approach LOS		D			F			A			C	

Intersection Summary			
HCM Average Control Delay	52.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



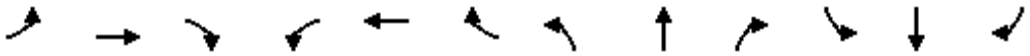
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	522	41	120	392	39	287	721	200	59	579	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	*0.92			*0.92		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	1.00	0.99	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1765	3384			3350		1766	3539	1550	1753	3413	
Flt Permitted	0.29	1.00			0.61		0.31	1.00	1.00	0.32	1.00	
Satd. Flow (perm)	547	3384			2059		585	3539	1550	586	3413	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	567	45	130	426	42	312	759	217	64	629	136
RTOR Reduction (vph)	0	9	0	0	8	0	0	0	82	0	18	0
Lane Group Flow (vph)	100	603	0	0	590	0	312	759	135	64	747	0
Confl. Peds. (#/hr)	8		8	2		2	8		8	32		32
Confl. Bikes (#/hr)			6			6			4			28
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	26.4	26.4			26.4		45.6	45.6	45.6	45.6	45.6	
Effective Green, g (s)	26.4	26.4			26.4		45.6	45.6	45.6	45.6	45.6	
Actuated g/C Ratio	0.33	0.33			0.33		0.57	0.57	0.57	0.57	0.57	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	181	1117			679		333	2017	884	334	1945	
v/s Ratio Prot		0.18						0.21			0.22	
v/s Ratio Perm	0.18				c0.29		c0.53		0.09	0.11		
v/c Ratio	0.55	0.54			0.87		0.94	0.38	0.15	0.19	0.38	
Uniform Delay, d1	22.0	21.9			25.2		15.9	9.4	8.1	8.3	9.5	
Progression Factor	1.00	1.00			1.14		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.1	0.3			10.9		35.6	0.5	0.4	1.3	0.6	
Delay (s)	24.0	22.1			39.5		51.5	10.0	8.5	9.6	10.0	
Level of Service	C	C			D		D	A	A	A	B	
Approach Delay (s)		22.4			39.5			19.8			10.0	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



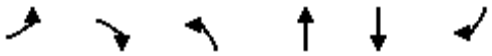
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	763	218	134	427	3	0	0	0	99	306	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						3.0	
Lane Util. Factor		*0.92		1.00	*0.92						0.95	
Frpb, ped/bikes		0.95		1.00	1.00						1.00	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.97		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		3150		1770	3423						3384	
Flt Permitted		0.95		0.11	1.00						0.99	
Satd. Flow (perm)		2996		211	3423						3384	
Peak-hour factor, PHF	0.92	0.99	0.92	0.93	0.92	0.92	0.25	0.25	0.25	0.92	0.94	0.92
Adj. Flow (vph)	8	771	237	144	464	3	0	0	0	108	326	96
RTOR Reduction (vph)	0	32	0	0	0	0	0	0	0	0	24	0
Lane Group Flow (vph)	0	984	0	144	467	0	0	0	0	0	506	0
Confl. Peds. (#/hr)	106		106	8		8	36		36	11		11
Confl. Bikes (#/hr)			18			14			2			8
Turn Type	Perm			pm+pt						Perm		
Protected Phases		2		1	6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)		30.3		43.0	43.0						29.0	
Effective Green, g (s)		30.3		43.0	43.0						29.0	
Actuated g/C Ratio		0.38		0.54	0.54						0.36	
Clearance Time (s)		5.0		5.0	5.0						3.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		1135		263	1840						1227	
v/s Ratio Prot				c0.05	0.14							
v/s Ratio Perm		c0.33		0.24							0.15	
v/c Ratio		0.87		0.55	0.25						0.41	
Uniform Delay, d1		23.0		13.4	9.9						19.1	
Progression Factor		1.58		1.00	1.00						1.00	
Incremental Delay, d2		8.8		1.3	0.3						1.0	
Delay (s)		45.0		14.6	10.2						20.1	
Level of Service		D		B	B						C	
Approach Delay (s)		45.0			11.3			0.0			20.1	
Approach LOS		D			B			A			C	

Intersection Summary			
HCM Average Control Delay	29.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	383	723	163	373	969	52	13	1215	1286	3	703	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	0.92		1.00	0.93		0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	
Satd. Flow (prot)	3433	3539	1483	3433	3539	1458		5082	1466		4823	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.92	1.00		0.94	
Satd. Flow (perm)	3433	3539	1483	3433	3539	1458		4692	1466		4514	
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.93	0.92	0.92	0.92	0.92	0.92	0.96	0.92
Adj. Flow (vph)	416	786	177	381	1042	57	14	1321	1398	3	732	237
RTOR Reduction (vph)	0	0	34	0	0	8	0	0	243	0	58	0
Lane Group Flow (vph)	416	786	143	381	1042	49	0	1335	1155	0	914	0
Confl. Peds. (#/hr)	31		31	48		48	42		42	34		34
Confl. Bikes (#/hr)			22			15			22			20
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		
Protected Phases	1	6		5	2			4			4	
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	14.9	34.6	34.6	14.4	35.1	35.1		36.0	36.0		36.0	
Effective Green, g (s)	14.9	34.6	34.6	14.4	35.1	35.1		36.0	36.0		36.0	
Actuated g/C Ratio	0.15	0.35	0.35	0.14	0.35	0.35		0.36	0.36		0.36	
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	512	1224	513	494	1242	512		1689	528		1625	
v/s Ratio Prot	c0.12	0.22		0.11	c0.29							
v/s Ratio Perm			0.10			0.03		0.28	c0.79		0.20	
v/c Ratio	0.81	0.64	0.28	0.77	0.84	0.09		0.79	2.19		0.56	
Uniform Delay, d1	41.2	27.5	23.7	41.2	29.9	21.8		28.6	32.0		25.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	9.1	2.6	1.4	6.7	6.9	0.4		3.9	541.0		1.4	
Delay (s)	50.3	30.1	25.0	47.9	36.7	22.2		32.5	573.0		27.1	
Level of Service	D	C	C	D	D	C		C	F		C	
Approach Delay (s)		35.5			39.1			309.0			27.1	
Approach LOS		D			D			F			C	

Intersection Summary			
HCM Average Control Delay	148.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	136.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	360	96	117	1762	1069	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.5	4.5	
Lane Util. Factor	0.97		1.00	*0.50	0.86	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.97		1.00	1.00	0.99	
Flt Protected	0.96		0.95	1.00	1.00	
Satd. Flow (prot)	3340		1763	3725	6323	
Flt Permitted	0.96		0.17	1.00	1.00	
Satd. Flow (perm)	3340		313	3725	6323	
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.92	0.92
Adj. Flow (vph)	391	104	127	1835	1162	112
RTOR Reduction (vph)	43	0	0	0	13	0
Lane Group Flow (vph)	452	0	127	1835	1261	0
Confl. Peds. (#/hr)	30	30	106			
Confl. Bikes (#/hr)		2				
Turn Type			pm+pt			
Protected Phases	4		1	2	2	
Permitted Phases			2			
Actuated Green, G (s)	16.4		50.1	43.4	43.4	
Effective Green, g (s)	16.4		50.1	43.4	43.4	
Actuated g/C Ratio	0.20		0.63	0.54	0.54	
Clearance Time (s)	5.0		4.0	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	685		317	2021	3430	
v/s Ratio Prot	c0.14		c0.03	c0.49	0.20	
v/s Ratio Perm			0.22			
v/c Ratio	0.66		0.40	0.91	0.37	
Uniform Delay, d1	29.2		6.3	16.5	10.5	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	2.3		0.8	7.4	0.3	
Delay (s)	31.5		7.1	23.9	10.8	
Level of Service	C		A	C	B	
Approach Delay (s)	31.5			22.9	10.8	
Approach LOS	C			C	B	

Intersection Summary			
HCM Average Control Delay	19.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	369	11	22	221	12	57
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	393	12	24	240	13	62
Pedestrians	18			18		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	533			360		
pX, platoon unblocked						
vC, conflicting volume			405		705	417
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			405		705	417
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		97	90
cM capacity (veh/h)			1154		389	627

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	405	264	75
Volume Left	0	24	13
Volume Right	12	0	62
cSH	1700	1154	566
Volume to Capacity	0.24	0.02	0.13
Queue Length 95th (ft)	0	2	11
Control Delay (s)	0.0	0.9	12.3
Lane LOS		A	B
Approach Delay (s)	0.0	0.9	12.3
Approach LOS			B

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	317	9	9	224	30	63
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	345	10	10	243	33	68
Pedestrians	27			27		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	470			423		
pX, platoon unblocked						
vC, conflicting volume			354		640	376
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			354		640	376
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		92	90
cM capacity (veh/h)			1204		427	655

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	354	253	101
Volume Left	0	10	33
Volume Right	10	0	68
cSH	1700	1204	558
Volume to Capacity	0.21	0.01	0.18
Queue Length 95th (ft)	0	1	16
Control Delay (s)	0.0	0.4	12.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	12.9
Approach LOS			B

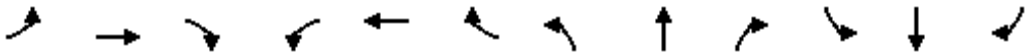
Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	36.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	449	3	16	185	47	86
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.92	0.92	0.94	0.92	0.92
Hourly flow rate (vph)	463	3	17	197	51	93
Pedestrians	20			20		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	80			813		
pX, platoon unblocked			0.88		0.88	0.88
vC, conflicting volume			466		716	485
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			329		612	350
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		87	84
cM capacity (veh/h)			1086		390	602

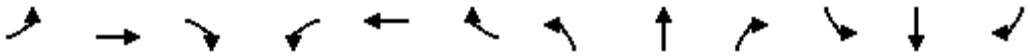
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	466	214	26	26	47	47
Volume Left	0	17	26	26	0	0
Volume Right	3	0	0	0	47	47
cSH	1700	1086	390	390	602	602
Volume to Capacity	0.27	0.02	0.07	0.07	0.08	0.08
Queue Length 95th (ft)	0	1	5	5	6	6
Control Delay (s)	0.0	0.8	14.9	14.9	11.5	11.5
Lane LOS		A	B	B	B	B
Approach Delay (s)	0.0	0.8	12.7			
Approach LOS			B			

Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	39.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	250	126	92	209	0	0	0	0	62	640	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.91	
Frpb, ped/bikes		1.00	0.91		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.98						0.98	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.98						1.00	
Satd. Flow (prot)		1863	1437		1792						4860	
Flt Permitted		1.00	1.00		0.70						1.00	
Satd. Flow (perm)		1863	1437		1270						4860	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.97	0.92
Adj. Flow (vph)	0	272	137	100	227	0	0	0	0	67	660	38
RTOR Reduction (vph)	0	0	10	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	272	127	0	327	0	0	0	0	0	761	0
Confl. Peds. (#/hr)	58		58	100		100	50		50	104		104
Confl. Bikes (#/hr)			8			6			10			28
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		25.2	25.2		25.2						46.8	
Effective Green, g (s)		25.2	25.2		25.2						46.8	
Actuated g/C Ratio		0.32	0.32		0.32						0.58	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		587	453		400						2843	
v/s Ratio Prot		0.15										
v/s Ratio Perm			0.09		c0.26						0.16	
v/c Ratio		0.46	0.28		0.82						0.27	
Uniform Delay, d1		22.0	20.6		25.3						8.2	
Progression Factor		1.00	1.00		1.00						1.19	
Incremental Delay, d2		0.6	0.3		12.2						0.2	
Delay (s)		22.6	20.9		37.5						9.9	
Level of Service		C	C		D						A	
Approach Delay (s)		22.0			37.5			0.0			9.9	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

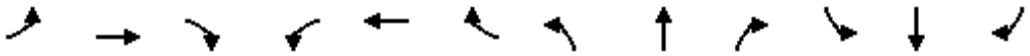


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	122	1	0	116	83	25	420	223	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.97			1.00	0.82			
Flpb, ped/bikes		1.00			1.00			0.99	1.00			
Frt		1.00			0.94			1.00	0.85			
Flt Protected		0.99			1.00			1.00	1.00			
Satd. Flow (prot)		1842			1705			3507	1296			
Flt Permitted		0.97			1.00			1.00	1.00			
Satd. Flow (perm)		1796			1705			3507	1296			
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	16	133	1	0	126	90	27	452	242	0	0	0
RTOR Reduction (vph)	0	0	0	0	38	0	0	0	183	0	0	0
Lane Group Flow (vph)	0	150	0	0	178	0	0	479	59	0	0	0
Confl. Peds. (#/hr)	71		71	82		82	88		88	75		75
Confl. Bikes (#/hr)			8			2			40			1
Turn Type	Perm						Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2						1		1			
Actuated Green, G (s)		26.0			26.0			11.0	11.0			
Effective Green, g (s)		26.0			26.0			11.0	11.0			
Actuated g/C Ratio		0.58			0.58			0.24	0.24			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)		1038			985			857	317			
v/s Ratio Prot					c0.10							
v/s Ratio Perm		0.08						0.14	0.05			
v/c Ratio		0.14			0.18			0.56	0.19			
Uniform Delay, d1		4.4			4.5			14.9	13.5			
Progression Factor		0.41			1.00			1.00	1.00			
Incremental Delay, d2		0.3			0.4			0.5	0.1			
Delay (s)		2.0			4.9			15.3	13.6			
Level of Service		A			A			B	B			
Approach Delay (s)		2.0			4.9			14.7			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

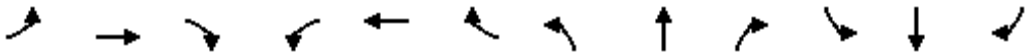
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	57	27	78	0	78	0	674	56	40	586	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frpb, ped/bikes	1.00	0.99			0.99			0.99			1.00	
Flpb, ped/bikes	0.99	1.00			0.99			1.00			1.00	
Frt	1.00	0.95			0.93			0.99			1.00	
Flt Protected	0.95	1.00			0.98			1.00			1.00	
Satd. Flow (prot)	1748	1757			1658			3475			3523	
Flt Permitted	0.71	1.00			0.84			1.00			0.86	
Satd. Flow (perm)	1301	1757			1420			3475			3046	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.99	0.92
Adj. Flow (vph)	20	62	29	85	0	85	0	733	61	43	592	0
RTOR Reduction (vph)	0	17	0	0	35	0	0	14	0	0	0	0
Lane Group Flow (vph)	20	74	0	0	135	0	0	780	0	0	635	0
Confl. Peds. (#/hr)	22		22	24		24	40		40	48		48
Confl. Bikes (#/hr)			3						17			7
Turn Type	Perm			Perm						Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2						4		
Actuated Green, G (s)	19.0	19.0			19.0			17.0			17.0	
Effective Green, g (s)	19.0	19.0			19.0			17.0			17.0	
Actuated g/C Ratio	0.42	0.42			0.42			0.38			0.38	
Clearance Time (s)	4.0	4.0			4.0			5.0			5.0	
Vehicle Extension (s)	2.0	2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)	549	742			600			1313			1151	
v/s Ratio Prot		0.04						c0.22				
v/s Ratio Perm	0.02				c0.09						0.21	
v/c Ratio	0.04	0.10			0.22			0.59			0.55	
Uniform Delay, d1	7.6	7.8			8.3			11.2			11.0	
Progression Factor	1.00	1.00			1.06			1.00			1.00	
Incremental Delay, d2	0.1	0.3			0.9			2.0			1.9	
Delay (s)	7.8	8.1			9.7			13.2			12.9	
Level of Service	A	A			A			B			B	
Approach Delay (s)		8.0			9.7			13.2			12.9	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	202	37	14	240	237	32	807	33	49	221	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5		4.5	4.5	
Lane Util. Factor		0.95			0.95			0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.98			1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00			1.00		1.00	1.00	
Frt		0.98			0.93			0.99		1.00	0.96	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3420			3219			3506		1769	3371	
Flt Permitted		0.76			0.94			0.93		0.20	1.00	
Satd. Flow (perm)		2632			3029			3278		377	3371	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92	0.92
Adj. Flow (vph)	38	220	40	15	261	258	35	877	36	51	240	85
RTOR Reduction (vph)	0	25	0	0	192	0	0	3	0	0	30	0
Lane Group Flow (vph)	0	273	0	0	342	0	0	945	0	51	295	0
Confl. Peds. (#/hr)	32		32	24		24	16		16	19		19
Confl. Bikes (#/hr)			6			4			25			3
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		12.3			12.3			30.2		38.7	38.7	
Effective Green, g (s)		12.3			12.3			30.2		38.7	38.7	
Actuated g/C Ratio		0.20			0.20			0.50		0.64	0.64	
Clearance Time (s)		4.5			4.5			4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		540			621			1650		336	2174	
v/s Ratio Prot										0.01	c0.09	
v/s Ratio Perm		0.10			c0.11			c0.29		0.09		
v/c Ratio		0.50			0.55			0.57		0.15	0.14	
Uniform Delay, d1		21.1			21.4			10.4		5.1	4.1	
Progression Factor		1.00			0.72			1.00		1.00	1.00	
Incremental Delay, d2		0.7			0.8			1.4		0.2	0.1	
Delay (s)		21.9			16.2			11.8		5.3	4.3	
Level of Service		C			B			B		A	A	
Approach Delay (s)		21.9			16.2			11.8			4.4	
Approach LOS		C			B			B			A	

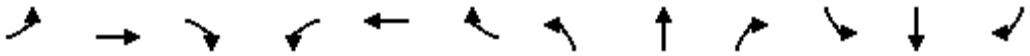
Intersection Summary			
HCM Average Control Delay	13.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	176	110	70	274	119	127	930	131	51	642	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.97			0.97			0.99			0.99	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.95			0.96			0.98			0.99	
Flt Protected		1.00			0.99			0.99			1.00	
Satd. Flow (prot)		3215			3230			3415			4989	
Flt Permitted		0.90			0.85			0.66			0.78	
Satd. Flow (perm)		2898			2763			2260			3904	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	28	191	120	76	298	129	138	1011	138	55	698	49
RTOR Reduction (vph)	0	76	0	0	33	0	0	16	0	0	12	0
Lane Group Flow (vph)	0	263	0	0	470	0	0	1272	0	0	790	0
Confl. Peds. (#/hr)	74		74	120		120	85		85	65		65
Confl. Bikes (#/hr)			30			13			10			6
Turn Type	Perm			Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						6		
Actuated Green, G (s)		22.0			22.0			29.0			18.0	
Effective Green, g (s)		22.0			22.0			29.0			18.0	
Actuated g/C Ratio		0.37			0.37			0.48			0.30	
Clearance Time (s)		4.0			4.0			5.0			5.0	
Lane Grp Cap (vph)		1063			1013			1227			1171	
v/s Ratio Prot								c0.12				
v/s Ratio Perm		0.09			c0.17			c0.38			0.20	
v/c Ratio		0.25			0.46			1.04			0.67	
Uniform Delay, d1		13.2			14.5			15.5			18.4	
Progression Factor		2.20			1.00			1.00			1.00	
Incremental Delay, d2		0.5			1.5			35.6			3.1	
Delay (s)		29.7			16.0			51.1			21.6	
Level of Service		C			B			D			C	
Approach Delay (s)		29.7			16.0			51.1			21.6	
Approach LOS		C			B			D			C	

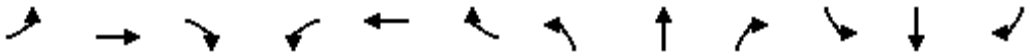
Intersection Summary			
HCM Average Control Delay	34.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



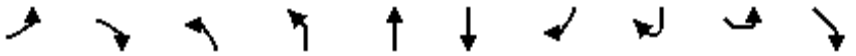
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	406	0	0	478	119	80	481	315	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.91	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3512			3371	1319		5004	1459			
Flt Permitted		0.86			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3047			3371	1319		5004	1459			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	50	441	0	0	520	127	87	523	339	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	36	0	0	167	0	0	0
Lane Group Flow (vph)	0	491	0	0	532	78	0	610	172	0	0	0
Confl. Peds. (#/hr)	42		42	54		54	58		58	194		194
Confl. Bikes (#/hr)			12			7			5			8
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		54.7			54.7	54.7		18.3	18.3			
Effective Green, g (s)		54.7			54.7	54.7		18.3	18.3			
Actuated g/C Ratio		0.68			0.68	0.68		0.23	0.23			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2083			2305	902		1145	334			
v/s Ratio Prot					0.16							
v/s Ratio Perm		c0.16				0.06		0.12	0.12			
v/c Ratio		0.24			0.23	0.09		0.53	0.51			
Uniform Delay, d1		4.8			4.7	4.3		27.1	27.0			
Progression Factor		1.00			0.66	0.33		1.00	1.00			
Incremental Delay, d2		0.3			0.2	0.2		0.5	1.3			
Delay (s)		5.0			3.3	1.5		27.6	28.3			
Level of Service		A			A	A		C	C			
Approach Delay (s)		5.0			3.0			27.8			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



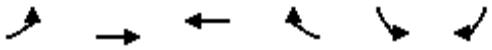
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	502	218	174	449	0	0	0	0	100	642	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	0.91	0.91						0.91	
Frpb, ped/bikes		1.00	0.91	1.00	1.00						0.95	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						0.97	
Frt		1.00	0.85	1.00	1.00						0.98	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		3539	1439	1610	3377						4522	
Flt Permitted		1.00	1.00	0.95	0.94						0.99	
Satd. Flow (perm)		3539	1439	1610	3178						4522	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	546	237	189	488	0	0	0	0	109	698	159
RTOR Reduction (vph)	0	0	31	0	0	0	0	0	0	0	37	0
Lane Group Flow (vph)	0	546	206	170	507	0	0	0	0	0	929	0
Confl. Peds. (#/hr)	51		51	114		114	115		115	333		333
Confl. Bikes (#/hr)			8			3			17			6
Turn Type			Perm	Prot						Perm		
Protected Phases		2		1	6						4	
Permitted Phases			2							4		
Actuated Green, G (s)		28.0	28.0	10.0	42.0						30.0	
Effective Green, g (s)		28.0	28.0	10.0	42.0						30.0	
Actuated g/C Ratio		0.35	0.35	0.12	0.52						0.38	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		1239	504	201	1693						1696	
v/s Ratio Prot		c0.15		c0.11	0.04							
v/s Ratio Perm			0.14		0.12						0.21	
v/c Ratio		0.44	0.41	0.85	0.30						0.55	
Uniform Delay, d1		20.0	19.7	34.2	10.7						19.7	
Progression Factor		1.07	1.08	1.00	1.00						1.36	
Incremental Delay, d2		1.1	2.4	25.6	0.0						0.2	
Delay (s)		22.5	23.7	59.8	10.7						27.0	
Level of Service		C	C	E	B						C	
Approach Delay (s)		22.9			23.1			0.0			27.0	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM Average Control Delay	24.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL2	NBL	NBT	SBT	SBR	SBR2	SEL	SER
Lane Configurations										
Volume (vph)	478	127	270	75	1017	231	370	114	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0				4.0	4.0	4.0	4.0		
Lane Util. Factor	0.94				0.95	0.91	0.91	1.00		
Frpb, ped/bikes	1.00				1.00	1.00	1.00	1.00		
Flpb, ped/bikes	1.00				1.00	1.00	1.00	1.00		
Frt	0.97				1.00	0.93	0.85	0.85		
Flt Protected	0.96				0.99	1.00	1.00	1.00		
Satd. Flow (prot)	4894				3495	3167	1441	1583		
Flt Permitted	0.96				0.99	1.00	1.00	1.00		
Satd. Flow (perm)	4894				3495	3167	1441	1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95
Adj. Flow (vph)	520	138	293	82	1105	251	402	124	0	0
RTOR Reduction (vph)	68	0	0	0	0	0	0	64	0	0
Lane Group Flow (vph)	590	0	0	0	1480	448	205	60	0	0
Confl. Peds. (#/hr)								74		
Confl. Bikes (#/hr)					7			8		
Turn Type			Split	Split			custom	custom		
Protected Phases	1		8	8	8	2	6	6		
Permitted Phases	1						6			
Actuated Green, G (s)	16.0				28.0	14.0	34.0	34.0		
Effective Green, g (s)	16.0				28.0	14.0	34.0	34.0		
Actuated g/C Ratio	0.23				0.40	0.20	0.49	0.49		
Clearance Time (s)	4.0				4.0	4.0	4.0	4.0		
Vehicle Extension (s)	2.0				2.0	2.0	2.0	2.0		
Lane Grp Cap (vph)	1119				1398	633	700	769		
v/s Ratio Prot	c0.12				c0.42	c0.14	0.14	0.04		
v/s Ratio Perm										
v/c Ratio	0.53				1.06	0.71	0.29	0.08		
Uniform Delay, d1	23.7				21.0	26.1	10.8	9.6		
Progression Factor	1.00				1.00	0.83	0.97	0.82		
Incremental Delay, d2	1.8				41.3	2.9	1.0	0.2		
Delay (s)	25.5				62.3	24.6	11.5	8.1		
Level of Service	C				E	C	B	A		
Approach Delay (s)	25.5				62.3	18.5			0.0	
Approach LOS	C				E	B			A	

Intersection Summary			
HCM Average Control Delay	42.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	605	351	0	0	99
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	658	382	0	0	108
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		420	110			
pX, platoon unblocked					0.96	
vC, conflicting volume	382				601	191
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	382				448	191
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	87
cM capacity (veh/h)	1174				519	819

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	SB 1
Volume Total	0	219	219	219	191	191	108
Volume Left	0	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0	108
cSH	1700	1700	1700	1700	1700	1700	819
Volume to Capacity	0.00	0.13	0.13	0.13	0.11	0.11	0.13
Queue Length 95th (ft)	0	0	0	0	0	0	11
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	10.1
Lane LOS							B
Approach Delay (s)	0.0				0.0		10.1
Approach LOS							B

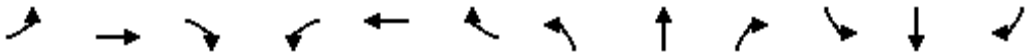
Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1246	170	870	512	188	981
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.91		0.97	0.91	0.97	0.91
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	1.00	0.89	0.85
Flt Protected	1.00		0.95	1.00	0.99	1.00
Satd. Flow (prot)	4991		3433	5085	3178	1441
Flt Permitted	1.00		0.95	1.00	0.99	1.00
Satd. Flow (perm)	4991		3433	5085	3178	1441
Peak-hour factor, PHF	0.95	0.92	0.99	0.92	0.92	0.93
Adj. Flow (vph)	1312	185	879	557	204	1055
RTOR Reduction (vph)	26	0	0	0	370	369
Lane Group Flow (vph)	1471	0	879	557	362	158
Confl. Bikes (#/hr)				16		
Turn Type			Prot			Perm
Protected Phases	8		7	4	6	
Permitted Phases						6
Actuated Green, G (s)	18.0		19.0	41.0	21.0	21.0
Effective Green, g (s)	18.0		19.0	41.0	21.0	21.0
Actuated g/C Ratio	0.26		0.27	0.59	0.30	0.30
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1283		932	2978	953	432
v/s Ratio Prot	c0.29		c0.26	0.11	c0.11	
v/s Ratio Perm						0.11
v/c Ratio	1.15		0.94	0.19	0.38	0.37
Uniform Delay, d1	26.0		25.0	6.7	19.4	19.3
Progression Factor	0.81		1.00	1.00	1.00	1.00
Incremental Delay, d2	70.2		18.6	0.1	1.2	2.4
Delay (s)	91.3		43.5	6.9	20.5	21.7
Level of Service	F		D	A	C	C
Approach Delay (s)	91.3			29.3	21.0	
Approach LOS	F			C	C	

Intersection Summary			
HCM Average Control Delay	49.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



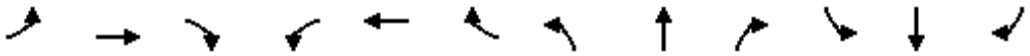
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	146	151	0	0	0	0	0	1554	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0						6.0	
Lane Util. Factor				1.00	0.95						0.86	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				1.00	1.00						1.00	
Frt				1.00	1.00						0.98	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1766	3539						6292	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1766	3539						6292	
Peak-hour factor, PHF	0.25	0.95	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.92	0.97	0.92
Adj. Flow (vph)	0	0	0	159	164	0	0	0	0	0	1602	196
RTOR Reduction (vph)	0	0	0	1	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	0	0	158	164	0	0	0	0	0	1782	0
Confl. Peds. (#/hr)	15		15	2		2				2		2
Confl. Bikes (#/hr)			4									2
Turn Type				Perm								
Protected Phases					4						6	
Permitted Phases				4								
Actuated Green, G (s)				18.1	18.1						47.9	
Effective Green, g (s)				18.1	18.1						47.9	
Actuated g/C Ratio				0.24	0.24						0.64	
Clearance Time (s)				3.0	3.0						6.0	
Vehicle Extension (s)				3.0	3.0						4.0	
Lane Grp Cap (vph)				426	854						4018	
v/s Ratio Prot					0.05						c0.28	
v/s Ratio Perm				c0.09								
v/c Ratio				0.37	0.19						0.44	
Uniform Delay, d1				23.7	22.6						6.8	
Progression Factor				1.00	1.00						0.79	
Incremental Delay, d2				2.5	0.5						0.1	
Delay (s)				26.2	23.1						5.5	
Level of Service				C	C						A	
Approach Delay (s)		0.0			24.6			0.0			5.5	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



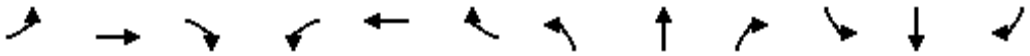
Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	200	396	1492	93	424	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0		5.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.98	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	5085	5029		3405	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1770	5085	5029		3405	
Peak-hour factor, PHF	0.92	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	217	426	1604	101	461	54
RTOR Reduction (vph)	1	0	9	0	0	0
Lane Group Flow (vph)	216	426	1696	0	515	0
Confl. Peds. (#/hr)				17		
Confl. Bikes (#/hr)				6		
Turn Type	Perm					
Protected Phases		4	2		1	
Permitted Phases	4					
Actuated Green, G (s)	15.3	15.3	24.5		23.2	
Effective Green, g (s)	15.3	15.3	24.5		23.2	
Actuated g/C Ratio	0.20	0.20	0.33		0.31	
Clearance Time (s)	3.0	3.0	4.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	361	1037	1643		1053	
v/s Ratio Prot		0.08	c0.34		c0.15	
v/s Ratio Perm	c0.12					
v/c Ratio	0.60	0.41	1.03		0.49	
Uniform Delay, d1	27.1	25.9	25.2		21.1	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	7.2	1.2	30.9		0.4	
Delay (s)	34.2	27.1	56.1		21.4	
Level of Service	C	C	E		C	
Approach Delay (s)		29.5	56.1		21.4	
Approach LOS		C	E		C	

Intersection Summary			
HCM Average Control Delay	43.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



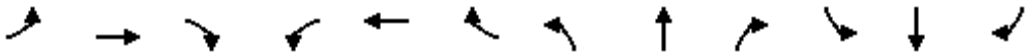
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	299	1000	1172	605	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	5.0	5.0				
Lane Util. Factor					0.91	0.91	0.81	0.81				
Frpb, ped/bikes					0.99	0.98	1.00	1.00				
Flpb, ped/bikes					1.00	1.00	0.98	0.99				
Frt					0.91	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	0.98				
Satd. Flow (prot)					3041	1417	1403	5828				
Flt Permitted					1.00	1.00	0.95	0.98				
Satd. Flow (perm)					3041	1417	1403	5828				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.92	0.92	0.92	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	325	1087	1274	651	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	51	51	295	253	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	818	492	342	1035	0	0	0	0
Confl. Peds. (#/hr)	1		1	4		4	14		14			
Confl. Bikes (#/hr)						1						4
Turn Type						Perm	Perm					
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					39.5	39.5	25.5	25.5				
Effective Green, g (s)					39.5	39.5	25.5	25.5				
Actuated g/C Ratio					0.53	0.53	0.34	0.34				
Clearance Time (s)					5.0	5.0	5.0	5.0				
Vehicle Extension (s)					3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)					1602	746	477	1982				
v/s Ratio Prot					0.27							
v/s Ratio Perm						c0.35	c0.24	0.18				
v/c Ratio					0.51	0.66	0.72	0.52				
Uniform Delay, d1					11.5	12.9	21.6	19.9				
Progression Factor					1.00	1.00	1.00	1.00				
Incremental Delay, d2					1.2	4.5	5.1	0.2				
Delay (s)					12.7	17.4	26.7	20.1				
Level of Service					B	B	C	C				
Approach Delay (s)		0.0			14.5			22.3			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM Average Control Delay	19.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	283	82	0	0	0	0	0	0	642	1040	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		0.95								0.86	0.86	
Frpb, ped/bikes		1.00								1.00	1.00	
Flpb, ped/bikes		1.00								1.00	1.00	
Frt		0.97								1.00	0.99	
Flt Protected		1.00								0.95	0.99	
Satd. Flow (prot)		3406								1522	4730	
Flt Permitted		1.00								0.95	0.99	
Satd. Flow (perm)		3406								1522	4730	
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	308	89	0	0	0	0	0	0	698	1130	68
RTOR Reduction (vph)	0	16	0	0	0	0	0	0	0	260	42	0
Lane Group Flow (vph)	0	381	0	0	0	0	0	0	0	201	1393	0
Confl. Peds. (#/hr)	5		5									
Confl. Bikes (#/hr)			2									2
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		35.0								32.0	32.0	
Effective Green, g (s)		35.0								32.0	32.0	
Actuated g/C Ratio		0.47								0.43	0.43	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		1589								649	2018	
v/s Ratio Prot		c0.11										
v/s Ratio Perm										0.13	0.29	
v/c Ratio		0.24								0.31	0.69	
Uniform Delay, d1		12.0								14.2	17.5	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.4								1.2	2.0	
Delay (s)		12.4								15.4	19.4	
Level of Service		B								B	B	
Approach Delay (s)		12.4			0.0			0.0			18.5	
Approach LOS		B			A			A			B	

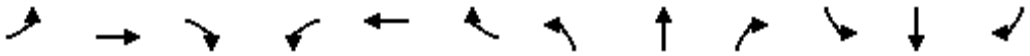
Intersection Summary			
HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	1070	0	0	495	304	239	737	49	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Util. Factor		0.95			0.95	1.00		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.96			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3524			3539	1461		3472	1520			
Flt Permitted		0.84			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		2959			3539	1461		3472	1520			
Peak-hour factor, PHF	0.92	0.92	0.25	0.99	0.96	0.96	0.92	0.92	0.92	0.25	0.25	0.25
Adj. Flow (vph)	80	1163	0	0	516	317	260	801	53	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	88	0	0	2	0	0	0
Lane Group Flow (vph)	0	1243	0	0	516	229	0	1061	51	0	0	0
Confl. Peds. (#/hr)	36		36	52		52	35		35	10		10
Confl. Bikes (#/hr)			5			21						22
Turn Type	Perm			Perm		Perm	Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4			8		8	2		2			
Actuated Green, G (s)		18.0			18.0	18.0		32.0	32.0			
Effective Green, g (s)		18.0			18.0	18.0		32.0	32.0			
Actuated g/C Ratio		0.30			0.30	0.30		0.53	0.53			
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Grp Cap (vph)		888			1062	438		1852	811			
v/s Ratio Prot					0.15							
v/s Ratio Perm		c0.42				0.16		0.31	0.03			
v/c Ratio		1.40			0.49	0.52		0.57	0.06			
Uniform Delay, d1		21.0			17.2	17.4		9.4	6.8			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		186.7			1.6	4.4		1.3	0.1			
Delay (s)		207.7			18.8	21.8		10.7	6.9			
Level of Service		F			B	C		B	A			
Approach Delay (s)		207.7			20.0			10.5			0.0	
Approach LOS		F			B			B			A	

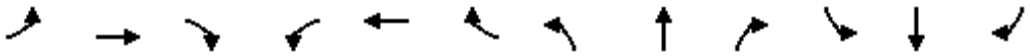
Intersection Summary			
HCM Average Control Delay	89.8	HCM Level of Service	F
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



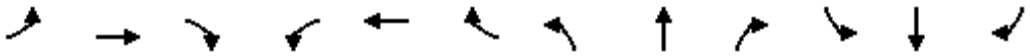
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	751	85	47	653	0	0	0	0	684	699	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0					4.0	4.0	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frpb, ped/bikes		0.99			1.00					1.00	1.00	
Flpb, ped/bikes		1.00			1.00					0.98	1.00	
Frt		0.98			1.00					1.00	0.99	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		3464			3526					1734	3507	
Flt Permitted		1.00			0.87					0.95	1.00	
Satd. Flow (perm)		3464			3062					1734	3507	
Peak-hour factor, PHF	0.25	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.94	0.96	0.92
Adj. Flow (vph)	0	816	92	51	710	0	0	0	0	728	728	38
RTOR Reduction (vph)	0	19	0	0	0	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	889	0	0	761	0	0	0	0	728	758	0
Confl. Peds. (#/hr)	50		50	25		25	17		17	24		24
Confl. Bikes (#/hr)			16			17			2			
Turn Type				Perm						Perm		
Protected Phases		8			4						6	
Permitted Phases				4						6		
Actuated Green, G (s)		19.0			19.0					19.0	19.0	
Effective Green, g (s)		19.0			19.0					19.0	19.0	
Actuated g/C Ratio		0.42			0.42					0.42	0.42	
Clearance Time (s)		3.0			3.0					4.0	4.0	
Vehicle Extension (s)		2.0			2.0					2.0	2.0	
Lane Grp Cap (vph)		1463			1293					732	1481	
v/s Ratio Prot		c0.26									0.22	
v/s Ratio Perm					0.25					c0.42		
v/c Ratio		0.61			0.59					0.99	0.51	
Uniform Delay, d1		10.1			10.0					12.9	9.6	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		1.9			2.0					32.0	1.3	
Delay (s)		12.0			12.0					44.9	10.8	
Level of Service		B			B					D	B	
Approach Delay (s)		12.0			12.0			0.0			27.4	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	19.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	501	10	22	467	52	81	519	29	133	208	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.99			0.98	
Flt Protected		0.99			1.00			0.99			0.98	
Satd. Flow (prot)		3486			3456			3474			3362	
Flt Permitted		0.82			0.92			0.85			0.60	
Satd. Flow (perm)		2869			3200			2956			2056	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92
Adj. Flow (vph)	92	545	11	24	508	57	88	564	32	145	214	64
RTOR Reduction (vph)	0	3	0	0	17	0	0	8	0	0	35	0
Lane Group Flow (vph)	0	645	0	0	572	0	0	676	0	0	388	0
Confl. Peds. (#/hr)	80		80	58		58	44		44	41		41
Confl. Bikes (#/hr)			14			10			7			4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		21.6			21.6			15.9			15.9	
Effective Green, g (s)		21.6			21.6			15.9			15.9	
Actuated g/C Ratio		0.48			0.48			0.35			0.35	
Clearance Time (s)		3.5			3.5			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1377			1536			1044			726	
v/s Ratio Prot												
v/s Ratio Perm		c0.22			0.18			c0.23			0.19	
v/c Ratio		0.47			0.37			0.65			0.53	
Uniform Delay, d1		7.9			7.4			12.2			11.6	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.1			0.7			1.4			0.8	
Delay (s)		9.0			8.1			13.6			12.4	
Level of Service		A			A			B			B	
Approach Delay (s)		9.0			8.1			13.6			12.4	
Approach LOS		A			A			B			B	

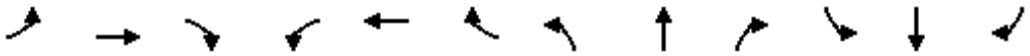
Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	290	1096	0	0	0	0	0	812	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.86						0.91	
Frpb, ped/bikes					1.00						1.00	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.99	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					6270						5021	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					6270						5021	
Peak-hour factor, PHF	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25	0.25	0.25	0.92	0.92
Adj. Flow (vph)	0	0	0	315	1130	0	0	0	0	0	883	62
RTOR Reduction (vph)	0	0	0	0	36	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	0	0	0	1409	0	0	0	0	0	932	0
Confl. Peds. (#/hr)	32		32	47		47	36		36	29		29
Confl. Bikes (#/hr)			3			13			9			2
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2717						2218	
v/s Ratio Prot											c0.19	
v/s Ratio Perm					0.22							
v/c Ratio					0.52						0.42	
Uniform Delay, d1					12.4						11.5	
Progression Factor					0.64						1.00	
Incremental Delay, d2					0.6						0.6	
Delay (s)					8.6						12.1	
Level of Service					A						B	
Approach Delay (s)		0.0			8.6			0.0			12.1	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	10.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

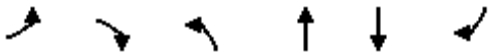
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1183	70	436	1147	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5			4.0				
Lane Util. Factor					0.86			0.86				
Frpb, ped/bikes					1.00			1.00				
Flpb, ped/bikes					1.00			0.97				
Frt					0.99			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6330			6106				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6330			6106				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.95	0.92	0.92	0.96	0.25	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	1245	76	474	1195	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1319	0	0	1653	0	0	0	0
Confl. Peds. (#/hr)	121		121	69		69	118		118	84		84
Confl. Bikes (#/hr)			3									15
Turn Type							Perm					
Protected Phases					6			4				
Permitted Phases							4					
Actuated Green, G (s)					29.9			20.6				
Effective Green, g (s)					29.9			20.6				
Actuated g/C Ratio					0.50			0.34				
Clearance Time (s)					5.5			4.0				
Lane Grp Cap (vph)					3154			2096				
v/s Ratio Prot					c0.21							
v/s Ratio Perm								0.27				
v/c Ratio					0.42			0.79				
Uniform Delay, d1					9.5			17.7				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.4			3.1				
Delay (s)					9.9			20.8				
Level of Service					A			C				
Approach Delay (s)		0.0			9.9			20.8			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

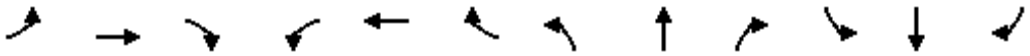
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	80	0	0	1257	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.25	0.92	0.25	0.25
Hourly flow rate (vph)	87	0	0	1366	0	0
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1055	320	
pX, platoon unblocked						
vC, conflicting volume	348	6	6			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	348	6	6			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	100	100			
cM capacity (veh/h)	620	1069	1605			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	87	342	342	342	342
Volume Left	87	0	0	0	0
Volume Right	0	0	0	0	0
cSH	620	1700	1700	1700	1700
Volume to Capacity	0.14	0.20	0.20	0.20	0.20
Queue Length 95th (ft)	12	0	0	0	0
Control Delay (s)	11.7	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.7	0.0			
Approach LOS	B				

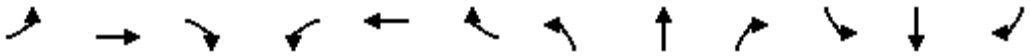
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1295	226	0	0	0	0	0	0	60	1017	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5									5.5	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.98									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		6225									5066	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		6225									5066	
Peak-hour factor, PHF	0.25	0.96	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.93	0.25
Adj. Flow (vph)	0	1349	246	0	0	0	0	0	0	65	1094	0
RTOR Reduction (vph)	0	20	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	1575	0	0	0	0	0	0	0	0	1155	0
Confl. Peds. (#/hr)	20		20	30		30	12		12	17		17
Confl. Bikes (#/hr)			5			7			3			
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		23.0									26.0	
Effective Green, g (s)		23.0									26.0	
Actuated g/C Ratio		0.38									0.43	
Clearance Time (s)		5.5									5.5	
Lane Grp Cap (vph)		2386									2195	
v/s Ratio Prot		c0.25										
v/s Ratio Perm											0.23	
v/c Ratio		0.66									0.53	
Uniform Delay, d1		15.3									12.5	
Progression Factor		0.84									0.58	
Incremental Delay, d2		1.4									0.8	
Delay (s)		14.3									8.1	
Level of Service		B									A	
Approach Delay (s)		14.3			0.0			0.0			8.1	
Approach LOS		B			A			A			A	

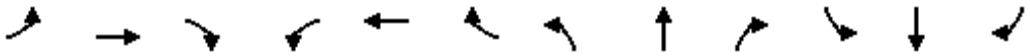
Intersection Summary			
HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	28	844	0	0	0	0	0	371	156	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.86						0.86				
Frpb, ped/bikes		1.00						0.98				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		6389						6031				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		6389						6031				
Peak-hour factor, PHF	0.92	0.92	0.25	0.25	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25
Adj. Flow (vph)	30	917	0	0	0	0	0	403	161	0	0	0
RTOR Reduction (vph)	0	9	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	938	0	0	0	0	0	550	0	0	0	0
Confl. Peds. (#/hr)	46		46	17		17	53		53	68		68
Confl. Bikes (#/hr)			1			1			6			2
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		15.4						37.6				
Effective Green, g (s)		15.4						37.6				
Actuated g/C Ratio		0.26						0.63				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		1640						3779				
v/s Ratio Prot								c0.09				
v/s Ratio Perm		0.15										
v/c Ratio		0.57						0.15				
Uniform Delay, d1		19.4						4.6				
Progression Factor		1.00						1.00				
Incremental Delay, d2		0.3						0.1				
Delay (s)		19.7						4.7				
Level of Service		B						A				
Approach Delay (s)		19.7			0.0			4.7			0.0	
Approach LOS		B			A			A			A	

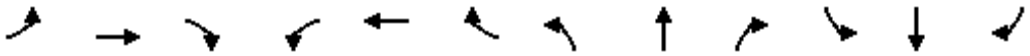
Intersection Summary			
HCM Average Control Delay	14.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	208	1498	0	0	0	0	0	1095	1185	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		0.86						0.91				
Frpb, ped/bikes		1.00						0.99				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.92				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6353						4636				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6353						4636				
Peak-hour factor, PHF	0.92	0.98	0.25	0.25	0.25	0.25	0.25	0.94	0.96	0.25	0.25	0.25
Adj. Flow (vph)	226	1529	0	0	0	0	0	1165	1234	0	0	0
RTOR Reduction (vph)	0	11	0	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	1744	0	0	0	0	0	2396	0	0	0	0
Confl. Peds. (#/hr)	22		22	50		50	14		14	6		6
Confl. Bikes (#/hr)			16			1			2			2
Turn Type	Perm											
Protected Phases		1						2				
Permitted Phases	1											
Actuated Green, G (s)		18.0						18.0				
Effective Green, g (s)		18.0						18.0				
Actuated g/C Ratio		0.40						0.40				
Clearance Time (s)		4.5						4.5				
Lane Grp Cap (vph)		2541						1854				
v/s Ratio Prot								c0.52				
v/s Ratio Perm		0.27										
v/c Ratio		0.69						1.93dr				
Uniform Delay, d1		11.2						13.5				
Progression Factor		0.75						1.34				
Incremental Delay, d2		0.6						135.1				
Delay (s)		9.0						153.3				
Level of Service		A						F				
Approach Delay (s)		9.0			0.0			153.3			0.0	
Approach LOS		A			A			F			A	

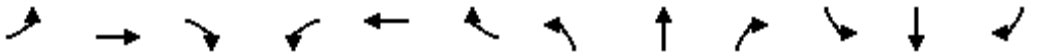
Intersection Summary			
HCM Average Control Delay	92.3	HCM Level of Service	F
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



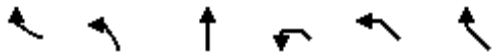
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1576	481	0	0	0	0	0	0	505	1713	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									3.0	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		1.00									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.96									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6146									5017	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6146									5017	
Peak-hour factor, PHF	0.25	0.99	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.95	0.25
Adj. Flow (vph)	0	1592	523	0	0	0	0	0	0	549	1803	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	2113	0	0	0	0	0	0	0	0	2350	0
Confl. Peds. (#/hr)	4		4	8		8	2		2	12		12
Confl. Bikes (#/hr)			2			2			2			
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		18.0									20.0	
Effective Green, g (s)		18.0									20.0	
Actuated g/C Ratio		0.40									0.44	
Clearance Time (s)		4.0									3.0	
Vehicle Extension (s)		2.0									2.0	
Lane Grp Cap (vph)		2458									2230	
v/s Ratio Prot		c0.34										
v/s Ratio Perm											0.47	
v/c Ratio		0.86									1.05	
Uniform Delay, d1		12.3									12.5	
Progression Factor		1.00									1.00	
Incremental Delay, d2		4.2									35.1	
Delay (s)		16.5									47.6	
Level of Service		B									D	
Approach Delay (s)		16.5			0.0			0.0			47.6	
Approach LOS		B			A			A			D	

Intersection Summary			
HCM Average Control Delay	32.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	8	430	66	409	410	0	0	251	1897
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.93		1.00			1.00	0.98
Flpb, ped/bikes				0.98	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1726	1863	1471		1817			1863	1559
Flt Permitted				0.95	1.00	1.00		0.71			1.00	1.00
Satd. Flow (perm)				1726	1863	1471		1316			1863	1559
Peak-hour factor, PHF	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.98
Adj. Flow (vph)	0	0	0	9	467	72	445	446	0	0	273	1936
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	0	0	0	28
Lane Group Flow (vph)	0	0	0	9	467	17	0	891	0	0	273	1908
Confl. Peds. (#/hr)	4		4	20		20	1		1	6		6
Confl. Bikes (#/hr)			10			7						
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					1			2			2	
Permitted Phases				1		1	2					2
Actuated Green, G (s)				14.5	14.5	14.5		34.5			34.5	34.5
Effective Green, g (s)				14.5	14.5	14.5		34.5			34.5	34.5
Actuated g/C Ratio				0.24	0.24	0.24		0.57			0.57	0.57
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				417	450	355		757			1071	896
v/s Ratio Prot					c0.25						0.15	
v/s Ratio Perm				0.01		0.01		0.68				c1.22
v/c Ratio				0.02	1.04	0.05		1.18			0.25	2.13
Uniform Delay, d1				17.3	22.8	17.5		12.8			6.3	12.8
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.0	52.5	0.1		93.2			0.6	512.0
Delay (s)				17.4	75.3	17.5		105.9			6.9	524.7
Level of Service				B	E	B		F			A	F
Approach Delay (s)		0.0			66.8			105.9			460.7	
Approach LOS		A			E			F			F	

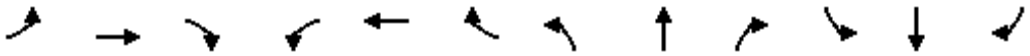
Intersection Summary			
HCM Average Control Delay	314.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.81		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	198.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBR	NBL	NBT	NWL2	NWL	NWR
Lane Configurations						
Volume (vph)	0	215	731	77	66	848
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5		2.0	2.0
Lane Util. Factor			0.95		0.97	0.91
Frpb, ped/bikes			1.00		1.00	1.00
Flpb, ped/bikes			1.00		1.00	1.00
Frt			1.00		0.89	0.85
Flt Protected			0.99		0.99	1.00
Satd. Flow (prot)			3499		3170	1441
Flt Permitted			0.99		0.99	1.00
Satd. Flow (perm)			3499		3170	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.94
Adj. Flow (vph)	0	234	795	84	72	902
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	1029	0	607	451
Confl. Peds. (#/hr)	46					
Confl. Bikes (#/hr)	3					
Turn Type	custom	Perm		Perm		Perm
Protected Phases			3		1	
Permitted Phases	2	3		1		1
Actuated Green, G (s)			16.3		16.2	16.2
Effective Green, g (s)			16.3		16.2	16.2
Actuated g/C Ratio			0.36		0.36	0.36
Clearance Time (s)			3.5		2.0	2.0
Lane Grp Cap (vph)			1267		1141	519
v/s Ratio Prot						
v/s Ratio Perm			0.29		0.19	c0.31
v/c Ratio			0.81		0.53	0.87
Uniform Delay, d1			13.0		11.4	13.4
Progression Factor			0.76		1.00	1.00
Incremental Delay, d2			0.5		1.8	17.7
Delay (s)			10.3		13.2	31.1
Level of Service			B		B	C
Approach Delay (s)			10.3		20.8	
Approach LOS			B		C	

Intersection Summary			
HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	339	664	96	0	0	0	0	622	86	1	81	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5			3.5	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						1.00			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		0.99						0.98			1.00	
Flt Protected		0.98						1.00			1.00	
Satd. Flow (prot)		4917						1832			1862	
Flt Permitted		0.98						1.00			0.72	
Satd. Flow (perm)		1000						1300			1300	
Peak-hour factor, PHF	0.92	0.93	0.92	0.25	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.25
Adj. Flow (vph)	368	714	104	0	0	0	0	676	93	1	88	0
RTOR Reduction (vph)	0	25	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	1161	0	0	0	0	0	758	0	0	89	0
Confl. Peds. (#/hr)	9		9	38		38				2		2
Confl. Bikes (#/hr)			11			4						2
Turn Type	Perm									Perm		
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		22.5						15.5			15.5	
Effective Green, g (s)		22.5						15.5			15.5	
Actuated g/C Ratio		0.50						0.34			0.34	
Clearance Time (s)		3.5						3.5			3.5	
Lane Grp Cap (vph)		500						631			448	
v/s Ratio Prot								c0.41				
v/s Ratio Perm		c1.16									0.07	
v/c Ratio		2.32						1.20			0.20	
Uniform Delay, d1		11.2						14.8			10.4	
Progression Factor		1.00						1.00			0.08	
Incremental Delay, d2		601.2						105.1			0.9	
Delay (s)		612.4						119.9			1.7	
Level of Service		F						F			A	
Approach Delay (s)		612.4			0.0			119.9			1.7	
Approach LOS		F			A			F			A	

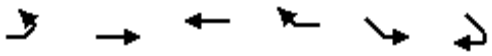
Intersection Summary			
HCM Average Control Delay	400.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.86		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	207	182	1326	958	213	1119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.94		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3314		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3314		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.94	0.92	0.92	0.92
Adj. Flow (vph)	225	198	1411	1041	232	1216
RTOR Reduction (vph)	0	161	143	0	0	0
Lane Group Flow (vph)	225	37	2309	0	232	1216
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	16.8	16.8	37.7		23.5	65.2
Effective Green, g (s)	16.8	16.8	37.7		23.5	65.2
Actuated g/C Ratio	0.19	0.19	0.42		0.26	0.72
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	330	295	1388		462	2564
v/s Ratio Prot	c0.13		c0.70		0.13	c0.34
v/s Ratio Perm		0.02				
v/c Ratio	0.68	0.13	1.66		0.50	0.47
Uniform Delay, d1	34.1	30.5	26.2		28.3	5.2
Progression Factor	1.00	1.00	1.00		0.72	0.84
Incremental Delay, d2	5.7	0.2	301.8		1.6	0.3
Delay (s)	39.8	30.7	328.0		21.9	4.6
Level of Service	D	C	F		C	A
Approach Delay (s)	35.5		328.0			7.4
Approach LOS	D		F			A

Intersection Summary			
HCM Average Control Delay	192.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	100.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	273	487	265	151	646	478
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3347		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3347		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	297	529	288	164	702	520
RTOR Reduction (vph)	0	0	131	0	0	310
Lane Group Flow (vph)	297	529	321	0	702	210
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	13.0	27.7	10.7		24.1	24.1
Effective Green, g (s)	13.0	27.7	10.7		24.1	24.1
Actuated g/C Ratio	0.22	0.46	0.18		0.40	0.40
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	385	1639	599		713	638
v/s Ratio Prot	c0.17	0.15	c0.10		c0.40	
v/s Ratio Perm						0.13
v/c Ratio	0.77	0.32	0.54		0.98	0.33
Uniform Delay, d1	22.0	10.1	22.3		17.7	12.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	9.2	0.1	0.9		29.6	0.3
Delay (s)	31.2	10.2	23.2		47.3	12.6
Level of Service	C	B	C		D	B
Approach Delay (s)		17.8	23.2		32.5	
Approach LOS		B	C		C	

Intersection Summary			
HCM Average Control Delay	26.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	59.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	340	2180	346	0	615	792	738	1118	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.98			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4940			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4940			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.96	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	354	2370	376	0	661	861	802	1215	0
RTOR Reduction (vph)	0	0	0	21	0	0	0	16	0	0	0
Lane Group Flow (vph)	0	0	0	3079	0	0	661	845	802	1215	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				30.0			17.5	17.5	29.5	51.0	
Effective Green, g (s)				30.0			17.5	17.5	29.5	51.0	
Actuated g/C Ratio				0.33			0.19	0.19	0.33	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1647			688	308	580	2005	
v/s Ratio Prot				c0.62			0.19		c0.45	0.34	
v/s Ratio Perm								c0.53			
v/c Ratio				1.87			0.96	2.74	1.38	0.61	
Uniform Delay, d1				30.0			35.9	36.2	30.3	12.9	
Progression Factor				1.00			1.51	1.52	1.00	1.00	
Incremental Delay, d2				393.7			4.6	785.2	182.8	0.5	
Delay (s)				423.7			58.7	840.3	213.1	13.4	
Level of Service				F			E	F	F	B	
Approach Delay (s)	0.0			423.7			500.8			92.8	
Approach LOS	A			F			F			F	

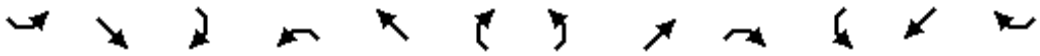
Intersection Summary			
HCM Average Control Delay	340.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	123.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	489	2094	881	183	372	1030	76	575	26	307
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.99	0.85		0.89				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3175	1441		3142				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3175	1441		3142				1770	3539
Peak-hour factor, PHF	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	532	2228	958	199	404	1120	83	625	28	334
RTOR Reduction (vph)	0	0	10	0	4	0	0	0	0	0
Lane Group Flow (vph)	479	2406	1022	0	1603	0	0	0	653	334
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	28.0	28.0	28.0		37.0				12.0	53.0
Effective Green, g (s)	28.0	28.0	28.0		37.0				12.0	53.0
Actuated g/C Ratio	0.31	0.31	0.31		0.41				0.13	0.59
Clearance Time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	501	988	448		1292				236	2084
v/s Ratio Prot	0.30	c0.76	0.71		c0.51				c0.37	0.09
v/s Ratio Perm										
v/c Ratio	0.96	2.44	2.28		1.81dr				2.77	0.16
Uniform Delay, d1	30.4	31.0	31.0		26.5				39.0	8.4
Progression Factor	0.62	0.63	0.61		1.00				1.00	1.00
Incremental Delay, d2	5.5	646.1	577.6		115.0				806.9	0.2
Delay (s)	24.2	665.5	596.6		141.5				845.9	8.6
Level of Service	C	F	F		F				F	A
Approach Delay (s)		568.9			141.5					562.5
Approach LOS		F			F					F

Intersection Summary			
HCM Average Control Delay	462.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.91		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	149.3%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	2086	296	416	1281	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.91	1.00		*0.88				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1583		4860				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1583		4860				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.98	0.94	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2173	322	424	1363	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	3	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2173	319	0	1786	0	0	0	0
Turn Type						Perm	Perm					
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					30.0	30.0		22.0				
Effective Green, g (s)					30.0	30.0		22.0				
Actuated g/C Ratio					0.50	0.50		0.37				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					2543	792		1782				
v/s Ratio Prot					c0.43							
v/s Ratio Perm						0.20		0.37				
v/c Ratio					0.85	0.40		1.00				
Uniform Delay, d1					13.1	9.4		19.0				
Progression Factor					1.00	1.00		1.10				
Incremental Delay, d2					3.9	1.5		6.9				
Delay (s)					17.0	10.9		27.7				
Level of Service					B	B		C				
Approach Delay (s)		0.0			16.2			27.7			0.0	
Approach LOS		A			B			C			A	

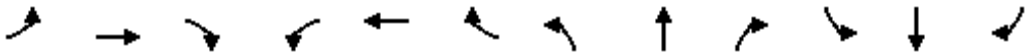
Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	817	1734	0	0	0	0	0	905	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4778						3495	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4778						3495	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	888	1788	0	0	0	0	0	984	90
RTOR Reduction (vph)	0	0	0	18	18	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	630	2010	0	0	0	0	0	1070	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				29.0	29.0						23.0	
Effective Green, g (s)				29.0	29.0						23.0	
Actuated g/C Ratio				0.48	0.48						0.38	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				736	2309						1340	
v/s Ratio Prot											c0.31	
v/s Ratio Perm				0.41	0.42							
v/c Ratio				0.86	0.87						0.80	
Uniform Delay, d1				13.7	13.8						16.4	
Progression Factor				1.29	1.29						1.00	
Incremental Delay, d2				6.5	2.5						5.0	
Delay (s)				24.2	20.3						21.5	
Level of Service				C	C						C	
Approach Delay (s)		0.0			21.3			0.0			21.5	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	291	623	14	22	306	26	21	31	38	86	64	57
Peak Hour Factor	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	316	663	15	24	333	28	23	34	41	93	70	62

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	316	678	385	98	225
Volume Left (vph)	316	0	24	23	93
Volume Right (vph)	0	15	28	41	62
Hadj (s)	0.53	0.02	0.00	-0.17	-0.05
Departure Headway (s)	6.9	6.4	6.3	7.3	6.9
Degree Utilization, x	0.60	1.20	0.67	0.20	0.43
Capacity (veh/h)	515	571	555	437	491
Control Delay (s)	18.7	126.1	21.0	12.1	15.1
Approach Delay (s)	91.9		21.0	12.1	15.1
Approach LOS	F		C	B	C

Intersection Summary			
Delay	61.2		
HCM Level of Service	F		
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp

Average Delay (sec/veh): 36.0 Worst Case Level Of Service: F[123.7]

Street Name:	Harrison Street						Stanley Place / I-580 EB Off-Ramp					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Yield Sign			Yield Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 3 0 0			0 0 0 0 1			0 0 0 0 0		
Volume Module:												
Base Vol:	0	0	0	0	1463	0	0	0	607	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	1463	0	0	0	607	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	1463	0	0	0	607	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.92	1.00	1.00	1.00	0.93	1.00	1.00	1.00
PHF Volume:	0	0	0	0	1590	0	0	0	653	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	1590	0	0	0	653	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	530	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	553	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	553	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	1.18	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	23.1	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	123.7	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	F	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			123.7			xxxxxx		
ApproachLOS:	*			*			F			*		

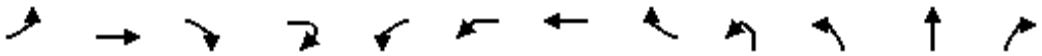
Note: Queue reported is the number of cars per lane.

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Movement	SEL2	SET	NET	NER	NER2
Lane Configurations					
Volume (vph)	553	195	1193	549	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	3.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	
Flt Protected	0.95	0.98	1.00	1.00	
Satd. Flow (prot)	1681	1730	3539	1583	
Flt Permitted	0.95	0.98	1.00	1.00	
Satd. Flow (perm)	1681	1730	3539	1583	
Peak-hour factor, PHF	0.97	0.92	0.92	0.92	0.92
Adj. Flow (vph)	570	212	1297	597	36
RTOR Reduction (vph)	48	48	0	0	0
Lane Group Flow (vph)	340	346	1297	633	0
Confl. Peds. (#/hr)					2
Confl. Bikes (#/hr)					
Turn Type	Perm			custom	
Protected Phases		4	5	1	
Permitted Phases	4			1	
Actuated Green, G (s)	14.4	14.4	38.1	15.1	
Effective Green, g (s)	14.4	14.4	38.1	15.1	
Actuated g/C Ratio	0.24	0.24	0.64	0.25	
Clearance Time (s)	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	403	415	2247	398	
v/s Ratio Prot			c0.37	c0.40	
v/s Ratio Perm	c0.20	0.20			
v/c Ratio	0.84	0.83	0.58	1.59	
Uniform Delay, d1	21.7	21.7	6.3	22.4	
Progression Factor	1.00	1.00	1.00	1.00	
Incremental Delay, d2	14.3	12.9	1.1	277.4	
Delay (s)	36.0	34.6	7.4	299.8	
Level of Service	D	C	A	F	
Approach Delay (s)		35.3	103.3		
Approach LOS		D	F		

Intersection Summary			
HCM Average Control Delay	83.7	HCM Level of Service	F
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



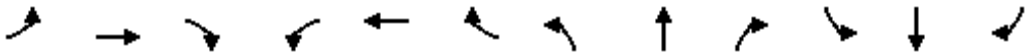
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	83	141	151	36	84	31	200	177	16	505	676	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00			1.00	1.00	1.00		0.97	0.95	
Frpb, ped/bikes	1.00	1.00	0.95			1.00	1.00	0.92		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85			1.00	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1497			1770	1863	1450		3433	3501	
Flt Permitted	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1497			1770	1863	1450		3433	3501	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	153	164	39	91	34	217	186	17	549	735	51
RTOR Reduction (vph)	0	0	11	0	0	0	0	153	0	0	5	0
Lane Group Flow (vph)	90	153	192	0	0	125	217	33	0	566	781	0
Confl. Peds. (#/hr)	21		21					27		9		8
Confl. Bikes (#/hr)			8					24				1
Turn Type	Prot		Perm		Prot	Prot		Perm	Prot	Prot		
Protected Phases	3	8			7	7	4		1	1	6	
Permitted Phases			8					4				
Actuated Green, G (s)	10.6	16.6	16.6			10.0	16.0	16.0		18.6	34.5	
Effective Green, g (s)	10.6	16.6	16.6			10.0	16.0	16.0		18.6	34.5	
Actuated g/C Ratio	0.12	0.18	0.18			0.11	0.18	0.18		0.21	0.38	
Clearance Time (s)	4.0	4.0	4.0			4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	208	653	276			197	331	258		709	1342	
v/s Ratio Prot	0.05	0.04				0.07	c0.12			c0.16	0.22	
v/s Ratio Perm			c0.13					0.02				
v/c Ratio	0.43	0.23	0.70			0.63	0.66	0.13		0.80	0.58	
Uniform Delay, d1	36.9	31.3	34.3			38.3	34.4	31.1		33.9	22.0	
Progression Factor	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.4	0.2	7.5			6.5	4.6	0.2		6.3	1.8	
Delay (s)	38.3	31.5	41.8			44.8	39.1	31.4		40.2	23.9	
Level of Service	D	C	D			D	D	C		D	C	
Approach Delay (s)		37.6					37.7				30.7	
Approach LOS		D					D				C	

Intersection Summary			
HCM Average Control Delay	149.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.7%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Volume (vph)	163	1382	155	108
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.98		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3455		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3455		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92
Adj. Flow (vph)	177	1502	168	117
RTOR Reduction (vph)	0	5	0	0
Lane Group Flow (vph)	177	1782	0	0
Confl. Peds. (#/hr)	18			
Confl. Bikes (#/hr)				
Turn Type	Prot			
Protected Phases	5	2		
Permitted Phases				
Actuated Green, G (s)	12.9	28.8		
Effective Green, g (s)	12.9	28.8		
Actuated g/C Ratio	0.14	0.32		
Clearance Time (s)	4.0	4.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	254	1106		
v/s Ratio Prot	0.10	c0.52		
v/s Ratio Perm				
v/c Ratio	0.70	1.61		
Uniform Delay, d1	36.7	30.6		
Progression Factor	1.00	1.00		
Incremental Delay, d2	8.1	279.1		
Delay (s)	44.7	309.7		
Level of Service	D	F		
Approach Delay (s)		285.8		
Approach LOS		F		

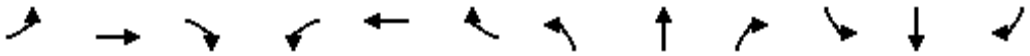
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	203	110	38	335	332	62	532	42	109	663	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.97	1.00	1.00		1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.95			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1748	3302			3517	1543	1762	3484		1766	3498	
Flt Permitted	0.51	1.00			0.88	1.00	0.28	1.00		0.38	1.00	
Satd. Flow (perm)	932	3302			3127	1543	520	3484		703	3498	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.95	0.92	0.92	0.97	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	218	120	41	353	361	67	548	46	118	721	53
RTOR Reduction (vph)	0	69	0	0	0	117	0	7	0	0	6	0
Lane Group Flow (vph)	71	269	0	0	394	244	67	587	0	118	768	0
Confl. Peds. (#/hr)	25		25	18		13	19		13	6		6
Confl. Bikes (#/hr)		16	16	59		5		5	59			6
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			2	
Permitted Phases	4			8		8	2			2		
Actuated Green, G (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Effective Green, g (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Actuated g/C Ratio	0.42	0.42			0.42	0.42	0.45	0.45		0.45	0.45	
Clearance Time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	395	1398			1324	654	232	1558		314	1564	
v/s Ratio Prot		0.08						0.17			c0.22	
v/s Ratio Perm	0.08				0.13	c0.16	0.13			0.17		
v/c Ratio	0.18	0.19			0.30	0.37	0.29	0.38		0.38	0.49	
Uniform Delay, d1	15.3	15.4			16.2	16.8	14.9	15.6		15.6	16.6	
Progression Factor	1.44	1.46			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.3			0.6	1.6	3.1	0.7		3.4	1.1	
Delay (s)	22.9	22.8			16.7	18.4	18.0	16.3		19.0	17.8	
Level of Service	C	C			B	B	B	B		B	B	
Approach Delay (s)		22.8			17.5			16.5			17.9	
Approach LOS		C			B			B			B	

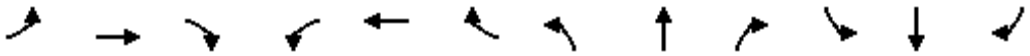
Intersection Summary			
HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	101.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	394	444	164	50	299	122	100	419	26	55	406	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	1863	1561	1766	1863	1546	1762	3499		1765	3372	
Flt Permitted	0.39	1.00	1.00	0.49	1.00	1.00	0.25	1.00		0.36	1.00	
Satd. Flow (perm)	724	1863	1561	907	1863	1546	462	3499		666	3372	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	428	483	178	54	325	133	104	455	28	60	441	167
RTOR Reduction (vph)	0	0	79	0	0	79	0	7	0	0	58	0
Lane Group Flow (vph)	428	483	99	54	325	54	104	476	0	60	550	0
Confl. Peds. (#/hr)	1		1	8		8	12		12	6		6
Confl. Bikes (#/hr)			2			5			27			6
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	55.4	47.2	47.2	38.2	34.5	34.5	20.6	20.6		20.6	20.6	
Effective Green, g (s)	55.4	47.2	47.2	38.2	34.5	34.5	20.6	20.6		20.6	20.6	
Actuated g/C Ratio	0.65	0.56	0.56	0.45	0.41	0.41	0.24	0.24		0.24	0.24	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	674	1035	867	445	756	627	112	848		161	817	
v/s Ratio Prot	c0.12	0.26		0.01	0.17			0.14			0.16	
v/s Ratio Perm	c0.29		0.06	0.05		0.03	c0.22			0.09		
v/c Ratio	0.64	0.47	0.11	0.12	0.43	0.09	0.93	0.56		0.37	0.67	
Uniform Delay, d1	8.3	11.3	9.0	13.3	18.2	15.5	31.5	28.2		26.8	29.2	
Progression Factor	1.00	1.00	1.00	0.65	0.64	0.24	0.94	0.91		1.00	1.00	
Incremental Delay, d2	1.4	1.5	0.3	0.0	1.7	0.3	58.8	0.5		0.5	1.7	
Delay (s)	9.7	12.9	9.2	8.7	13.4	4.0	88.2	26.1		27.3	30.9	
Level of Service	A	B	A	A	B	A	F	C		C	C	
Approach Delay (s)		11.0			10.4			37.1			30.6	
Approach LOS		B			B			D			C	

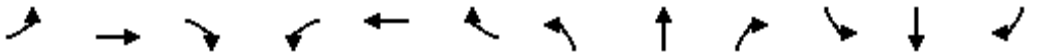
Intersection Summary			
HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	177	992	0	0	171	354	5	308	29	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1608	3387			3539	2787		5008				
Flt Permitted	0.63	0.95			1.00	1.00		1.00				
Satd. Flow (perm)	1074	3218			3539	2787		5008				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	192	1078	0	0	186	385	5	335	32	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	231	0	17	0	0	0	0
Lane Group Flow (vph)	173	1097	0	0	186	154	0	355	0	0	0	0
Confl. Peds. (#/hr)	2		2				6		6	4		4
Confl. Bikes (#/hr)									4			3
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	16.0	16.0			16.0	16.0		16.0				
Effective Green, g (s)	16.0	16.0			16.0	16.0		16.0				
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.40				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)	430	1287			1416	1115		2003				
v/s Ratio Prot					0.05							
v/s Ratio Perm	0.16	c0.34				0.06		0.07				
v/c Ratio	0.40	0.85			0.13	0.14		0.18				
Uniform Delay, d1	8.6	10.9			7.6	7.6		7.7				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	2.8	7.3			0.2	0.3		0.2				
Delay (s)	11.4	18.2			7.8	7.9		7.9				
Level of Service	B	B			A	A		A				
Approach Delay (s)		17.3			7.9			7.9			0.0	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM Average Control Delay	13.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

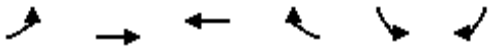
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	321	31	12	181	0	0	0	0	835	1243	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00		0.95					0.91	0.91	1.00
Frpb, ped/bikes		1.00	0.98		1.00					1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00		1.00					1.00	1.00	1.00
Frt		1.00	0.85		1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00					0.95	0.99	1.00
Satd. Flow (prot)		3539	1558		3527					1610	3370	1583
Flt Permitted		1.00	1.00		0.93					0.95	0.99	1.00
Satd. Flow (perm)		3539	1558		3290					1610	3370	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92
Adj. Flow (vph)	0	349	34	13	197	0	0	0	0	908	1337	440
RTOR Reduction (vph)	0	0	21	0	0	0	0	0	0	0	0	213
Lane Group Flow (vph)	0	349	13	0	210	0	0	0	0	726	1519	227
Confl. Peds. (#/hr)	2		2	10		10	6		6			
Confl. Bikes (#/hr)			3			4			1			
Turn Type			Perm	Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases			4	8						6		6
Actuated Green, G (s)		21.0	21.0		21.0					31.0	31.0	31.0
Effective Green, g (s)		21.0	21.0		21.0					31.0	31.0	31.0
Actuated g/C Ratio		0.35	0.35		0.35					0.52	0.52	0.52
Clearance Time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Grp Cap (vph)		1239	545		1152					832	1741	818
v/s Ratio Prot		c0.10										
v/s Ratio Perm			0.01		0.06					c0.45	0.45	0.14
v/c Ratio		0.28	0.02		0.18					0.87	0.87	0.28
Uniform Delay, d1		14.1	12.8		13.5					12.8	12.8	8.2
Progression Factor		1.00	1.00		1.00					1.00	1.00	1.00
Incremental Delay, d2		0.6	0.1		0.3					12.2	6.4	0.8
Delay (s)		14.6	12.9		13.9					25.0	19.1	9.0
Level of Service		B	B		B					C	B	A
Approach Delay (s)		14.5			13.9			0.0			19.1	
Approach LOS		B			B			A			B	

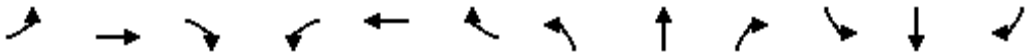
Intersection Summary			
HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



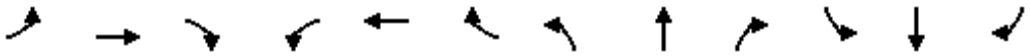
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	225	688	772	151	975	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.91
Frpb, ped/bikes	1.00	1.00	0.99		1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3435		3432	1414
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3435		3432	1414
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	245	748	839	164	1060	247
RTOR Reduction (vph)	0	0	20	0	2	148
Lane Group Flow (vph)	245	748	983	0	1083	74
Confl. Peds. (#/hr)	14			11	6	6
Confl. Bikes (#/hr)				10		1
Turn Type	Prot					Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	13.7	45.4	27.7		26.6	26.6
Effective Green, g (s)	13.7	45.4	27.7		26.6	26.6
Actuated g/C Ratio	0.17	0.57	0.35		0.33	0.33
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	303	2008	1189		1141	470
v/s Ratio Prot	c0.14	0.21	c0.29		c0.32	
v/s Ratio Perm						0.05
v/c Ratio	0.81	0.37	0.83		0.95	0.16
Uniform Delay, d1	31.9	9.5	24.0		26.0	18.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	13.8	0.5	6.7		15.6	0.1
Delay (s)	45.7	10.0	30.6		41.7	18.9
Level of Service	D	B	C		D	B
Approach Delay (s)		18.8	30.6		37.8	
Approach LOS		B	C		D	

Intersection Summary			
HCM Average Control Delay	29.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	1019	410	79	494	78	232	302	35	132	423	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1767	3427	1553	1770	3347		1769	3474		1757	3433	
Flt Permitted	0.26	1.00	1.00	0.16	1.00		0.35	1.00		0.54	1.00	
Satd. Flow (perm)	476	3427	1553	297	3347		653	3474		997	3433	
Peak-hour factor, PHF	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	1061	446	86	537	85	252	318	38	143	460	97
RTOR Reduction (vph)	0	0	314	0	14	0	0	3	0	0	20	0
Lane Group Flow (vph)	136	1061	132	86	608	0	252	353	0	143	537	0
Confl. Peds. (#/hr)	4		4	4		4	4		4	11		11
Confl. Bikes (#/hr)			3			7			21			1
Turn Type	Perm		Perm	Perm			pm+pt			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	25.1	25.1	25.1	25.1	25.1		49.4	49.4		34.9	34.9	
Effective Green, g (s)	25.1	25.1	25.1	25.1	25.1		49.4	49.4		34.9	34.9	
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30		0.58	0.58		0.41	0.41	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	141	1012	459	88	988		511	2019		409	1410	
v/s Ratio Prot		c0.31			0.18		c0.06	0.10			0.16	
v/s Ratio Perm	0.29		0.08	0.29			c0.23			0.14		
v/c Ratio	0.96	1.05	0.29	0.98	0.62		0.49	0.17		0.35	0.38	
Uniform Delay, d1	29.5	30.0	23.1	29.7	25.8		9.3	8.3		17.2	17.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.11	1.13	
Incremental Delay, d2	66.9	41.8	1.6	89.9	2.9		0.3	0.2		2.2	0.8	
Delay (s)	96.4	71.8	24.6	119.5	28.7		9.5	8.5		21.4	20.5	
Level of Service	F	E	C	F	C		A	A		C	C	
Approach Delay (s)		61.0			39.7			8.9			20.7	
Approach LOS		E			D			A			C	

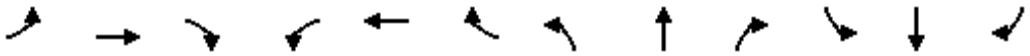
Intersection Summary			
HCM Average Control Delay	40.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	877	100	108	559	83	129	499	111	105	452	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	*0.92			*0.92		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			0.99		1.00	1.00	0.96	1.00	1.00	
Flpb, ped/bikes	0.99	1.00			1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.98			0.98		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1755	3358			3326		1764	3539	1526	1763	3437	
Flt Permitted	0.24	1.00			0.57		0.37	1.00	1.00	0.40	1.00	
Satd. Flow (perm)	435	3358			1909		688	3539	1526	739	3437	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	953	109	117	608	90	140	542	121	114	491	98
RTOR Reduction (vph)	0	11	0	0	12	0	0	0	31	0	20	0
Lane Group Flow (vph)	114	1051	0	0	803	0	140	542	90	114	569	0
Confl. Peds. (#/hr)	34		34	37		37	8		8	10		10
Confl. Bikes (#/hr)			11			8			35			7
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	35.4	35.4			35.4		36.6	36.6	36.6	36.6	36.6	
Effective Green, g (s)	35.4	35.4			35.4		36.6	36.6	36.6	36.6	36.6	
Actuated g/C Ratio	0.44	0.44			0.44		0.46	0.46	0.46	0.46	0.46	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	192	1486			845		315	1619	698	338	1572	
v/s Ratio Prot		0.31						0.15			0.17	
v/s Ratio Perm	0.26				c0.42		c0.20		0.06	0.15		
v/c Ratio	0.59	0.71			1.03dl		0.44	0.33	0.13	0.34	0.36	
Uniform Delay, d1	16.9	18.1			21.5		14.8	13.9	12.5	13.9	14.1	
Progression Factor	1.00	1.00			1.35		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.3	1.3			19.6		4.5	0.6	0.4	2.7	0.6	
Delay (s)	20.1	19.4			48.6		19.3	14.5	12.9	16.6	14.8	
Level of Service	C	B			D		B	B	B	B	B	
Approach Delay (s)		19.4			48.6			15.1			15.1	
Approach LOS		B			D			B			B	

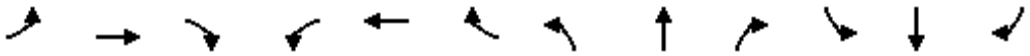
Intersection Summary			
HCM Average Control Delay	24.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	472	500	137	507	0	0	0	0	14	189	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						3.0	
Lane Util. Factor		*0.92		1.00	*0.92						0.95	
Frpb, ped/bikes		0.97		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						0.99	
Frt		0.92		1.00	1.00						0.98	
Flt Protected		1.00		0.95	1.00						1.00	
Satd. Flow (prot)		3067		1770	3427						3413	
Flt Permitted		1.00		0.11	1.00						1.00	
Satd. Flow (perm)		3067		212	3427						3413	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	508	543	149	551	0	0	0	0	15	205	25
RTOR Reduction (vph)	0	175	0	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	876	0	149	551	0	0	0	0	0	234	0
Confl. Peds. (#/hr)	26		26	28		28	21		21	101		101
Confl. Bikes (#/hr)			4			4			3			6
Turn Type	Perm			pm+pt						Perm		
Protected Phases		2		1	6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)		30.2		43.0	43.0						29.0	
Effective Green, g (s)		30.2		43.0	43.0						29.0	
Actuated g/C Ratio		0.38		0.54	0.54						0.36	
Clearance Time (s)		5.0		5.0	5.0						3.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		1158		266	1842						1237	
v/s Ratio Prot		c0.29		c0.05	0.16							
v/s Ratio Perm				0.25							0.07	
v/c Ratio		0.76		0.56	0.30						0.19	
Uniform Delay, d1		21.7		13.8	10.2						17.5	
Progression Factor		2.05		1.00	1.00						1.00	
Incremental Delay, d2		3.8		1.6	0.4						0.3	
Delay (s)		48.2		15.4	10.6						17.8	
Level of Service		D		B	B						B	
Approach Delay (s)		48.2			11.6			0.0			17.8	
Approach LOS		D			B			A			B	

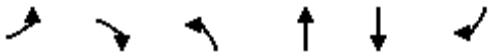
Intersection Summary			
HCM Average Control Delay	31.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	118	259	101	846	834	137	265	1094	394	48	1387	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	
Frpb, ped/bikes	1.00	1.00	0.93	1.00	1.00	0.94		1.00	0.90		0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.99	1.00		1.00	
Satd. Flow (prot)	3433	3539	1479	3433	3539	1484		5036	1419		4897	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.69	1.00		0.73	
Satd. Flow (perm)	3433	3539	1479	3433	3539	1484		3500	1419		3564	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92
Adj. Flow (vph)	128	282	110	920	907	149	288	1189	428	52	1491	337
RTOR Reduction (vph)	0	0	1	0	0	72	0	0	274	0	35	0
Lane Group Flow (vph)	128	282	109	920	907	77	0	1477	154	0	1845	0
Confl. Peds. (#/hr)	38		38	34		34	60		60	28		28
Confl. Bikes (#/hr)			12			18			39			9
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		
Protected Phases	1	6		5	2			4			4	
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	8.1	33.0	33.0	16.0	41.9	41.9		36.0	36.0		36.0	
Effective Green, g (s)	8.1	33.0	33.0	16.0	41.9	41.9		36.0	36.0		36.0	
Actuated g/C Ratio	0.08	0.33	0.33	0.16	0.42	0.42		0.36	0.36		0.36	
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	278	1168	488	549	1483	622		1260	511		1283	
v/s Ratio Prot	0.04	0.08		c0.27	c0.26							
v/s Ratio Perm			0.07			0.05		0.42	0.11		c0.52	
v/c Ratio	0.46	0.24	0.22	1.68	0.61	0.12		3.84dl	0.30		1.44	
Uniform Delay, d1	43.9	24.4	24.2	42.0	22.7	17.8		32.0	23.0		32.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.5	1.1	312.0	1.9	0.4		86.2	1.5		201.8	
Delay (s)	44.3	24.9	25.3	354.0	24.6	18.2		118.2	24.5		233.8	
Level of Service	D	C	C	F	C	B		F	C		F	
Approach Delay (s)		29.7			177.5			97.2			233.8	
Approach LOS		C			F			F			F	

Intersection Summary			
HCM Average Control Delay	157.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	122.5%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	130	54	128	1100	1303	743
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.5	4.5	
Lane Util. Factor	0.97		1.00	*0.50	0.86	
Frpb, ped/bikes	0.98		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.96		1.00	1.00	0.95	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	3270		1769	3725	6056	
Flt Permitted	0.97		0.08	1.00	1.00	
Satd. Flow (perm)	3270		150	3725	6056	
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.93	0.92
Adj. Flow (vph)	141	59	139	1146	1401	808
RTOR Reduction (vph)	52	0	0	0	70	0
Lane Group Flow (vph)	148	0	139	1146	2139	0
Confl. Peds. (#/hr)	36	36	109			
Confl. Bikes (#/hr)		14				
Turn Type			pm+pt			
Protected Phases	4		1	2	2	
Permitted Phases			2			
Actuated Green, G (s)	8.9		57.6	49.6	49.6	
Effective Green, g (s)	8.9		57.6	49.6	49.6	
Actuated g/C Ratio	0.11		0.72	0.62	0.62	
Clearance Time (s)	5.0		4.0	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	364		270	2310	3755	
v/s Ratio Prot	c0.05		c0.05	0.31	c0.35	
v/s Ratio Perm			0.32			
v/c Ratio	0.41		0.51	0.50	0.57	
Uniform Delay, d1	33.1		6.5	8.3	8.9	
Progression Factor	1.00		1.07	1.33	1.00	
Incremental Delay, d2	0.7		1.3	0.6	0.6	
Delay (s)	33.8		8.3	11.7	9.6	
Level of Service	C		A	B	A	
Approach Delay (s)	33.8			11.3	9.6	
Approach LOS	C			B	A	

Intersection Summary			
HCM Average Control Delay	11.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	175	30	115	759	1	19
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	190	33	125	825	1	21
Pedestrians	7			7	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	533			360		
pX, platoon unblocked						
vC, conflicting volume			225		1291	216
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			225		1291	216
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		99	97
cM capacity (veh/h)			1342		162	818

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	223	950	22
Volume Left	0	125	1
Volume Right	33	0	21
cSH	1700	1342	681
Volume to Capacity	0.13	0.09	0.03
Queue Length 95th (ft)	0	8	2
Control Delay (s)	0.0	2.3	10.5
Lane LOS		A	B
Approach Delay (s)	0.0	2.3	10.5
Approach LOS			B

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	170	258	424	337	2	34
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	185	280	461	366	2	37
Pedestrians	24			24	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	2			2	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	470			423		
pX, platoon unblocked						
vC, conflicting volume			467		1639	351
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			467		1639	351
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			58		97	95
cM capacity (veh/h)			1092		62	677

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	465	827	39
Volume Left	0	461	2
Volume Right	280	0	37
cSH	1700	1092	438
Volume to Capacity	0.27	0.42	0.09
Queue Length 95th (ft)	0	53	7
Control Delay (s)	0.0	8.5	14.0
Lane LOS		A	B
Approach Delay (s)	0.0	8.5	14.0
Approach LOS			B

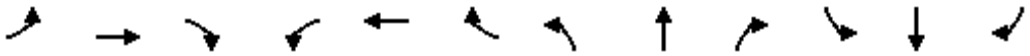
Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	264	149	132	477	34	43
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	1.00	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	287	149	143	518	37	47
Pedestrians	16			16	2	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	80			813		
pX, platoon unblocked			0.84		0.84	0.84
vC, conflicting volume			438		1185	379
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			232		1124	163
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			87		77	94
cM capacity (veh/h)			1117		163	728

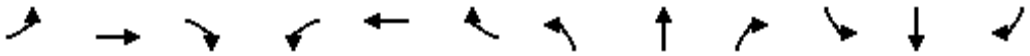
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	436	662	18	18	23	23
Volume Left	0	143	18	18	0	0
Volume Right	149	0	0	0	23	23
cSH	1700	1117	163	163	728	728
Volume to Capacity	0.26	0.13	0.11	0.11	0.03	0.03
Queue Length 95th (ft)	0	11	9	9	2	2
Control Delay (s)	0.0	3.1	29.8	29.8	10.1	10.1
Lane LOS		A	D	D	B	B
Approach Delay (s)	0.0	3.1	18.8			
Approach LOS			C			

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		



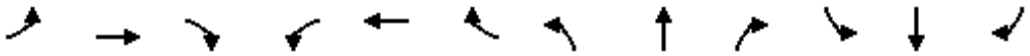
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	391	76	59	74	0	0	0	0	315	489	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.91	
Frpb, ped/bikes		1.00	0.85		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.97						0.96	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.98						0.98	
Satd. Flow (prot)		1863	1343		1770						4718	
Flt Permitted		1.00	1.00		0.53						0.98	
Satd. Flow (perm)		1863	1343		956						4718	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	425	83	64	80	0	0	0	0	342	532	39
RTOR Reduction (vph)	0	0	33	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	425	50	0	144	0	0	0	0	0	910	0
Confl. Peds. (#/hr)	106		106	134		134	73		73	52		52
Confl. Bikes (#/hr)			3			7			21			1
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		26.0	26.0		26.0						46.0	
Effective Green, g (s)		26.0	26.0		26.0						46.0	
Actuated g/C Ratio		0.32	0.32		0.32						0.57	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		605	436		311						2713	
v/s Ratio Prot		c0.23										
v/s Ratio Perm			0.04		0.15						0.19	
v/c Ratio		0.70	0.11		0.46						0.34	
Uniform Delay, d1		23.6	18.9		21.5						9.0	
Progression Factor		1.00	1.00		1.00						0.94	
Incremental Delay, d2		3.7	0.1		1.1						0.3	
Delay (s)		27.3	19.0		22.5						8.7	
Level of Service		C	B		C						A	
Approach Delay (s)		26.0			22.5			0.0			8.7	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	15.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



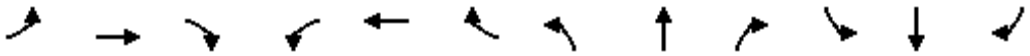
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	279	4	0	49	48	12	253	188	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.94			1.00	0.87			
Flpb, ped/bikes		1.00			1.00			1.00	1.00			
Frt		1.00			0.93			1.00	0.85			
Flt Protected		1.00			1.00			1.00	1.00			
Satd. Flow (prot)		1852			1631			3515	1378			
Flt Permitted		0.99			1.00			1.00	1.00			
Satd. Flow (perm)		1846			1631			3515	1378			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	303	4	0	53	52	13	275	204	0	0	0
RTOR Reduction (vph)	0	1	0	0	19	0	0	0	166	0	0	0
Lane Group Flow (vph)	0	315	0	0	86	0	0	288	38	0	0	0
Confl. Peds. (#/hr)	58		58	134		134	73		73	87		87
Confl. Bikes (#/hr)						5			5			2
Turn Type	Perm						Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2						1		1			
Actuated Green, G (s)		28.7			28.7			8.3	8.3			
Effective Green, g (s)		28.7			28.7			8.3	8.3			
Actuated g/C Ratio		0.64			0.64			0.18	0.18			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)		1177			1040			648	254			
v/s Ratio Prot					0.05							
v/s Ratio Perm		c0.17						0.08	0.03			
v/c Ratio		0.27			0.08			0.44	0.15			
Uniform Delay, d1		3.6			3.1			16.3	15.4			
Progression Factor		0.50			1.00			1.00	1.00			
Incremental Delay, d2		0.5			0.2			0.2	0.1			
Delay (s)		2.3			3.3			16.5	15.5			
Level of Service		A			A			B	B			
Approach Delay (s)		2.3			3.3			16.1			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	9.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



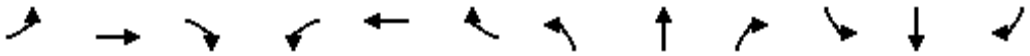
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	157	21	30	0	43	0	393	46	110	427	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frpb, ped/bikes	1.00	1.00			0.99			0.99			1.00	
Flpb, ped/bikes	0.99	1.00			1.00			1.00			0.99	
Frt	1.00	0.98			0.92			0.98			1.00	
Flt Protected	0.95	1.00			0.98			1.00			0.99	
Satd. Flow (prot)	1752	1824			1651			3455			3482	
Flt Permitted	0.70	1.00			0.87			1.00			0.76	
Satd. Flow (perm)	1300	1824			1461			3455			2672	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	14	171	23	33	0	47	0	427	50	120	464	0
RTOR Reduction (vph)	0	11	0	0	27	0	0	20	0	0	0	0
Lane Group Flow (vph)	14	183	0	0	53	0	0	457	0	0	584	0
Confl. Peds. (#/hr)	16		16	17		17	43		43	44		44
Confl. Bikes (#/hr)			2						2			16
Turn Type	Perm			Perm						Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2						4		
Actuated Green, G (s)	19.0	19.0			19.0			17.0			17.0	
Effective Green, g (s)	19.0	19.0			19.0			17.0			17.0	
Actuated g/C Ratio	0.42	0.42			0.42			0.38			0.38	
Clearance Time (s)	4.0	4.0			4.0			5.0			5.0	
Vehicle Extension (s)	2.0	2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)	549	770			617			1305			1009	
v/s Ratio Prot		c0.10						0.13				
v/s Ratio Perm	0.01				0.04						c0.22	
v/c Ratio	0.03	0.24			0.09			0.35			0.58	
Uniform Delay, d1	7.6	8.3			7.8			10.0			11.1	
Progression Factor	1.00	1.00			1.19			1.00			1.00	
Incremental Delay, d2	0.1	0.7			0.3			0.7			2.4	
Delay (s)	7.7	9.1			9.5			10.8			13.6	
Level of Service	A	A			A			B			B	
Approach Delay (s)		9.0			9.5			10.8			13.6	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	116	24	15	237	125	40	547	51	193	194	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5		4.5	4.5	
Lane Util. Factor		0.95			0.95			0.95		1.00	0.95	
Frpb, ped/bikes		1.00			0.99			1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00			1.00		1.00	1.00	
Frt		0.98			0.95			0.99		1.00	0.96	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3422			3319			3477		1769	3381	
Flt Permitted		0.86			0.94			0.92		0.30	1.00	
Satd. Flow (perm)		2971			3120			3200		564	3381	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	126	26	16	252	136	43	558	55	210	211	76
RTOR Reduction (vph)	0	21	0	0	111	0	0	9	0	0	25	0
Lane Group Flow (vph)	0	155	0	0	293	0	0	647	0	210	262	0
Confl. Peds. (#/hr)	10		10	19		19	5		5	4		4
Confl. Bikes (#/hr)			4			1			3			9
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		11.0			11.0			27.1		40.0	40.0	
Effective Green, g (s)		11.0			11.0			27.1		40.0	40.0	
Actuated g/C Ratio		0.18			0.18			0.45		0.67	0.67	
Clearance Time (s)		4.5			4.5			4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		545			572			1445		545	2254	
v/s Ratio Prot										c0.05	0.08	
v/s Ratio Perm		0.05			c0.09			c0.20		0.20		
v/c Ratio		0.28			0.51			0.45		0.39	0.12	
Uniform Delay, d1		21.1			22.1			11.3		4.5	3.6	
Progression Factor		1.00			1.03			1.00		1.00	1.00	
Incremental Delay, d2		0.3			0.7			1.0		0.5	0.1	
Delay (s)		21.4			23.6			12.3		4.9	3.7	
Level of Service		C			C			B		A	A	
Approach Delay (s)		21.4			23.6			12.3			4.2	
Approach LOS		C			C			B			A	

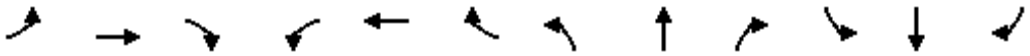
Intersection Summary			
HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	226	71	56	185	131	69	561	97	76	479	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.98			0.96			0.99			1.00	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.97			0.95			0.98			0.99	
Flt Protected		1.00			0.99			1.00			0.99	
Satd. Flow (prot)		3353			3158			3397			4981	
Flt Permitted		0.94			0.86			0.84			0.77	
Satd. Flow (perm)		3159			2733			2879			3836	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	246	77	61	201	142	75	603	105	83	521	33
RTOR Reduction (vph)	0	47	0	0	90	0	0	21	0	0	10	0
Lane Group Flow (vph)	0	287	0	0	314	0	0	762	0	0	627	0
Confl. Peds. (#/hr)	58		58	99		99	72		72	49		49
Confl. Bikes (#/hr)			7			33			10			6
Turn Type	Perm			Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						6		
Actuated Green, G (s)		22.0			22.0			29.0			18.0	
Effective Green, g (s)		22.0			22.0			29.0			18.0	
Actuated g/C Ratio		0.37			0.37			0.48			0.30	
Clearance Time (s)		4.0			4.0			5.0			5.0	
Lane Grp Cap (vph)		1158			1002			1452			1151	
v/s Ratio Prot								c0.06				
v/s Ratio Perm		0.09			c0.11			c0.19			0.16	
v/c Ratio		0.25			0.31			0.53			0.54	
Uniform Delay, d1		13.2			13.6			10.7			17.6	
Progression Factor		0.90			1.00			1.00			1.00	
Incremental Delay, d2		0.5			0.8			1.4			1.9	
Delay (s)		12.5			14.4			12.1			19.4	
Level of Service		B			B			B			B	
Approach Delay (s)		12.5			14.4			12.1			19.4	
Approach LOS		B			B			B			B	

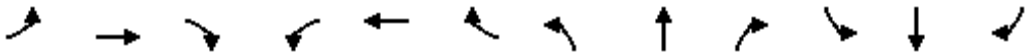
Intersection Summary			
HCM Average Control Delay	14.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



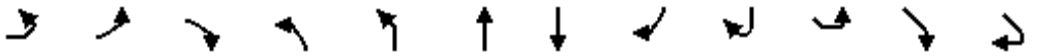
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	403	0	0	310	106	42	326	132	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.91	1.00			
Frpb, ped/bikes		1.00			1.00	0.93		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			0.99	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3518			3364	1337		5024	1461			
Flt Permitted		0.91			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3220			3364	1337		5024	1461			
Peak-hour factor, PHF	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	438	0	0	337	115	46	354	143	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	25	0	0	121	0	0	0
Lane Group Flow (vph)	0	473	0	0	348	78	0	400	22	0	0	0
Confl. Peds. (#/hr)	40		40	45		45	51		51	207		207
Confl. Bikes (#/hr)			5			6			8			12
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		60.8			60.8	60.8		12.2	12.2			
Effective Green, g (s)		60.8			60.8	60.8		12.2	12.2			
Actuated g/C Ratio		0.76			0.76	0.76		0.15	0.15			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2447			2557	1016		766	223			
v/s Ratio Prot					0.10							
v/s Ratio Perm		c0.15				0.06		0.08	0.01			
v/c Ratio		0.19			0.14	0.08		0.52	0.10			
Uniform Delay, d1		2.7			2.6	2.4		31.2	29.2			
Progression Factor		1.00			1.67	3.37		1.00	1.00			
Incremental Delay, d2		0.2			0.1	0.1		0.6	0.2			
Delay (s)		2.9			4.4	8.4		31.9	29.4			
Level of Service		A			A	A		C	C			
Approach Delay (s)		2.9			5.3			31.2			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	14.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	345	196	224	308	0	0	0	0	80	427	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	0.91	0.91						0.91	
Frpb, ped/bikes		1.00	0.90	1.00	1.00						0.95	
Flpb, ped/bikes		1.00	1.00	1.00	0.99						0.96	
Frt		1.00	0.85	1.00	1.00						0.97	
Flt Protected		1.00	1.00	0.95	0.99						0.99	
Satd. Flow (prot)		3539	1422	1610	3341						4472	
Flt Permitted		1.00	1.00	0.95	0.88						0.99	
Satd. Flow (perm)		3539	1422	1610	2974						4472	
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	375	206	243	335	0	0	0	0	87	464	116
RTOR Reduction (vph)	0	0	76	0	0	0	0	0	0	0	41	0
Lane Group Flow (vph)	0	375	130	187	391	0	0	0	0	0	626	0
Confl. Peds. (#/hr)	53		53	86		86	105		105	331		331
Confl. Bikes (#/hr)			16			2			1			14
Turn Type			Perm	Prot						Perm		
Protected Phases		2		1	6						4	
Permitted Phases			2							4		
Actuated Green, G (s)		21.0	21.0	16.0	41.0						31.0	
Effective Green, g (s)		21.0	21.0	16.0	41.0						31.0	
Actuated g/C Ratio		0.26	0.26	0.20	0.51						0.39	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		929	373	322	1598						1733	
v/s Ratio Prot		c0.11		c0.12	0.05							
v/s Ratio Perm			0.09		0.08						0.14	
v/c Ratio		0.40	0.35	0.58	0.24						0.36	
Uniform Delay, d1		24.3	23.9	29.0	10.9						17.4	
Progression Factor		1.00	1.09	1.52	0.56						1.07	
Incremental Delay, d2		1.3	2.5	0.9	0.0						0.0	
Delay (s)		25.6	28.6	45.0	6.2						18.7	
Level of Service		C	C	D	A						B	
Approach Delay (s)		26.7			18.7			0.0			18.7	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL2	EBL	EBR	NBL2	NBL	NBT	SBT	SBR	SBR2	SEL	SER	SER2
Lane Configurations												
Volume (vph)	109	181	204	102	108	451	531	589	116	0	32	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0				4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.94				0.95	0.91	0.91	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00				1.00	1.00	1.00	1.00		1.00	0.94
Flpb, ped/bikes	1.00	1.00				1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.92				1.00	0.96	0.85	0.85		0.85	0.85
Flt Protected	0.95	0.98				0.98	1.00	1.00	1.00		1.00	1.00
Satd. Flow (prot)	1770	4724				3483	3238	1441	1583		1583	1490
Flt Permitted	0.95	0.98				0.98	1.00	1.00	1.00		1.00	1.00
Satd. Flow (perm)	1770	4724				3483	3238	1441	1583		1583	1490
Peak-hour factor, PHF	0.98	0.92	0.92	0.94	0.94	0.96	0.92	0.96	0.96	0.92	0.98	0.98
Adj. Flow (vph)	111	197	222	109	115	470	577	614	121	0	33	30
RTOR Reduction (vph)	0	166	0	0	0	0	0	0	61	0	0	24
Lane Group Flow (vph)	111	253	0	0	0	694	823	368	60	0	33	6
Confl. Peds. (#/hr)	16								102			32
Confl. Bikes (#/hr)						6			10			2
Turn Type	Prot			Split	Split			custom	custom		custom	custom
Protected Phases	5	1		8	8	8	2	6	6			
Permitted Phases		1						6			9	2
Actuated Green, G (s)	7.3	20.2				24.0	16.8	29.7	29.7		3.0	16.8
Effective Green, g (s)	7.3	20.2				24.0	16.8	29.7	29.7		3.0	16.8
Actuated g/C Ratio	0.09	0.25				0.30	0.21	0.37	0.37		0.04	0.21
Clearance Time (s)	4.0	4.0				4.0	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	2.0				2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	162	1193				1045	680	535	588		59	313
v/s Ratio Prot	c0.06	0.05				c0.20	c0.25	c0.26	0.04			
v/s Ratio Perm											c0.02	0.00
v/c Ratio	0.69	0.21				0.66	1.21	0.69	0.10		0.56	0.02
Uniform Delay, d1	35.2	23.6				24.5	31.6	21.2	16.4		37.9	25.1
Progression Factor	0.89	1.85				1.00	1.49	1.73	3.16		1.00	1.00
Incremental Delay, d2	10.9	0.4				1.2	107.2	6.6	0.3		6.4	0.0
Delay (s)	42.1	44.1				25.7	154.3	43.3	52.2		44.2	25.1
Level of Service	D	D				C	F	D	D		D	C
Approach Delay (s)		43.7				25.7	113.7			35.1		
Approach LOS		D				C	F			D		

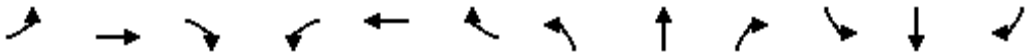
Intersection Summary			
HCM Average Control Delay	74.0	HCM Level of Service	E
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	72.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	577	56	544	1044	192	1148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.91		0.97	0.91	0.97	0.91
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.99		1.00	1.00	0.89	0.85
Flt Protected	1.00		0.95	1.00	0.99	1.00
Satd. Flow (prot)	5018		3433	5085	3172	1441
Flt Permitted	1.00		0.95	1.00	0.99	1.00
Satd. Flow (perm)	5018		3433	5085	3172	1441
Peak-hour factor, PHF	0.92	0.92	0.96	0.92	0.92	0.97
Adj. Flow (vph)	627	61	567	1135	209	1184
RTOR Reduction (vph)	14	0	0	0	344	344
Lane Group Flow (vph)	674	0	567	1135	457	248
Confl. Bikes (#/hr)				2		
Turn Type			Prot			Perm
Protected Phases	8		7	4	6	
Permitted Phases						6
Actuated Green, G (s)	33.0		16.3	54.3	17.7	17.7
Effective Green, g (s)	33.0		16.3	54.3	17.7	17.7
Actuated g/C Ratio	0.41		0.20	0.68	0.22	0.22
Clearance Time (s)	5.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2070		699	3451	702	319
v/s Ratio Prot	0.13		c0.17	c0.22	0.14	
v/s Ratio Perm						c0.17
v/c Ratio	0.33		0.81	0.33	0.85dr	0.78
Uniform Delay, d1	15.9		30.4	5.3	28.3	29.3
Progression Factor	0.48		0.79	1.04	1.00	1.00
Incremental Delay, d2	0.4		8.9	0.2	2.2	11.3
Delay (s)	7.9		33.0	5.7	30.5	40.6
Level of Service	A		C	A	C	D
Approach Delay (s)	7.9			14.8	34.8	
Approach LOS	A			B	C	

Intersection Summary			
HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



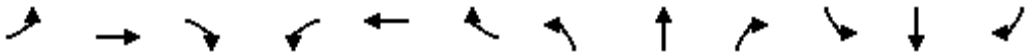
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	82	113	0	0	0	0	0	3650	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0						6.0	
Lane Util. Factor				1.00	0.95						0.86	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				1.00	1.00						1.00	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1770	3539						6403	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1770	3539						6403	
Peak-hour factor, PHF	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92
Adj. Flow (vph)	0	0	0	88	123	0	0	0	0	0	3802	15
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	88	123	0	0	0	0	0	3817	0
Confl. Peds. (#/hr)												14
Confl. Bikes (#/hr)			1									
Turn Type				Perm								
Protected Phases					4						6	
Permitted Phases				4								
Actuated Green, G (s)				9.2	9.2						56.8	
Effective Green, g (s)				9.2	9.2						56.8	
Actuated g/C Ratio				0.12	0.12						0.76	
Clearance Time (s)				3.0	3.0						6.0	
Vehicle Extension (s)				3.0	3.0						4.0	
Lane Grp Cap (vph)				217	434						4849	
v/s Ratio Prot					0.03						c0.60	
v/s Ratio Perm				c0.05								
v/c Ratio				0.41	0.28						0.79	
Uniform Delay, d1				30.4	29.9						5.5	
Progression Factor				1.00	1.00						0.97	
Incremental Delay, d2				5.5	1.6						0.9	
Delay (s)				35.9	31.5						6.2	
Level of Service				D	C						A	
Approach Delay (s)		0.0			33.4			0.0			6.2	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM Average Control Delay	7.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



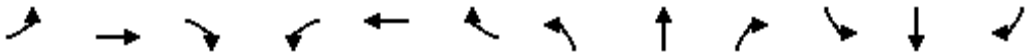
Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	219	1178	646	96	594	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0		5.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	0.99		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.98		0.97	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	5085	4956		3376	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1770	5085	4956		3376	
Peak-hour factor, PHF	0.92	0.96	0.95	0.92	0.94	0.92
Adj. Flow (vph)	238	1227	680	104	632	142
RTOR Reduction (vph)	30	0	24	0	0	0
Lane Group Flow (vph)	208	1227	760	0	774	0
Confl. Peds. (#/hr)				22		
Confl. Bikes (#/hr)				2		
Turn Type	Perm					
Protected Phases		4	2		1	
Permitted Phases	4					
Actuated Green, G (s)	32.0	32.0	17.8		13.2	
Effective Green, g (s)	32.0	32.0	17.8		13.2	
Actuated g/C Ratio	0.43	0.43	0.24		0.18	
Clearance Time (s)	3.0	3.0	4.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	755	2170	1176		594	
v/s Ratio Prot		c0.24	c0.15		c0.23	
v/s Ratio Perm	0.12					
v/c Ratio	0.27	0.57	0.65		1.30	
Uniform Delay, d1	14.0	16.2	25.8		30.9	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.9	1.1	1.2		148.3	
Delay (s)	14.9	17.3	27.0		179.2	
Level of Service	B	B	C		F	
Approach Delay (s)		16.9	27.0		179.2	
Approach LOS		B	C		F	

Intersection Summary			
HCM Average Control Delay	61.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



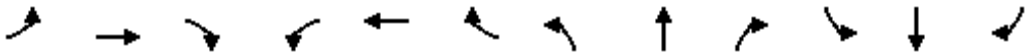
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	182	281	357	358	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	5.0	5.0				
Lane Util. Factor					0.91	0.91	0.81	0.81				
Frpb, ped/bikes					0.99	0.99	1.00	1.00				
Flpb, ped/bikes					1.00	1.00	0.99	1.00				
Frt					0.93	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	0.98				
Satd. Flow (prot)					3152	1423	1425	5925				
Flt Permitted					1.00	1.00	0.95	0.98				
Satd. Flow (perm)					3152	1423	1425	5925				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	194	305	388	389	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	56	59	154	154	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	287	98	40	429	0	0	0	0
Confl. Peds. (#/hr)							5		5			
Confl. Bikes (#/hr)			6			2			5			
Turn Type						Perm	Perm					
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					37.5	37.5	12.5	12.5				
Effective Green, g (s)					37.5	37.5	12.5	12.5				
Actuated g/C Ratio					0.62	0.62	0.21	0.21				
Clearance Time (s)					5.0	5.0	5.0	5.0				
Vehicle Extension (s)					3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)					1970	889	297	1234				
v/s Ratio Prot					c0.09							
v/s Ratio Perm						0.07	0.03	0.07				
v/c Ratio					0.15	0.11	0.14	0.35				
Uniform Delay, d1					4.6	4.5	19.4	20.3				
Progression Factor					3.80	6.85	1.00	1.00				
Incremental Delay, d2					0.1	0.1	0.2	0.2				
Delay (s)					17.7	31.2	19.6	20.4				
Level of Service					B	C	B	C				
Approach Delay (s)		0.0			21.9			20.2			0.0	
Approach LOS		A			C			C			A	

Intersection Summary			
HCM Average Control Delay	20.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.20		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	30.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	210	44	0	0	0	0	0	0	1216	1366	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		0.95								0.86	0.86	
Frpb, ped/bikes		1.00								1.00	1.00	
Flpb, ped/bikes		1.00								1.00	1.00	
Frt		0.97								1.00	1.00	
Flt Protected		1.00								0.95	0.99	
Satd. Flow (prot)		3432								1522	4723	
Flt Permitted		1.00								0.95	0.99	
Satd. Flow (perm)		3432								1522	4723	
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	226	48	0	0	0	0	0	0	1322	1485	41
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	345	63	0
Lane Group Flow (vph)	0	270	0	0	0	0	0	0	0	356	2084	0
Confl. Peds. (#/hr)	6		6									
Confl. Bikes (#/hr)			1						1			1
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		62.0								50.0	50.0	
Effective Green, g (s)		62.0								50.0	50.0	
Actuated g/C Ratio		0.52								0.42	0.42	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		1773								634	1968	
v/s Ratio Prot		c0.08										
v/s Ratio Perm										0.23	0.44	
v/c Ratio		0.15								0.56	1.06	
Uniform Delay, d1		15.2								26.7	35.0	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.2								3.6	38.0	
Delay (s)		15.4								30.2	73.0	
Level of Service		B								C	E	
Approach Delay (s)		15.4			0.0			0.0			62.5	
Approach LOS		B			A			A			E	

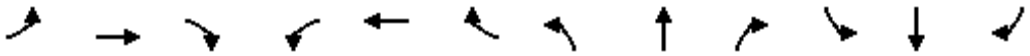
Intersection Summary			
HCM Average Control Delay	58.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	353	0	0	740	649	157	711	31	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Util. Factor		0.95			0.95	1.00		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.98		1.00	0.97			
Flpb, ped/bikes		1.00			1.00	1.00		1.00	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3515			3539	1548		3492	1531			
Flt Permitted		0.71			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		2520			3539	1548		3492	1531			
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92	0.92
Adj. Flow (vph)	50	384	0	0	804	676	171	741	34	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	108	0	0	16	0	0	0
Lane Group Flow (vph)	0	434	0	0	804	568	0	912	18	0	0	0
Confl. Peds. (#/hr)	35		35	6		6	26		26	2		2
Confl. Bikes (#/hr)			33			6		10				5
Turn Type	Perm			Perm		Perm	Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4			8		8	2		2			
Actuated Green, G (s)		18.0			18.0	18.0		32.0	32.0			
Effective Green, g (s)		18.0			18.0	18.0		32.0	32.0			
Actuated g/C Ratio		0.30			0.30	0.30		0.53	0.53			
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Grp Cap (vph)		756			1062	464		1862	817			
v/s Ratio Prot					0.23							
v/s Ratio Perm		0.17				c0.37		0.26	0.01			
v/c Ratio		0.57			0.76	1.22		0.49	0.02			
Uniform Delay, d1		17.8			19.0	21.0		8.8	6.6			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		3.2			5.0	119.0		0.9	0.1			
Delay (s)		20.9			24.1	140.0		9.8	6.7			
Level of Service		C			C	F		A	A			
Approach Delay (s)		20.9			77.0			9.7			0.0	
Approach LOS		C			E			A			A	

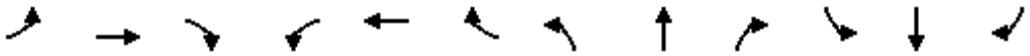
Intersection Summary			
HCM Average Control Delay	46.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	92.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



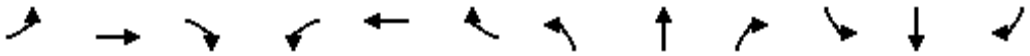
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	315	135	156	930	0	0	0	0	212	429	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0					4.0	4.0	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frpb, ped/bikes		0.99			1.00					1.00	1.00	
Flpb, ped/bikes		1.00			1.00					0.99	1.00	
Frt		0.95			1.00					1.00	0.99	
Flt Protected		1.00			0.99					0.95	1.00	
Satd. Flow (prot)		3335			3507					1746	3506	
Flt Permitted		1.00			0.80					0.95	1.00	
Satd. Flow (perm)		3335			2819					1746	3506	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.96	0.92
Adj. Flow (vph)	0	342	147	170	969	0	0	0	0	230	447	25
RTOR Reduction (vph)	0	85	0	0	0	0	0	0	0	0	9	0
Lane Group Flow (vph)	0	404	0	0	1139	0	0	0	0	230	463	0
Confl. Peds. (#/hr)	36		36	28		28	18		18	16		16
Confl. Bikes (#/hr)			4			10			3			1
Turn Type				Perm						Perm		
Protected Phases		8			4						6	
Permitted Phases				4						6		
Actuated Green, G (s)		19.0			19.0					19.0	19.0	
Effective Green, g (s)		19.0			19.0					19.0	19.0	
Actuated g/C Ratio		0.42			0.42					0.42	0.42	
Clearance Time (s)		3.0			3.0					4.0	4.0	
Vehicle Extension (s)		2.0			2.0					2.0	2.0	
Lane Grp Cap (vph)		1408			1190					737	1480	
v/s Ratio Prot		0.12									c0.13	
v/s Ratio Perm					c0.40					0.13		
v/c Ratio		0.29			0.96					0.31	0.31	
Uniform Delay, d1		8.5			12.6					8.7	8.7	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		0.5			17.6					1.1	0.6	
Delay (s)		9.1			30.2					9.8	9.2	
Level of Service		A			C					A	A	
Approach Delay (s)		9.1			30.2			0.0			9.4	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM Average Control Delay	19.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	191	14	9	460	114	76	500	31	34	87	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.97			0.99			0.97	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		3462			3387			3469			3348	
Flt Permitted		0.81			0.95			0.89			0.80	
Satd. Flow (perm)		2843			3222			3117			2723	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	55	208	15	10	500	124	83	543	34	37	95	35
RTOR Reduction (vph)	0	8	0	0	43	0	0	9	0	0	23	0
Lane Group Flow (vph)	0	270	0	0	591	0	0	651	0	0	144	0
Confl. Peds. (#/hr)	30		30	55		55	41		41	40		40
Confl. Bikes (#/hr)			7			19			6			4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		21.7			21.7			15.8			15.8	
Effective Green, g (s)		21.7			21.7			15.8			15.8	
Actuated g/C Ratio		0.48			0.48			0.35			0.35	
Clearance Time (s)		3.5			3.5			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1371			1554			1094			956	
v/s Ratio Prot												
v/s Ratio Perm		0.10			c0.18			c0.21			0.05	
v/c Ratio		0.20			0.38			0.59			0.15	
Uniform Delay, d1		6.7			7.4			12.0			10.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.3			0.7			0.9			0.1	
Delay (s)		7.0			8.1			12.9			10.1	
Level of Service		A			A			B			B	
Approach Delay (s)		7.0			8.1			12.9			10.1	
Approach LOS		A			A			B			B	

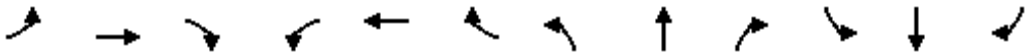
Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	478	1728	0	0	0	0	0	603	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.86						0.91	
Frpb, ped/bikes					1.00						0.99	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.98	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					6291						4935	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					6291						4935	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.98	0.92
Adj. Flow (vph)	0	0	0	520	1781	0	0	0	0	0	615	113
RTOR Reduction (vph)	0	0	0	0	84	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	0	0	2217	0	0	0	0	0	726	0
Confl. Peds. (#/hr)	48		48	30		30	54		54	27		27
Confl. Bikes (#/hr)			9			5			4			1
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2726						2180	
v/s Ratio Prot											c0.15	
v/s Ratio Perm					0.35							
v/c Ratio					0.81						0.33	
Uniform Delay, d1					14.9						11.0	
Progression Factor					0.48						1.00	
Incremental Delay, d2					2.1						0.4	
Delay (s)					9.2						11.4	
Level of Service					A						B	
Approach Delay (s)		0.0			9.2			0.0			11.4	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	9.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

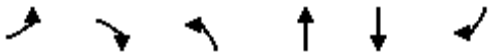
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1936	89	374	932	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5			4.0				
Lane Util. Factor					0.86			0.86				
Frpb, ped/bikes					1.00			1.00				
Flpb, ped/bikes					1.00			0.98				
Frt					0.99			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6342			6167				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6342			6167				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.93	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1996	97	402	1013	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	5	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2088	0	0	1414	0	0	0	0
Confl. Peds. (#/hr)	102		102	84		84	84		84	168		168
Confl. Bikes (#/hr)			1									1
Turn Type							Perm					
Protected Phases					6			4				
Permitted Phases							4					
Actuated Green, G (s)					29.9			20.6				
Effective Green, g (s)					29.9			20.6				
Actuated g/C Ratio					0.50			0.34				
Clearance Time (s)					5.5			4.0				
Lane Grp Cap (vph)					3160			2117				
v/s Ratio Prot					c0.33							
v/s Ratio Perm								0.23				
v/c Ratio					0.66			0.67				
Uniform Delay, d1					11.3			16.8				
Progression Factor					1.00			1.00				
Incremental Delay, d2					1.1			1.7				
Delay (s)					12.4			18.5				
Level of Service					B			B				
Approach Delay (s)		0.0			12.4			18.5			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		

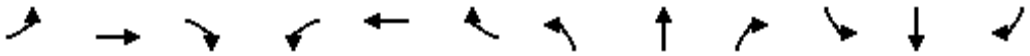
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	76	0	0	1252	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.99	0.92	0.92
Hourly flow rate (vph)	83	0	0	1265	0	0
Pedestrians	12					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1055	320	
pX, platoon unblocked						
vC, conflicting volume	328	12	12			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	328	12	12			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	100	100			
cM capacity (veh/h)	634	1055	1589			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	83	316	316	316	316
Volume Left	83	0	0	0	0
Volume Right	0	0	0	0	0
cSH	634	1700	1700	1700	1700
Volume to Capacity	0.13	0.19	0.19	0.19	0.19
Queue Length 95th (ft)	11	0	0	0	0
Control Delay (s)	11.5	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.5	0.0			
Approach LOS	B				

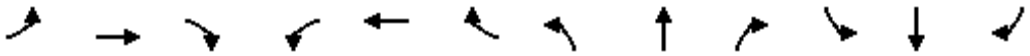
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	29.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	457	174	0	0	0	0	0	0	64	961	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5									5.5	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.96									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		6057									5063	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		6057									5063	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	0	497	189	0	0	0	0	0	0	70	1012	0
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	660	0	0	0	0	0	0	0	0	1069	0
Confl. Peds. (#/hr)	32		32	21		21	23		23	17		17
Confl. Bikes (#/hr)			10			10			2			3
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		23.0									26.0	
Effective Green, g (s)		23.0									26.0	
Actuated g/C Ratio		0.38									0.43	
Clearance Time (s)		5.5									5.5	
Lane Grp Cap (vph)		2322									2194	
v/s Ratio Prot		c0.11										
v/s Ratio Perm											0.21	
v/c Ratio		0.28									0.49	
Uniform Delay, d1		12.8									12.2	
Progression Factor		0.76									0.96	
Incremental Delay, d2		0.3									0.7	
Delay (s)		10.1									12.3	
Level of Service		B									B	
Approach Delay (s)		10.1			0.0			0.0			12.3	
Approach LOS		B			A			A			B	

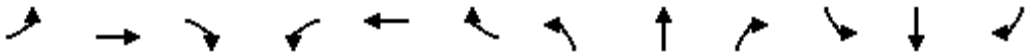
Intersection Summary			
HCM Average Control Delay	11.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	463	0	0	0	0	0	460	68	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.86						0.86				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6277						6259				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6277						6259				
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	145	498	0	0	0	0	0	500	74	0	0	0
RTOR Reduction (vph)	0	121	0	0	0	0	0	21	0	0	0	0
Lane Group Flow (vph)	0	522	0	0	0	0	0	553	0	0	0	0
Confl. Peds. (#/hr)	46		46	56		56	21		21	52		52
Confl. Bikes (#/hr)			2			2			5			
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		10.0						43.0				
Effective Green, g (s)		10.0						43.0				
Actuated g/C Ratio		0.17						0.72				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		1046						4486				
v/s Ratio Prot								c0.09				
v/s Ratio Perm		0.08										
v/c Ratio		0.50						0.12				
Uniform Delay, d1		22.7						2.6				
Progression Factor		1.05						1.00				
Incremental Delay, d2		0.1						0.1				
Delay (s)		23.9						2.7				
Level of Service		C						A				
Approach Delay (s)		23.9			0.0			2.7			0.0	
Approach LOS		C			A			A			A	

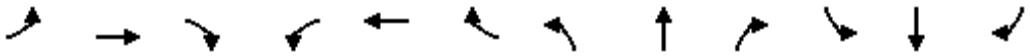
Intersection Summary			
HCM Average Control Delay	13.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	156	746	0	0	0	0	0	1310	334	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		0.86						0.91				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.97				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6335						4908				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6335						4908				
Peak-hour factor, PHF	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	811	0	0	0	0	0	1424	363	0	0	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	38	0	0	0	0
Lane Group Flow (vph)	0	975	0	0	0	0	0	1749	0	0	0	0
Confl. Peds. (#/hr)	22		22	59		59	12		12	5		5
Confl. Bikes (#/hr)			6			4			2			1
Turn Type	Perm											
Protected Phases		1						2				
Permitted Phases	1											
Actuated Green, G (s)		18.0						18.0				
Effective Green, g (s)		18.0						18.0				
Actuated g/C Ratio		0.40						0.40				
Clearance Time (s)		4.5						4.5				
Lane Grp Cap (vph)		2534						1963				
v/s Ratio Prot								c0.36				
v/s Ratio Perm		0.15										
v/c Ratio		0.38						0.89				
Uniform Delay, d1		9.6						12.6				
Progression Factor		0.85						0.76				
Incremental Delay, d2		0.3						4.2				
Delay (s)		8.5						13.8				
Level of Service		A						B				
Approach Delay (s)		8.5			0.0			13.8			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		

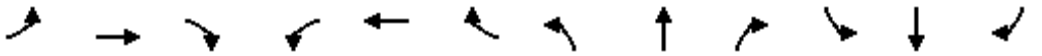
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	648	565	0	0	0	0	0	0	276	1584	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									3.0	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.93									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		5917									5040	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		5917									5040	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.92
Adj. Flow (vph)	0	704	614	0	0	0	0	0	0	300	1616	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	0	0	57	0
Lane Group Flow (vph)	0	1314	0	0	0	0	0	0	0	0	1859	0
Confl. Peds. (#/hr)	4		4	10		10	8		8	11		11
Confl. Bikes (#/hr)			1						7			2
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		18.0									20.0	
Effective Green, g (s)		18.0									20.0	
Actuated g/C Ratio		0.40									0.44	
Clearance Time (s)		4.0									3.0	
Vehicle Extension (s)		2.0									2.0	
Lane Grp Cap (vph)		2367									2240	
v/s Ratio Prot		c0.22										
v/s Ratio Perm											0.37	
v/c Ratio		0.95dr									0.83	
Uniform Delay, d1		10.4									11.0	
Progression Factor		1.00									1.00	
Incremental Delay, d2		0.9									3.7	
Delay (s)		11.4									14.7	
Level of Service		B									B	
Approach Delay (s)		11.4			0.0			0.0			14.7	
Approach LOS		B			A			A			B	

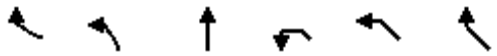
Intersection Summary			
HCM Average Control Delay	13.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	27	401	61	260	325	0	0	192	2045
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.95		1.00			1.00	0.98
Flpb, ped/bikes				0.98	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1736	1863	1503		1821			1863	1558
Flt Permitted				0.95	1.00	1.00		0.76			1.00	1.00
Satd. Flow (perm)				1736	1863	1503		1413			1863	1558
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.95
Adj. Flow (vph)	0	0	0	29	418	66	283	353	0	0	209	2153
RTOR Reduction (vph)	0	0	0	0	0	47	0	0	0	0	0	75
Lane Group Flow (vph)	0	0	0	29	418	19	0	636	0	0	209	2078
Confl. Peds. (#/hr)	1		1	23		23	2		2	5		5
Confl. Bikes (#/hr)			2									
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					1			2			2	
Permitted Phases				1		1	2					2
Actuated Green, G (s)				12.8	12.8	12.8		21.2			21.2	21.2
Effective Green, g (s)				12.8	12.8	12.8		21.2			21.2	21.2
Actuated g/C Ratio				0.28	0.28	0.28		0.47			0.47	0.47
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				494	530	428		666			878	734
v/s Ratio Prot					c0.22						0.11	
v/s Ratio Perm				0.02		0.01		0.45				c1.33
v/c Ratio				0.06	0.79	0.04		0.95			0.24	2.83
Uniform Delay, d1				11.7	14.9	11.7		11.4			7.1	11.9
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.0	7.6	0.0		25.4			0.6	827.7
Delay (s)				11.8	22.5	11.7		36.9			7.7	839.6
Level of Service				B	C	B		D			A	F
Approach Delay (s)		0.0			20.5			36.9			766.0	
Approach LOS		A			C			D			F	

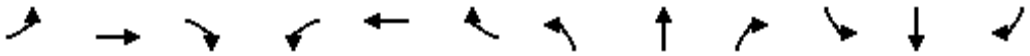
Intersection Summary			
HCM Average Control Delay	525.0	HCM Level of Service	F
HCM Volume to Capacity ratio	2.06		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	193.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBR	NBL	NBT	NWL2	NWL	NWR
Lane Configurations						
Volume (vph)	0	166	580	162	66	1038
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5		2.0	2.0
Lane Util. Factor			0.95		0.97	0.91
Frpb, ped/bikes			1.00		1.00	1.00
Flpb, ped/bikes			1.00		1.00	1.00
Frt			1.00		0.90	0.85
Flt Protected			0.99		0.98	1.00
Satd. Flow (prot)			3497		3189	1441
Flt Permitted			0.99		0.98	1.00
Satd. Flow (perm)			3497		3189	1441
Peak-hour factor, PHF	0.92	0.92	0.96	0.92	0.92	0.92
Adj. Flow (vph)	0	180	604	176	72	1128
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	784	0	812	564
Confl. Peds. (#/hr)	51	2				
Confl. Bikes (#/hr)	2					
Turn Type	custom	Perm		Perm		Perm
Protected Phases			3		1	
Permitted Phases	2	3		1		1
Actuated Green, G (s)			16.3		16.2	16.2
Effective Green, g (s)			16.3		16.2	16.2
Actuated g/C Ratio			0.36		0.36	0.36
Clearance Time (s)			3.5		2.0	2.0
Lane Grp Cap (vph)			1267		1148	519
v/s Ratio Prot						
v/s Ratio Perm			0.22		0.25	c0.39
v/c Ratio			0.62		0.99dr	1.09
Uniform Delay, d1			11.8		12.4	14.4
Progression Factor			0.85		1.00	1.00
Incremental Delay, d2			0.2		3.7	65.1
Delay (s)			10.2		16.1	79.5
Level of Service			B		B	E
Approach Delay (s)			10.2		42.0	
Approach LOS			B		D	

Intersection Summary			
HCM Average Control Delay	30.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	410	753	206	0	0	0	0	311	92	4	158	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5			3.5	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		0.99						1.00			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		0.98						0.97			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4858						1800			1861	
Flt Permitted		0.99						1.00			0.99	
Satd. Flow (perm)		1850						1500			1600	
Peak-hour factor, PHF	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	432	818	224	0	0	0	0	338	100	4	172	0
RTOR Reduction (vph)	0	57	0	0	0	0	0	24	0	0	0	0
Lane Group Flow (vph)	0	1418	0	0	0	0	0	414	0	0	176	0
Confl. Peds. (#/hr)	14		14	52		52	1		1	4		4
Confl. Bikes (#/hr)			5			2						
Turn Type	Perm									Perm		
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		22.5						15.5			15.5	
Effective Green, g (s)		22.5						15.5			15.5	
Actuated g/C Ratio		0.50						0.34			0.34	
Clearance Time (s)		3.5						3.5			3.5	
Lane Grp Cap (vph)		925						620			551	
v/s Ratio Prot								c0.23				
v/s Ratio Perm		c0.77									0.11	
v/c Ratio		1.53						0.67			0.32	
Uniform Delay, d1		11.2						12.6			10.9	
Progression Factor		1.00						1.00			0.89	
Incremental Delay, d2		245.1						5.6			1.1	
Delay (s)		256.3						18.2			10.7	
Level of Service		F						B			B	
Approach Delay (s)		256.3			0.0			18.2			10.7	
Approach LOS		F			A			B			B	

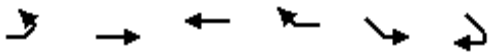
Intersection Summary			
HCM Average Control Delay	185.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	418	267	631	309	154	1592
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3365		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3365		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	454	290	686	336	167	1730
RTOR Reduction (vph)	0	209	63	0	0	0
Lane Group Flow (vph)	454	81	959	0	167	1730
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	25.1	25.1	38.9		14.0	56.9
Effective Green, g (s)	25.1	25.1	38.9		14.0	56.9
Actuated g/C Ratio	0.28	0.28	0.43		0.16	0.63
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	494	441	1454		275	2237
v/s Ratio Prot	c0.26		0.29		0.09	c0.49
v/s Ratio Perm		0.05				
v/c Ratio	0.92	0.18	0.66		0.61	0.77
Uniform Delay, d1	31.5	24.7	20.3		35.4	11.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	22.1	0.2	2.4		9.6	2.7
Delay (s)	53.5	24.9	22.7		45.0	14.6
Level of Service	D	C	C		D	B
Approach Delay (s)	42.3		22.7			17.3
Approach LOS	D		C			B

Intersection Summary			
HCM Average Control Delay	23.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	427	437	466	220	223	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3369		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3369		1770	1583
Peak-hour factor, PHF	0.94	0.96	0.92	0.92	0.92	0.92
Adj. Flow (vph)	454	455	507	239	242	238
RTOR Reduction (vph)	0	0	82	0	0	181
Lane Group Flow (vph)	454	455	664	0	242	57
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	14.1	32.4	14.3		12.7	12.7
Effective Green, g (s)	14.1	32.4	14.3		12.7	12.7
Actuated g/C Ratio	0.27	0.61	0.27		0.24	0.24
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	470	2159	907		423	379
v/s Ratio Prot	c0.26	0.13	c0.20		c0.14	
v/s Ratio Perm						0.04
v/c Ratio	0.97	0.21	0.73		0.57	0.15
Uniform Delay, d1	19.3	4.6	17.7		17.8	15.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	32.6	0.0	3.1		1.9	0.2
Delay (s)	51.8	4.7	20.7		19.7	16.1
Level of Service	D	A	C		B	B
Approach Delay (s)		28.2	20.7		17.9	
Approach LOS		C	C		B	

Intersection Summary			
HCM Average Control Delay	23.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	53.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	722	760	349	0	490	276	374	1595	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.97			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4904			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4904			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	785	826	379	0	527	300	407	1734	0
RTOR Reduction (vph)	0	0	0	12	0	0	0	129	0	0	0
Lane Group Flow (vph)	0	0	0	1978	0	0	527	171	407	1734	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				36.5			17.5	17.5	39.0	60.5	
Effective Green, g (s)				36.5			17.5	17.5	39.0	60.5	
Actuated g/C Ratio				0.34			0.17	0.17	0.37	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1689			584	261	651	2020	
v/s Ratio Prot				c0.40			0.15		0.23	c0.49	
v/s Ratio Perm								0.11			
v/c Ratio				1.26dl			0.90	0.66	0.63	0.86	
Uniform Delay, d1				34.8			43.4	41.4	27.5	19.1	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				83.8			19.7	12.2	4.5	5.0	
Delay (s)				118.5			63.1	53.7	32.0	24.2	
Level of Service				F			E	D	C	C	
Approach Delay (s)	0.0			118.5			59.7			25.6	
Approach LOS	A			F			E			C	

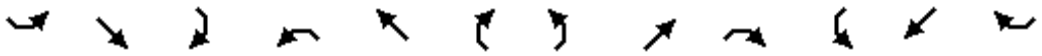
Intersection Summary			
HCM Average Control Delay	68.6	HCM Level of Service	E
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	291	591	239	228	398	323	26	739	50	516
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.97	0.85		0.93				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3111	1441		3288				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3111	1441		3288				1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	316	642	260	248	423	351	28	803	54	561
RTOR Reduction (vph)	0	0	76	0	2	0	0	0	0	0
Lane Group Flow (vph)	284	822	284	0	800	0	0	0	857	561
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	32.0	32.0	32.0		29.0				32.5	65.0
Effective Green, g (s)	32.0	32.0	32.0		29.0				32.5	65.0
Actuated g/C Ratio	0.30	0.30	0.30		0.27				0.31	0.61
Clearance Time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	486	939	435		900				543	2170
v/s Ratio Prot	0.18	c0.26	0.20		c0.24				c0.48	0.16
v/s Ratio Perm										
v/c Ratio	0.58	0.88	0.65		0.89				1.58	0.26
Uniform Delay, d1	31.4	35.1	32.2		37.0				36.8	9.4
Progression Factor	0.77	0.78	0.69		1.00				1.00	1.00
Incremental Delay, d2	0.6	3.3	1.2		12.7				269.0	0.3
Delay (s)	24.7	30.7	23.5		49.7				305.7	9.7
Level of Service	C	C	C		D				F	A
Approach Delay (s)		27.8			49.7					188.6
Approach LOS		C			D					F

Intersection Summary			
HCM Average Control Delay	94.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	98.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	3209	149	551	488	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.91	1.00		*0.88				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.97				
Satd. Flow (prot)					5085	1583		4789				
Flt Permitted					1.00	1.00		0.97				
Satd. Flow (perm)					5085	1583		4789				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.93	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	3343	162	592	514	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	66	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	3343	96	0	1106	0	0	0	0
Turn Type						Perm	Perm					
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					38.0	38.0		34.0				
Effective Green, g (s)					38.0	38.0		34.0				
Actuated g/C Ratio					0.48	0.48		0.42				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					2415	752		2035				
v/s Ratio Prot					c0.66							
v/s Ratio Perm						0.06		0.23				
v/c Ratio					1.38	0.13		0.89dl				
Uniform Delay, d1					21.0	11.7		17.2				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					175.6	0.4		1.0				
Delay (s)					196.6	12.1		18.2				
Level of Service					F	B		B				
Approach Delay (s)		0.0			188.0			18.2			0.0	
Approach LOS		A			F			B			A	

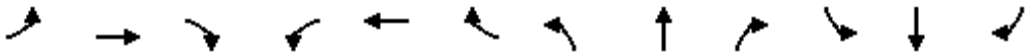
Intersection Summary			
HCM Average Control Delay	147.3	HCM Level of Service	F
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	132.1%	ICU Level of Service	H
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	1575	2049	0	0	0	0	0	1473	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4750						3524	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4750						3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	0	0	1624	2227	0	0	0	0	0	1567	46
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	942	2909	0	0	0	0	0	1610	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				46.0	46.0						26.0	
Effective Green, g (s)				46.0	46.0						26.0	
Actuated g/C Ratio				0.57	0.57						0.32	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				875	2731						1145	
v/s Ratio Prot											c0.46	
v/s Ratio Perm				c0.62	0.61							
v/c Ratio				1.08	1.07						1.41	
Uniform Delay, d1				17.0	17.0						27.0	
Progression Factor				1.36	1.35						1.00	
Incremental Delay, d2				36.7	30.2						188.2	
Delay (s)				59.8	53.1						215.2	
Level of Service				E	D						F	
Approach Delay (s)		0.0			54.7			0.0			215.2	
Approach LOS		A			D			A			F	

Intersection Summary			
HCM Average Control Delay	102.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	142.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	107	280	9	13	607	19	13	9	12	26	20	19
Peak Hour Factor	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	116	298	10	14	660	21	14	10	13	28	22	21

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	116	308	695	37	71
Volume Left (vph)	116	0	14	14	28
Volume Right (vph)	0	10	21	13	21
Hadj (s)	0.53	0.01	0.02	-0.10	-0.06
Departure Headway (s)	6.1	5.5	4.9	6.6	6.5
Degree Utilization, x	0.20	0.47	0.95	0.07	0.13
Capacity (veh/h)	590	643	721	513	520
Control Delay (s)	9.3	12.2	43.2	10.1	10.5
Approach Delay (s)	11.4		43.2	10.1	10.5
Approach LOS	B		E	B	B

Intersection Summary			
Delay	29.3		
HCM Level of Service	D		
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

Level Of Service Computation Report
2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp

Average Delay (sec/veh): 6.5 Worst Case Level Of Service: C[21.8]

Street Name:	Harrison Street						Stanley Place / I-580 EB Off-Ramp					
Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Uncontrolled			Uncontrolled			Yield Sign			Yield Sign		
Rights:	Include			Include			Include			Include		
Lanes:	0 0 0 0 0			0 0 3 0 0			0 0 0 0 1			0 0 0 0 0		
Volume Module:												
Base Vol:	0	0	0	0	1022	0	0	0	439	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	0	0	0	1022	0	0	0	439	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	0	0	0	1022	0	0	0	439	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	0.92	1.00	1.00	1.00	0.92	1.00	1.00	1.00
PHF Volume:	0	0	0	0	1111	0	0	0	477	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
FinalVolume:	0	0	0	0	1111	0	0	0	477	0	0	0
Critical Gap Module:												
Critical Gp:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	6.2	xxxxx	xxxx	xxxxx
FollowUpTim:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	3.3	xxxxx	xxxx	xxxxx
Capacity Module:												
Cnflict Vol:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	370	xxxx	xxxx	xxxxx
Potent Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	680	xxxx	xxxx	xxxxx
Move Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	680	xxxx	xxxx	xxxxx
Volume/Cap:	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	xxxx	0.70	xxxx	xxxx	xxxx
Level Of Service Module:												
2Way95thQ:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	5.8	xxxx	xxxx	xxxxx
Control Del:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	21.8	xxxxx	xxxx	xxxxx
LOS by Move:	*	*	*	*	*	*	*	*	C	*	*	*
Movement:	LT - LTR - RT			LT - LTR - RT			LT - LTR - RT			LT - LTR - RT		
Shared Cap.:	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx	xxxx	xxxx	xxxxx
SharedQueue:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shrd ConDel:	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx	xxxxx	xxxx	xxxxx
Shared LOS:	*	*	*	*	*	*	*	*	*	*	*	*
ApproachDel:	xxxxxx			xxxxxx			21.8			xxxxxx		
ApproachLOS:	*			*			C			*		

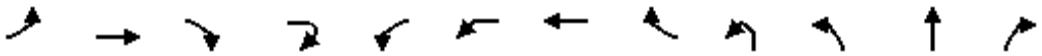
Note: Queue reported is the number of cars per lane.

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Movement	SEL2	SET	NET	NER	NER2
Lane Configurations					
Volume (vph)	934	442	1649	841	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	3.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	
Flt Protected	0.95	0.98	1.00	1.00	
Satd. Flow (prot)	1681	1738	3539	1583	
Flt Permitted	0.95	0.98	1.00	1.00	
Satd. Flow (perm)	1681	1738	3539	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1015	480	1792	914	135
RTOR Reduction (vph)	14	14	0	0	0
Lane Group Flow (vph)	727	740	1792	1049	0
Confl. Peds. (#/hr)				2	
Confl. Bikes (#/hr)					
Turn Type	Perm			custom	
Protected Phases		4	5	1	
Permitted Phases	4			1	
Actuated Green, G (s)	17.1	17.1	35.4	13.5	
Effective Green, g (s)	17.1	17.1	35.4	13.5	
Actuated g/C Ratio	0.29	0.29	0.59	0.22	
Clearance Time (s)	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	479	495	2088	356	
v/s Ratio Prot			c0.51	c0.66	
v/s Ratio Perm	c0.43	0.43			
v/c Ratio	1.52	1.49	0.86	2.95	
Uniform Delay, d1	21.4	21.4	10.2	23.2	
Progression Factor	1.00	1.00	1.00	1.00	
Incremental Delay, d2	243.3	233.0	3.6	883.6	
Delay (s)	264.7	254.4	13.8	906.8	
Level of Service	F	F	B	F	
Approach Delay (s)		259.5	343.5		
Approach LOS		F	F		

Intersection Summary			
HCM Average Control Delay	314.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.59		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	104.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



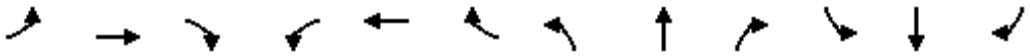
Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	252	485	158	23	60	19	206	235	11	497	1331	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0			4.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00			1.00	1.00	1.00		0.97	0.95	
Frpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	0.96		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85			1.00	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583			1770	1863	1525		3433	3485	
Flt Permitted	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583			1770	1863	1525		3433	3485	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	268	516	168	24	65	21	224	255	12	540	1447	130
RTOR Reduction (vph)	0	0	6	0	0	0	0	209	0	0	8	0
Lane Group Flow (vph)	268	516	186	0	0	86	224	46	0	552	1569	0
Confl. Peds. (#/hr)	26											20
Confl. Bikes (#/hr)								20				9
Turn Type	Prot		Perm		Prot	Prot		Perm	Prot	Prot		
Protected Phases	3	8			7	7	4		1	1	6	
Permitted Phases			8					4				
Actuated Green, G (s)	17.6	25.8	25.8			8.0	16.2	16.2		15.0	27.2	
Effective Green, g (s)	17.6	25.8	25.8			8.0	16.2	16.2		15.0	27.2	
Actuated g/C Ratio	0.20	0.29	0.29			0.09	0.18	0.18		0.17	0.30	
Clearance Time (s)	4.0	5.0	5.0			4.0	5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	346	1015	454			157	335	275		572	1053	
v/s Ratio Prot	c0.15	0.15				0.05	c0.12			0.16	c0.45	
v/s Ratio Perm			0.12					0.03				
v/c Ratio	0.77	0.51	0.41			0.55	0.67	0.17		0.97	1.49	
Uniform Delay, d1	34.3	26.8	26.0			39.3	34.4	31.2		37.2	31.4	
Progression Factor	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.3	0.4	0.6			3.9	5.0	0.3		28.8	225.7	
Delay (s)	44.7	27.2	26.6			43.1	39.4	31.5		66.0	257.1	
Level of Service	D	C	C			D	D	C		E	F	
Approach Delay (s)		31.9					36.4				207.6	
Approach LOS		C					D				F	

Intersection Summary			
HCM Average Control Delay	124.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBL	SBT	SBR	SBR2
Lane Configurations				
Volume (vph)	258	624	54	91
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0		
Lane Util. Factor	1.00	0.95		
Frpb, ped/bikes	1.00	1.00		
Flpb, ped/bikes	1.00	1.00		
Frt	1.00	0.97		
Flt Protected	0.95	1.00		
Satd. Flow (prot)	1770	3439		
Flt Permitted	0.95	1.00		
Satd. Flow (perm)	1770	3439		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93
Adj. Flow (vph)	277	671	58	98
RTOR Reduction (vph)	0	12	0	0
Lane Group Flow (vph)	277	815	0	0
Confl. Peds. (#/hr)	26			
Confl. Bikes (#/hr)				
Turn Type	Prot			
Protected Phases	5	2		
Permitted Phases				
Actuated Green, G (s)	11.0	22.2		
Effective Green, g (s)	11.0	22.2		
Actuated g/C Ratio	0.12	0.25		
Clearance Time (s)	4.0	5.0		
Vehicle Extension (s)	3.0	3.0		
Lane Grp Cap (vph)	216	848		
v/s Ratio Prot	c0.16	0.24		
v/s Ratio Perm				
v/c Ratio	1.28	0.96		
Uniform Delay, d1	39.5	33.5		
Progression Factor	1.00	1.00		
Incremental Delay, d2	157.6	22.8		
Delay (s)	197.1	56.2		
Level of Service	F	E		
Approach Delay (s)		91.6		
Approach LOS		F		

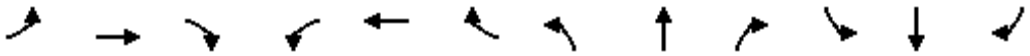
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	287	83	54	486	307	198	783	39	234	729	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.99			1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.97			1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1749	3383			3519	1536	1768	3510		1768	3447	
Flt Permitted	0.39	1.00			0.86	1.00	0.22	1.00		0.23	1.00	
Satd. Flow (perm)	716	3383			3048	1536	404	3510		420	3447	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	312	90	59	506	334	215	851	42	254	792	120
RTOR Reduction (vph)	0	31	0	0	0	48	0	4	0	0	14	0
Lane Group Flow (vph)	113	371	0	0	565	286	215	889	0	254	898	0
Confl. Peds. (#/hr)	32		32	10		10	6		6	5		5
Confl. Bikes (#/hr)			20			18			17			66
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			2	
Permitted Phases	4			8		8	2			2		
Actuated Green, G (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Effective Green, g (s)	36.0	36.0			36.0	36.0	38.0	38.0		38.0	38.0	
Actuated g/C Ratio	0.42	0.42			0.42	0.42	0.45	0.45		0.45	0.45	
Clearance Time (s)	5.5	5.5			5.5	5.5	5.5	5.5		5.5	5.5	
Lane Grp Cap (vph)	303	1433			1291	651	181	1569		188	1541	
v/s Ratio Prot		0.11						0.25			0.26	
v/s Ratio Perm	0.16				0.19	c0.19	0.53			c0.61		
v/c Ratio	0.37	0.26			0.44	0.44	1.19	0.57		1.35	0.58	
Uniform Delay, d1	16.8	15.9			17.3	17.3	23.5	17.4		23.5	17.6	
Progression Factor	0.90	0.90			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.5	0.3			1.1	2.1	126.5	1.5		188.8	1.6	
Delay (s)	17.6	14.6			18.4	19.5	150.0	18.9		212.3	19.2	
Level of Service	B	B			B	B	F	B		F	B	
Approach Delay (s)		15.3			18.8			44.3			61.3	
Approach LOS		B			B			D			E	

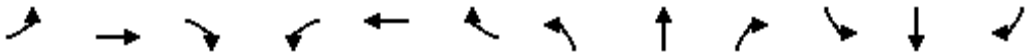
Intersection Summary			
HCM Average Control Delay	39.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	108.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	239	465	156	73	734	131	238	582	54	154	537	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1554	1769	1863	1552	1765	3483		1764	3258	
Flt Permitted	0.12	1.00	1.00	0.28	1.00	1.00	0.14	1.00		0.30	1.00	
Satd. Flow (perm)	230	1863	1554	513	1863	1552	256	3483		553	3258	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	260	505	170	79	798	142	259	633	59	167	584	440
RTOR Reduction (vph)	0	0	104	0	0	81	0	8	0	0	161	0
Lane Group Flow (vph)	260	505	66	79	798	61	259	684	0	167	863	0
Confl. Peds. (#/hr)	4		4	1		1	17		17	10		10
Confl. Bikes (#/hr)			4			10			17			28
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	43.0	32.9	32.9	33.5	27.9	27.9	33.0	33.0		33.0	33.0	
Effective Green, g (s)	43.0	32.9	32.9	33.5	27.9	27.9	33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.51	0.39	0.39	0.39	0.33	0.33	0.39	0.39		0.39	0.39	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	308	721	601	285	612	509	99	1352		215	1265	
v/s Ratio Prot	c0.11	0.27		0.02	c0.43			0.20			0.26	
v/s Ratio Perm	0.32		0.04	0.09		0.04	c1.01			0.30		
v/c Ratio	0.84	0.70	0.11	0.28	1.30	0.12	2.62	0.51		0.78	0.68	
Uniform Delay, d1	19.8	21.9	16.7	17.2	28.6	20.0	26.0	19.8		22.8	21.6	
Progression Factor	1.00	1.00	1.00	1.53	1.38	2.24	0.74	0.65		1.00	1.00	
Incremental Delay, d2	17.9	5.6	0.4	0.2	146.8	0.4	752.0	0.1		14.7	1.2	
Delay (s)	37.8	27.5	17.0	26.5	186.1	45.1	771.3	13.0		37.5	22.9	
Level of Service	D	C	B	C	F	D	F	B		D	C	
Approach Delay (s)		28.5			154.1			219.5			24.9	
Approach LOS		C			F			F			C	

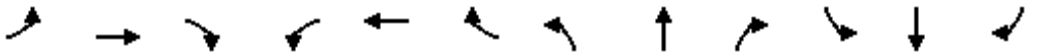
Intersection Summary			
HCM Average Control Delay	103.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.84		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	109.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	280	753	0	0	293	1197	25	1005	87	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Util. Factor	0.91	0.91			0.95	0.88		0.91				
Frpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00				
Frt	1.00	1.00			1.00	0.85		0.99				
Flt Protected	0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)	1609	3384			3539	2787		5013				
Flt Permitted	0.56	0.93			1.00	1.00		1.00				
Satd. Flow (perm)	947	3167			3539	2787		5013				
Peak-hour factor, PHF	0.93	0.92	0.25	0.25	0.92	0.97	0.92	0.92	0.92	0.25	0.25	0.25
Adj. Flow (vph)	301	818	0	0	318	1234	27	1092	95	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	28	0	25	0	0	0	0
Lane Group Flow (vph)	268	851	0	0	318	1206	0	1189	0	0	0	0
Confl. Peds. (#/hr)	2		2				4		4	3		3
Confl. Bikes (#/hr)			4						5			7
Turn Type	Perm					Perm	Perm					
Protected Phases		4			8			2				
Permitted Phases	4					8	2					
Actuated Green, G (s)	16.0	16.0			16.0	16.0		16.0				
Effective Green, g (s)	16.0	16.0			16.0	16.0		16.0				
Actuated g/C Ratio	0.40	0.40			0.40	0.40		0.40				
Clearance Time (s)	4.0	4.0			4.0	4.0		4.0				
Lane Grp Cap (vph)	379	1267			1416	1115		2005				
v/s Ratio Prot					0.09							
v/s Ratio Perm	0.28	0.27				c0.43		0.24				
v/c Ratio	0.71	0.67			0.22	1.08		0.59				
Uniform Delay, d1	10.0	9.8			7.9	12.0		9.4				
Progression Factor	1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2	10.6	2.9			0.4	52.0		1.3				
Delay (s)	20.7	12.7			8.3	64.0		10.7				
Level of Service	C	B			A	E		B				
Approach Delay (s)		14.6			52.6			10.7			0.0	
Approach LOS		B			D			B			A	

Intersection Summary			
HCM Average Control Delay	28.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	94.6%	ICU Level of Service	F
Analysis Period (min)	15		

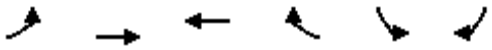
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	562	44	13	278	0	0	0	0	477	352	237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Util. Factor		0.95	1.00		0.95					0.91	0.91	1.00
Frpb, ped/bikes		1.00	0.98		1.00					1.00	1.00	0.98
Flpb, ped/bikes		1.00	1.00		1.00					1.00	1.00	1.00
Frt		1.00	0.85		1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00		1.00					0.95	0.98	1.00
Satd. Flow (prot)		3539	1552		3531					1605	3325	1558
Flt Permitted		1.00	1.00		0.93					0.95	0.98	1.00
Satd. Flow (perm)		3539	1552		3276					1605	3325	1558
Peak-hour factor, PHF	0.25	0.95	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	592	48	14	302	0	0	0	0	518	383	258
RTOR Reduction (vph)	0	0	31	0	0	0	0	0	0	0	0	125
Lane Group Flow (vph)	0	592	17	0	316	0	0	0	0	295	606	133
Confl. Peds. (#/hr)	4		4	4		4	1		1	3		3
Confl. Bikes (#/hr)			5			9			1			1
Turn Type			Perm	Perm						Perm		Perm
Protected Phases		4			8						6	
Permitted Phases			4	8						6		6
Actuated Green, G (s)		21.0	21.0		21.0					31.0	31.0	31.0
Effective Green, g (s)		21.0	21.0		21.0					31.0	31.0	31.0
Actuated g/C Ratio		0.35	0.35		0.35					0.52	0.52	0.52
Clearance Time (s)		4.0	4.0		4.0					4.0	4.0	4.0
Lane Grp Cap (vph)		1239	543		1147					829	1718	805
v/s Ratio Prot		c0.17										
v/s Ratio Perm			0.01		0.10					c0.18	0.18	0.09
v/c Ratio		0.48	0.03		0.28					0.36	0.35	0.17
Uniform Delay, d1		15.2	12.8		14.0					8.6	8.6	7.7
Progression Factor		1.00	1.00		1.00					1.00	1.00	1.00
Incremental Delay, d2		1.3	0.1		0.6					1.2	0.6	0.4
Delay (s)		16.5	12.9		14.6					9.8	9.1	8.1
Level of Service		B	B		B					A	A	A
Approach Delay (s)		16.3			14.6			0.0			9.1	
Approach LOS		B			B			A			A	

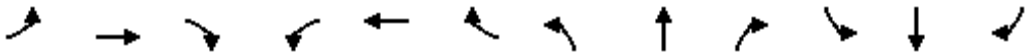
Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



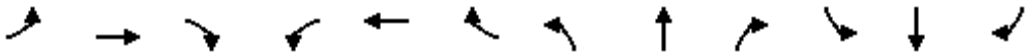
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	313	656	724	555	236	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.91
Frpb, ped/bikes	1.00	1.00	0.98		1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.94		0.99	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3265		3422	1421
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3265		3422	1421
Peak-hour factor, PHF	0.92	0.93	0.92	0.97	0.92	0.92
Adj. Flow (vph)	340	705	787	572	257	134
RTOR Reduction (vph)	0	0	138	0	6	105
Lane Group Flow (vph)	340	705	1221	0	264	16
Confl. Peds. (#/hr)	14			18		
Confl. Bikes (#/hr)				7		1
Turn Type	Prot					Perm
Protected Phases	5	2	6		4	
Permitted Phases						4
Actuated Green, G (s)	22.8	61.4	34.6		10.6	10.6
Effective Green, g (s)	22.8	61.4	34.6		10.6	10.6
Actuated g/C Ratio	0.29	0.77	0.43		0.13	0.13
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	504	2716	1412		453	188
v/s Ratio Prot	c0.19	0.20	c0.37		c0.08	
v/s Ratio Perm						0.01
v/c Ratio	0.67	0.26	0.86		0.58	0.09
Uniform Delay, d1	25.3	2.7	20.6		32.6	30.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.8	0.2	7.3		1.2	0.1
Delay (s)	28.1	2.9	27.9		33.9	30.5
Level of Service	C	A	C		C	C
Approach Delay (s)		11.1	27.9		32.8	
Approach LOS		B	C		C	

Intersection Summary			
HCM Average Control Delay	22.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



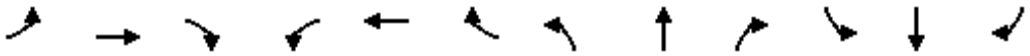
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	800	36	21	1010	157	110	651	39	164	499	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3427	1532	1763	3341		1769	3506		1762	3405	
Flt Permitted	0.16	1.00	1.00	0.16	1.00		0.32	1.00		0.37	1.00	
Satd. Flow (perm)	303	3427	1532	302	3341		588	3506		681	3405	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	34	870	39	23	1098	171	120	708	42	178	525	134
RTOR Reduction (vph)	0	0	28	0	14	0	0	5	0	0	23	0
Lane Group Flow (vph)	34	870	11	23	1255	0	120	745	0	178	636	0
Confl. Peds. (#/hr)	12		12	18		18	3		3	12		12
Confl. Bikes (#/hr)			8			6			10			28
Turn Type	Perm		Perm	Perm			pm+pt			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4			2			6		
Actuated Green, G (s)	24.6	24.6	24.6	24.6	24.6		49.9	49.9		39.4	39.4	
Effective Green, g (s)	24.6	24.6	24.6	24.6	24.6		49.9	49.9		39.4	39.4	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29		0.59	0.59		0.46	0.46	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	88	992	443	87	967		429	2058		316	1578	
v/s Ratio Prot		0.25			c0.38		0.02	c0.21			0.19	
v/s Ratio Perm	0.11		0.01	0.08			0.14			c0.26		
v/c Ratio	0.39	0.88	0.03	0.26	1.30		0.28	0.36		0.56	0.40	
Uniform Delay, d1	24.2	28.8	21.6	23.2	30.2		8.4	9.2		16.6	15.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.25	1.27	
Incremental Delay, d2	12.3	10.8	0.1	7.3	141.6		0.1	0.5		5.9	0.6	
Delay (s)	36.5	39.6	21.7	30.5	171.8		8.5	9.7		26.6	19.7	
Level of Service	D	D	C	C	F		A	A		C	B	
Approach Delay (s)		38.7			169.3			9.5			21.2	
Approach LOS		D			F			A			C	

Intersection Summary			
HCM Average Control Delay	71.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



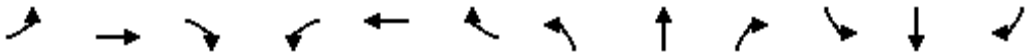
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	546	47	120	405	40	382	778	201	66	586	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	*0.92			*0.92		1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	0.98	1.00	0.99	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	1.00	0.99	1.00	
Frt	1.00	0.99			0.99		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1765	3381			3351		1766	3539	1550	1755	3415	
Flt Permitted	0.29	1.00			0.60		0.31	1.00	1.00	0.29	1.00	
Satd. Flow (perm)	540	3381			2042		573	3539	1550	533	3415	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	101	593	51	130	440	43	415	819	218	72	637	136
RTOR Reduction (vph)	0	9	0	0	8	0	0	0	78	0	18	0
Lane Group Flow (vph)	101	635	0	0	605	0	415	819	140	72	755	0
Confl. Peds. (#/hr)	8		8	2		2	8		8	32		32
Confl. Bikes (#/hr)			6			6			4			28
Turn Type	Perm			Perm			Perm		Perm	Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)	27.2	27.2			27.2		44.8	44.8	44.8	44.8	44.8	
Effective Green, g (s)	27.2	27.2			27.2		44.8	44.8	44.8	44.8	44.8	
Actuated g/C Ratio	0.34	0.34			0.34		0.56	0.56	0.56	0.56	0.56	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	184	1150			694		321	1982	868	298	1912	
v/s Ratio Prot		0.19						0.23			0.22	
v/s Ratio Perm	0.19				c0.30		c0.72		0.09	0.14		
v/c Ratio	0.55	0.55			0.87		1.29	0.41	0.16	0.24	0.40	
Uniform Delay, d1	21.4	21.4			24.8		17.6	10.1	8.5	9.0	9.9	
Progression Factor	1.00	1.00			1.16		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.8	0.3			11.1		153.1	0.6	0.4	1.9	0.6	
Delay (s)	23.2	21.8			39.8		170.7	10.7	8.9	10.9	10.6	
Level of Service	C	C			D		F	B	A	B	B	
Approach Delay (s)		22.0			39.8			56.2			10.6	
Approach LOS		C			D			E			B	

Intersection Summary			
HCM Average Control Delay	35.9	HCM Level of Service	D
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	90.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



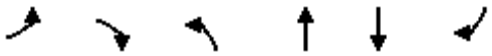
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	767	247	136	436	3	0	0	0	107	311	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0						3.0	
Lane Util. Factor		*0.92		1.00	*0.92						0.95	
Frpb, ped/bikes		0.95		1.00	1.00						0.99	
Flpb, ped/bikes		1.00		1.00	1.00						1.00	
Frt		0.96		1.00	1.00						0.97	
Flt Protected		1.00		0.95	1.00						0.99	
Satd. Flow (prot)		3125		1770	3423						3381	
Flt Permitted		0.95		0.11	1.00						0.99	
Satd. Flow (perm)		2973		211	3423						3381	
Peak-hour factor, PHF	0.92	0.99	0.92	0.93	0.92	0.92	0.25	0.25	0.25	0.92	0.94	0.92
Adj. Flow (vph)	8	775	268	146	474	3	0	0	0	116	331	100
RTOR Reduction (vph)	0	38	0	0	0	0	0	0	0	0	24	0
Lane Group Flow (vph)	0	1013	0	146	477	0	0	0	0	0	523	0
Confl. Peds. (#/hr)	106		106	8		8	36		36	11		11
Confl. Bikes (#/hr)			18			14			2			8
Turn Type	Perm			pm+pt						Perm		
Protected Phases		2		1	6						4	
Permitted Phases	2			6						4		
Actuated Green, G (s)		30.3		43.0	43.0						29.0	
Effective Green, g (s)		30.3		43.0	43.0						29.0	
Actuated g/C Ratio		0.38		0.54	0.54						0.36	
Clearance Time (s)		5.0		5.0	5.0						3.0	
Vehicle Extension (s)		2.0		2.0	2.0						2.0	
Lane Grp Cap (vph)		1126		263	1840						1226	
v/s Ratio Prot				c0.05	0.14							
v/s Ratio Perm		c0.34		0.24							0.15	
v/c Ratio		0.90		0.56	0.26						0.43	
Uniform Delay, d1		23.4		13.7	9.9						19.2	
Progression Factor		1.57		1.00	1.00						1.00	
Incremental Delay, d2		11.2		1.4	0.3						1.1	
Delay (s)		47.9		15.2	10.3						20.3	
Level of Service		D		B	B						C	
Approach Delay (s)		47.9			11.4			0.0			20.3	
Approach LOS		D			B			A			C	

Intersection Summary			
HCM Average Control Delay	30.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	392	731	166	420	969	52	13	1560	1418	3	744	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	0.92		1.00	0.93		0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	
Satd. Flow (prot)	3433	3539	1483	3433	3539	1458		5083	1466		4832	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.93	1.00		0.91	
Satd. Flow (perm)	3433	3539	1483	3433	3539	1458		4705	1466		4382	
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.93	0.92	0.92	0.92	0.92	0.92	0.96	0.92
Adj. Flow (vph)	426	795	180	429	1042	57	14	1696	1541	3	775	239
RTOR Reduction (vph)	0	0	28	0	0	7	0	0	242	0	56	0
Lane Group Flow (vph)	426	795	152	429	1042	50	0	1710	1299	0	961	0
Confl. Peds. (#/hr)	31		31	48		48	42		42	34		34
Confl. Bikes (#/hr)			22			15			22			20
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		
Protected Phases	1	6		5	2			4			4	
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	15.1	33.9	33.9	15.1	34.9	34.9		36.0	36.0		36.0	
Effective Green, g (s)	15.1	33.9	33.9	15.1	34.9	34.9		36.0	36.0		36.0	
Actuated g/C Ratio	0.15	0.34	0.34	0.15	0.35	0.35		0.36	0.36		0.36	
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	518	1200	503	518	1235	509		1694	528		1578	
v/s Ratio Prot	0.12	0.22		c0.12	c0.29							
v/s Ratio Perm			0.10			0.03		0.36	c0.89		0.22	
v/c Ratio	0.82	0.66	0.30	0.83	0.84	0.10		1.01	2.46		0.61	
Uniform Delay, d1	41.2	28.2	24.3	41.2	30.0	21.9		32.0	32.0		26.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	9.7	2.9	1.5	10.0	7.1	0.4		24.2	662.9		1.8	
Delay (s)	50.8	31.1	25.9	51.2	37.2	22.3		56.2	694.9		28.0	
Level of Service	D	C	C	D	D	C		E	F		C	
Approach Delay (s)		36.4			40.6			358.9			28.0	
Approach LOS		D			D			F			C	

Intersection Summary			
HCM Average Control Delay	181.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	144.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	807	172	119	1792	1082	182
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		4.0	4.5	4.5	
Lane Util. Factor	0.97		1.00	*0.50	0.86	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.97		1.00	1.00	0.98	
Flt Protected	0.96		0.95	1.00	1.00	
Satd. Flow (prot)	3357		1766	3725	6269	
Flt Permitted	0.96		0.14	1.00	1.00	
Satd. Flow (perm)	3357		256	3725	6269	
Peak-hour factor, PHF	0.92	0.92	0.92	0.96	0.92	0.92
Adj. Flow (vph)	877	187	129	1867	1176	198
RTOR Reduction (vph)	25	0	0	0	34	0
Lane Group Flow (vph)	1039	0	129	1867	1340	0
Confl. Peds. (#/hr)	30	30	106			
Confl. Bikes (#/hr)		2				
Turn Type			pm+pt			
Protected Phases	4		1	2	2	
Permitted Phases			2			
Actuated Green, G (s)	30.6		35.9	29.0	29.0	
Effective Green, g (s)	30.6		35.9	29.0	29.0	
Actuated g/C Ratio	0.38		0.45	0.36	0.36	
Clearance Time (s)	5.0		4.0	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	1284		245	1350	2273	
v/s Ratio Prot	c0.31		c0.05	c0.50	0.21	
v/s Ratio Perm			0.19			
v/c Ratio	0.81		0.53	1.38	0.59	
Uniform Delay, d1	22.1		14.1	25.5	20.7	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	3.9		2.0	177.0	1.1	
Delay (s)	25.9		16.1	202.5	21.8	
Level of Service	C		B	F	C	
Approach Delay (s)	25.9			190.5	21.8	
Approach LOS	C			F	C	

Intersection Summary			
HCM Average Control Delay	98.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	612	11	28	297	12	337
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	651	12	30	323	13	366
Pedestrians	18			18		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	533			360		
pX, platoon unblocked						
vC, conflicting volume			663		1059	675
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			663		1059	675
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		94	18
cM capacity (veh/h)			926		237	447

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	663	353	379
Volume Left	0	30	13
Volume Right	12	0	366
cSH	1700	926	434
Volume to Capacity	0.39	0.03	0.87
Queue Length 95th (ft)	0	3	225
Control Delay (s)	0.0	1.1	48.8
Lane LOS		A	E
Approach Delay (s)	0.0	1.1	48.8
Approach LOS			E

Intersection Summary			
Average Delay	13.5		
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	401	41	66	244	30	222
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	436	45	72	265	33	241
Pedestrians	27			27		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	470			423		
pX, platoon unblocked						
vC, conflicting volume			480		894	485
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			480		894	485
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		89	58
cM capacity (veh/h)			1082		284	569

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	480	337	274
Volume Left	0	72	33
Volume Right	45	0	241
cSH	1700	1082	508
Volume to Capacity	0.28	0.07	0.54
Queue Length 95th (ft)	0	5	79
Control Delay (s)	0.0	2.4	20.1
Lane LOS		A	C
Approach Delay (s)	0.0	2.4	20.1
Approach LOS			C

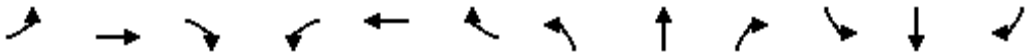
Intersection Summary			
Average Delay	5.8		
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	481	32	35	186	115	209
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.92	0.92	0.94	0.92	0.92
Hourly flow rate (vph)	496	35	38	198	125	227
Pedestrians	20			20		
Lane Width (ft)	12.0			12.0		
Walking Speed (ft/s)	4.0			4.0		
Percent Blockage	2			2		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	80			813		
pX, platoon unblocked			0.87		0.87	0.87
vC, conflicting volume			531		807	533
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			391		708	394
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		62	60
cM capacity (veh/h)			1021		332	563

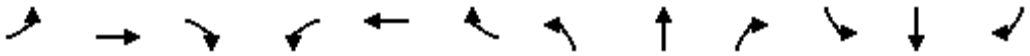
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	531	236	62	62	114	114
Volume Left	0	38	62	62	0	0
Volume Right	35	0	0	0	114	114
cSH	1700	1021	332	332	563	563
Volume to Capacity	0.31	0.04	0.19	0.19	0.20	0.20
Queue Length 95th (ft)	0	3	17	17	19	19
Control Delay (s)	0.0	1.7	18.3	18.3	13.0	13.0
Lane LOS		A	C	C	B	B
Approach Delay (s)	0.0	1.7	14.9			
Approach LOS			B			

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		



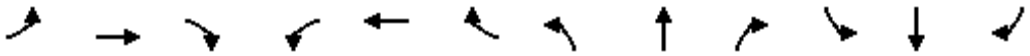
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	284	127	92	277	0	0	0	0	89	648	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.91	
Frpb, ped/bikes		1.00	0.91		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.98						0.97	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.99						0.99	
Satd. Flow (prot)		1863	1438		1807						4818	
Flt Permitted		1.00	1.00		0.75						0.99	
Satd. Flow (perm)		1863	1438		1367						4818	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.97	0.92
Adj. Flow (vph)	0	309	138	100	301	0	0	0	0	97	668	38
RTOR Reduction (vph)	0	0	9	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	309	129	0	401	0	0	0	0	0	799	0
Confl. Peds. (#/hr)	58		58	100		100	50		50	104		104
Confl. Bikes (#/hr)			8			6			10			28
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		29.7	29.7		29.7						42.3	
Effective Green, g (s)		29.7	29.7		29.7						42.3	
Actuated g/C Ratio		0.37	0.37		0.37						0.53	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		692	534		507						2548	
v/s Ratio Prot		0.17										
v/s Ratio Perm			0.09		c0.29						0.17	
v/c Ratio		0.45	0.24		0.79						0.31	
Uniform Delay, d1		19.0	17.4		22.4						10.6	
Progression Factor		1.00	1.00		1.00						1.22	
Incremental Delay, d2		0.5	0.2		8.2						0.3	
Delay (s)		19.4	17.6		30.6						13.2	
Level of Service		B	B		C						B	
Approach Delay (s)		18.9			30.6			0.0			13.2	
Approach LOS		B			C			A			B	

Intersection Summary			
HCM Average Control Delay	19.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



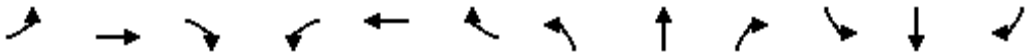
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	137	1	0	148	119	25	458	242	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		1.00			1.00			0.95	1.00			
Frpb, ped/bikes		1.00			0.97			1.00	0.82			
Flpb, ped/bikes		1.00			1.00			0.99	1.00			
Frt		1.00			0.94			1.00	0.85			
Flt Protected		1.00			1.00			1.00	1.00			
Satd. Flow (prot)		1845			1694			3510	1299			
Flt Permitted		0.97			1.00			1.00	1.00			
Satd. Flow (perm)		1793			1694			3510	1299			
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	16	149	1	0	161	129	27	492	263	0	0	0
RTOR Reduction (vph)	0	0	0	0	46	0	0	0	196	0	0	0
Lane Group Flow (vph)	0	166	0	0	244	0	0	519	67	0	0	0
Confl. Peds. (#/hr)	71		71	82		82	88		88	75		75
Confl. Bikes (#/hr)			8			2			40			1
Turn Type	Perm						Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2						1		1			
Actuated Green, G (s)		25.5			25.5			11.5	11.5			
Effective Green, g (s)		25.5			25.5			11.5	11.5			
Actuated g/C Ratio		0.57			0.57			0.26	0.26			
Clearance Time (s)		4.0			4.0			4.0	4.0			
Vehicle Extension (s)		2.0			2.0			2.0	2.0			
Lane Grp Cap (vph)		1016			960			897	332			
v/s Ratio Prot					c0.14							
v/s Ratio Perm		0.09						0.15	0.05			
v/c Ratio		0.16			0.25			0.58	0.20			
Uniform Delay, d1		4.7			4.9			14.6	13.1			
Progression Factor		0.47			1.00			1.00	1.00			
Incremental Delay, d2		0.3			0.6			0.6	0.1			
Delay (s)		2.5			5.6			15.2	13.3			
Level of Service		A			A			B	B			
Approach Delay (s)		2.5			5.6			14.5			0.0	
Approach LOS		A			A			B			A	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



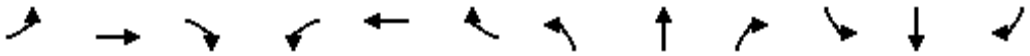
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	60	27	92	0	96	0	697	56	52	587	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			5.0			5.0	
Lane Util. Factor	1.00	1.00			1.00			0.95			0.95	
Frpb, ped/bikes	1.00	0.99			0.99			0.99			1.00	
Flpb, ped/bikes	0.99	1.00			0.99			1.00			1.00	
Frt	1.00	0.95			0.93			0.99			1.00	
Flt Protected	0.95	1.00			0.98			1.00			1.00	
Satd. Flow (prot)	1750	1761			1656			3477			3518	
Flt Permitted	0.68	1.00			0.83			1.00			0.82	
Satd. Flow (perm)	1244	1761			1407			3477			2895	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.99	0.92
Adj. Flow (vph)	20	65	29	100	0	104	0	758	61	57	593	0
RTOR Reduction (vph)	0	17	0	0	32	0	0	13	0	0	0	0
Lane Group Flow (vph)	20	77	0	0	172	0	0	806	0	0	650	0
Confl. Peds. (#/hr)	22		22	24		24	40		40	48		48
Confl. Bikes (#/hr)			3						17			7
Turn Type	Perm			Perm						Perm		
Protected Phases		2			2			4			4	
Permitted Phases	2			2						4		
Actuated Green, G (s)	19.0	19.0			19.0			17.0			17.0	
Effective Green, g (s)	19.0	19.0			19.0			17.0			17.0	
Actuated g/C Ratio	0.42	0.42			0.42			0.38			0.38	
Clearance Time (s)	4.0	4.0			4.0			5.0			5.0	
Vehicle Extension (s)	2.0	2.0			2.0			2.0			2.0	
Lane Grp Cap (vph)	525	744			594			1314			1094	
v/s Ratio Prot		0.04						c0.23				
v/s Ratio Perm	0.02				c0.12						0.22	
v/c Ratio	0.04	0.10			0.29			0.61			0.59	
Uniform Delay, d1	7.6	7.9			8.6			11.3			11.2	
Progression Factor	1.00	1.00			0.91			1.00			1.00	
Incremental Delay, d2	0.1	0.3			1.2			2.1			2.4	
Delay (s)	7.8	8.1			9.0			13.5			13.6	
Level of Service	A	A			A			B			B	
Approach Delay (s)		8.1			9.0			13.5			13.6	
Approach LOS		A			A			B			B	

Intersection Summary			
HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	206	37	14	262	271	32	807	37	50	221	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5		4.5	4.5	
Lane Util. Factor		0.95			0.95			0.95		1.00	0.95	
Frpb, ped/bikes		0.99			0.98			1.00		1.00	0.99	
Flpb, ped/bikes		1.00			1.00			1.00		1.00	1.00	
Frt		0.98			0.93			0.99		1.00	0.96	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		3422			3213			3503		1769	3371	
Flt Permitted		0.77			0.94			0.93		0.19	1.00	
Satd. Flow (perm)		2654			3029			3275		357	3371	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92	0.92
Adj. Flow (vph)	38	224	40	15	285	295	35	877	40	52	240	85
RTOR Reduction (vph)	0	24	0	0	186	0	0	4	0	0	32	0
Lane Group Flow (vph)	0	278	0	0	409	0	0	948	0	52	293	0
Confl. Peds. (#/hr)	32		32	24		24	16		16	19		19
Confl. Bikes (#/hr)			6			4			25			3
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		13.9			13.9			28.8		37.1	37.1	
Effective Green, g (s)		13.9			13.9			28.8		37.1	37.1	
Actuated g/C Ratio		0.23			0.23			0.48		0.62	0.62	
Clearance Time (s)		4.5			4.5			4.5		4.5	4.5	
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)		615			702			1572		310	2084	
v/s Ratio Prot										0.01	c0.09	
v/s Ratio Perm		0.10			c0.14			c0.29		0.09		
v/c Ratio		0.45			0.58			0.60		0.17	0.14	
Uniform Delay, d1		19.8			20.5			11.4		5.8	4.8	
Progression Factor		1.00			0.66			1.00		1.00	1.00	
Incremental Delay, d2		0.5			0.9			1.7		0.3	0.1	
Delay (s)		20.3			14.3			13.1		6.1	4.9	
Level of Service		C			B			B		A	A	
Approach Delay (s)		20.3			14.3			13.1			5.1	
Approach LOS		C			B			B			A	

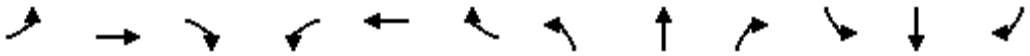
Intersection Summary			
HCM Average Control Delay	13.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	186	110	70	331	141	127	931	135	52	656	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			5.0			5.0	
Lane Util. Factor		0.95			0.95			0.95			0.91	
Frpb, ped/bikes		0.97			0.97			0.99			0.99	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.95			0.96			0.98			0.99	
Flt Protected		1.00			0.99			0.99			1.00	
Satd. Flow (prot)		3226			3236			3413			4990	
Flt Permitted		0.89			0.86			0.65			0.77	
Satd. Flow (perm)		2887			2798			2240			3879	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	28	202	120	76	360	153	138	1012	142	57	713	49
RTOR Reduction (vph)	0	76	0	0	33	0	0	16	0	0	12	0
Lane Group Flow (vph)	0	274	0	0	556	0	0	1276	0	0	807	0
Confl. Peds. (#/hr)	74		74	120		120	85		85	65		65
Confl. Bikes (#/hr)			30			13			10			6
Turn Type	Perm			Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4			8						6		
Actuated Green, G (s)		22.0			22.0			29.0			18.0	
Effective Green, g (s)		22.0			22.0			29.0			18.0	
Actuated g/C Ratio		0.37			0.37			0.48			0.30	
Clearance Time (s)		4.0			4.0			5.0			5.0	
Lane Grp Cap (vph)		1059			1026			1220			1164	
v/s Ratio Prot								c0.12				
v/s Ratio Perm		0.09			c0.20			c0.38			0.21	
v/c Ratio		0.26			0.54			1.05			0.69	
Uniform Delay, d1		13.3			15.0			15.5			18.6	
Progression Factor		2.12			1.00			1.00			1.00	
Incremental Delay, d2		0.6			2.1			38.6			3.4	
Delay (s)		28.7			17.1			54.1			22.0	
Level of Service		C			B			D			C	
Approach Delay (s)		28.7			17.1			54.1			22.0	
Approach LOS		C			B			D			C	

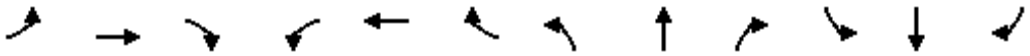
Intersection Summary			
HCM Average Control Delay	35.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	97.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	421	0	0	542	151	95	507	356	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.91	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3514			3369	1319		4995	1460			
Flt Permitted		0.86			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3021			3369	1319		4995	1460			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	50	458	0	0	589	161	103	551	383	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	51	0	0	152	0	0	0
Lane Group Flow (vph)	0	508	0	0	604	94	0	654	231	0	0	0
Confl. Peds. (#/hr)	42		42	54		54	58		58	194		194
Confl. Bikes (#/hr)			12			7			5			8
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		52.0			52.0	52.0		21.0	21.0			
Effective Green, g (s)		52.0			52.0	52.0		21.0	21.0			
Actuated g/C Ratio		0.65			0.65	0.65		0.26	0.26			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		1964			2190	857		1311	383			
v/s Ratio Prot					c0.18							
v/s Ratio Perm		0.17				0.07		0.13	c0.16			
v/c Ratio		0.26			0.28	0.11		0.50	0.60			
Uniform Delay, d1		5.9			6.0	5.3		25.0	25.9			
Progression Factor		1.00			0.62	0.15		1.00	1.00			
Incremental Delay, d2		0.3			0.3	0.2		0.3	2.7			
Delay (s)		6.2			4.0	1.0		25.3	28.5			
Level of Service		A			A	A		C	C			
Approach Delay (s)		6.2			3.4			26.5			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	14.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	544	232	190	545	0	0	0	0	100	651	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	
Lane Util. Factor		0.95	1.00	0.91	0.91						0.91	
Frpb, ped/bikes		1.00	0.91	1.00	1.00						0.95	
Flpb, ped/bikes		1.00	1.00	1.00	1.00						0.97	
Frt		1.00	0.85	1.00	1.00						0.98	
Flt Protected		1.00	1.00	0.95	1.00						0.99	
Satd. Flow (prot)		3539	1439	1610	3379						4527	
Flt Permitted		1.00	1.00	0.95	0.94						0.99	
Satd. Flow (perm)		3539	1439	1610	3174						4527	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	591	252	207	592	0	0	0	0	109	708	159
RTOR Reduction (vph)	0	0	26	0	0	0	0	0	0	0	36	0
Lane Group Flow (vph)	0	591	226	186	613	0	0	0	0	0	940	0
Confl. Peds. (#/hr)	51		51	114		114	115		115	333		333
Confl. Bikes (#/hr)			8			3			17			6
Turn Type			Perm	Prot						Perm		
Protected Phases		2		1	6						4	
Permitted Phases			2							4		
Actuated Green, G (s)		28.0	28.0	10.0	42.0						30.0	
Effective Green, g (s)		28.0	28.0	10.0	42.0						30.0	
Actuated g/C Ratio		0.35	0.35	0.12	0.52						0.38	
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	
Lane Grp Cap (vph)		1239	504	201	1692						1698	
v/s Ratio Prot		c0.17		c0.12	0.05							
v/s Ratio Perm			0.16		0.14						0.21	
v/c Ratio		0.48	0.45	0.93	0.36						0.55	
Uniform Delay, d1		20.3	20.0	34.6	11.1						19.7	
Progression Factor		1.05	1.05	1.00	1.00						1.29	
Incremental Delay, d2		1.3	2.7	42.2	0.0						0.2	
Delay (s)		22.6	23.8	76.8	11.2						25.6	
Level of Service		C	C	E	B						C	
Approach Delay (s)		22.9			26.5			0.0			25.6	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM Average Control Delay	25.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL2	EBL	EBR	NBL2	NBL	NBT	SBT	SBR	SBR2	SEL	SER	SER2
Lane Configurations												
Volume (vph)	14	505	127	270	85	1018	233	374	114	0	163	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0				4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.94				0.95	0.91	0.91	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00				1.00	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	0.48	1.00				1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.97				1.00	0.93	0.85	0.85		0.85	0.85
Flt Protected	0.95	0.96				0.99	1.00	1.00	1.00		1.00	1.00
Satd. Flow (prot)	841	4899				3494	3166	1441	1583		1583	1554
Flt Permitted	0.95	0.96				0.99	1.00	1.00	1.00		1.00	1.00
Satd. Flow (perm)	841	4899				3494	3166	1441	1583		1583	1554
Peak-hour factor, PHF	0.98	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.98
Adj. Flow (vph)	14	549	138	293	92	1107	253	407	124	0	166	212
RTOR Reduction (vph)	0	69	0	0	0	0	0	0	72	0	0	160
Lane Group Flow (vph)	14	618	0	0	0	1492	452	208	52	0	166	52
Confl. Peds. (#/hr)	22								74			
Confl. Bikes (#/hr)						7			8			7
Turn Type	Prot			Split	Split			custom	custom		custom	custom
Protected Phases	5	1		8	8	8	2	6	6			
Permitted Phases		1						6			9	2
Actuated Green, G (s)	0.8	12.8				16.0	17.2	29.2	29.2		8.0	17.2
Effective Green, g (s)	0.8	12.8				16.0	17.2	29.2	29.2		8.0	17.2
Actuated g/C Ratio	0.01	0.18				0.23	0.25	0.42	0.42		0.11	0.25
Clearance Time (s)	4.0	4.0				4.0	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	2.0				2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	10	896				799	778	601	660		181	382
v/s Ratio Prot	0.02	c0.13				c0.43	c0.14	0.14	0.03			
v/s Ratio Perm											c0.10	0.03
v/c Ratio	1.40	0.69				1.87	0.58	0.35	0.08		0.92	0.14
Uniform Delay, d1	34.6	26.7				27.0	23.2	13.9	12.3		30.7	20.6
Progression Factor	1.00	1.00				1.00	1.45	1.72	3.68		1.00	1.00
Incremental Delay, d2	438.6	4.3				395.1	0.7	1.5	0.2		42.9	0.1
Delay (s)	473.2	31.1				422.1	34.5	25.4	45.5		73.6	20.7
Level of Service	F	C				F	C	C	D		E	C
Approach Delay (s)		39.9				422.1	33.8			43.9		
Approach LOS		D				F	C			D		

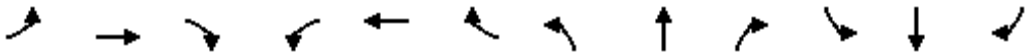
Intersection Summary			
HCM Average Control Delay	208.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	1276	170	953	518	188	984
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	4.0
Lane Util. Factor	0.91		0.97	0.91	0.97	0.91
Frpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	1.00	0.89	0.85
Flt Protected	1.00		0.95	1.00	0.99	1.00
Satd. Flow (prot)	4993		3433	5085	3178	1441
Flt Permitted	1.00		0.95	1.00	0.99	1.00
Satd. Flow (perm)	4993		3433	5085	3178	1441
Peak-hour factor, PHF	0.95	0.92	0.99	0.92	0.92	0.93
Adj. Flow (vph)	1343	185	963	563	204	1058
RTOR Reduction (vph)	25	0	0	0	370	370
Lane Group Flow (vph)	1503	0	963	563	363	159
Confl. Bikes (#/hr)				16		
Turn Type			Prot			Perm
Protected Phases	8		7	4	6	
Permitted Phases						6
Actuated Green, G (s)	18.0		19.0	41.0	21.0	21.0
Effective Green, g (s)	18.0		19.0	41.0	21.0	21.0
Actuated g/C Ratio	0.26		0.27	0.59	0.30	0.30
Clearance Time (s)	4.0		4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1284		932	2978	953	432
v/s Ratio Prot	c0.30		c0.28	0.11	c0.11	
v/s Ratio Perm						0.11
v/c Ratio	1.17		1.03	0.19	0.38	0.37
Uniform Delay, d1	26.0		25.5	6.8	19.4	19.3
Progression Factor	1.05		1.00	1.00	1.00	1.00
Incremental Delay, d2	77.5		38.4	0.1	1.2	2.4
Delay (s)	104.7		63.9	6.9	20.5	21.7
Level of Service	F		E	A	C	C
Approach Delay (s)	104.7			42.9	21.0	
Approach LOS	F			D	C	

Intersection Summary			
HCM Average Control Delay	58.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	150	168	0	0	0	0	0	1554	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				3.0	3.0						6.0	
Lane Util. Factor				1.00	0.95						0.86	
Frpb, ped/bikes				1.00	1.00						1.00	
Flpb, ped/bikes				1.00	1.00						1.00	
Frt				1.00	1.00						0.98	
Flt Protected				0.95	1.00						1.00	
Satd. Flow (prot)				1766	3539						6292	
Flt Permitted				0.95	1.00						1.00	
Satd. Flow (perm)				1766	3539						6292	
Peak-hour factor, PHF	0.25	0.95	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.92	0.97	0.92
Adj. Flow (vph)	0	0	0	163	183	0	0	0	0	0	1602	196
RTOR Reduction (vph)	0	0	0	1	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	0	0	162	183	0	0	0	0	0	1782	0
Confl. Peds. (#/hr)	15		15	2		2				2		2
Confl. Bikes (#/hr)			4									2
Turn Type				Perm								
Protected Phases					4						6	
Permitted Phases				4								
Actuated Green, G (s)				18.2	18.2						47.8	
Effective Green, g (s)				18.2	18.2						47.8	
Actuated g/C Ratio				0.24	0.24						0.64	
Clearance Time (s)				3.0	3.0						6.0	
Vehicle Extension (s)				3.0	3.0						4.0	
Lane Grp Cap (vph)				429	859						4010	
v/s Ratio Prot					0.05						c0.28	
v/s Ratio Perm				c0.09								
v/c Ratio				0.38	0.21						0.44	
Uniform Delay, d1				23.7	22.7						6.9	
Progression Factor				1.00	1.00						0.79	
Incremental Delay, d2				2.5	0.6						0.1	
Delay (s)				26.2	23.2						5.6	
Level of Service				C	C						A	
Approach Delay (s)		0.0			24.6			0.0			5.6	
Approach LOS		A			C			A			A	

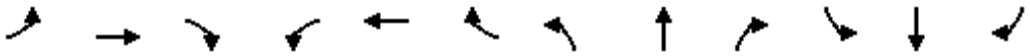
Intersection Summary			
HCM Average Control Delay	8.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	NBT	NBR	NEL	NER
Lane Configurations						
Volume (vph)	200	397	1492	95	424	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.0		5.0	
Lane Util. Factor	1.00	0.91	0.91		0.97	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.98	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	5085	5028		3405	
Flt Permitted	0.95	1.00	1.00		0.96	
Satd. Flow (perm)	1770	5085	5028		3405	
Peak-hour factor, PHF	0.92	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	217	427	1604	103	461	54
RTOR Reduction (vph)	1	0	9	0	0	0
Lane Group Flow (vph)	216	427	1698	0	515	0
Confl. Peds. (#/hr)				17		
Confl. Bikes (#/hr)				6		
Turn Type	Perm					
Protected Phases		4	2		1	
Permitted Phases	4					
Actuated Green, G (s)	15.3	15.3	24.5		23.2	
Effective Green, g (s)	15.3	15.3	24.5		23.2	
Actuated g/C Ratio	0.20	0.20	0.33		0.31	
Clearance Time (s)	3.0	3.0	4.0		5.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	361	1037	1642		1053	
v/s Ratio Prot		0.08	c0.34		c0.15	
v/s Ratio Perm	c0.12					
v/c Ratio	0.60	0.41	1.03		0.49	
Uniform Delay, d1	27.1	25.9	25.2		21.1	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	7.2	1.2	31.4		0.4	
Delay (s)	34.2	27.1	56.7		21.4	
Level of Service	C	C	E		C	
Approach Delay (s)		29.5	56.7		21.4	
Approach LOS		C	E		C	

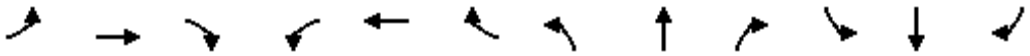
Intersection Summary			
HCM Average Control Delay	44.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



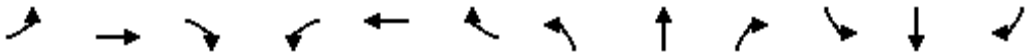
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	311	1000	1172	605	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.0	5.0	5.0	5.0				
Lane Util. Factor					0.91	0.91	0.81	0.81				
Frpb, ped/bikes					0.99	0.98	1.00	1.00				
Flpb, ped/bikes					1.00	1.00	0.98	0.99				
Frt					0.91	0.85	1.00	1.00				
Flt Protected					1.00	1.00	0.95	0.98				
Satd. Flow (prot)					3046	1417	1403	5828				
Flt Permitted					1.00	1.00	0.95	0.98				
Satd. Flow (perm)					3046	1417	1403	5828				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.92	0.92	0.92	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	338	1087	1274	651	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	51	51	284	253	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	831	492	353	1035	0	0	0	0
Confl. Peds. (#/hr)	1		1	4		4	14		14			
Confl. Bikes (#/hr)						1						4
Turn Type						Perm	Perm					
Protected Phases					4			2				
Permitted Phases						4	2					
Actuated Green, G (s)					39.5	39.5	25.5	25.5				
Effective Green, g (s)					39.5	39.5	25.5	25.5				
Actuated g/C Ratio					0.53	0.53	0.34	0.34				
Clearance Time (s)					5.0	5.0	5.0	5.0				
Vehicle Extension (s)					3.0	3.0	3.0	3.0				
Lane Grp Cap (vph)					1604	746	477	1982				
v/s Ratio Prot					0.27							
v/s Ratio Perm						c0.35	c0.25	0.18				
v/c Ratio					0.52	0.66	0.74	0.52				
Uniform Delay, d1					11.6	12.9	21.8	19.9				
Progression Factor					1.00	1.00	1.00	1.00				
Incremental Delay, d2					1.2	4.5	5.9	0.2				
Delay (s)					12.8	17.4	27.7	20.1				
Level of Service					B	B	C	C				
Approach Delay (s)		0.0			14.5			22.6			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	285	82	0	0	0	0	0	0	642	1040	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0								4.0	4.0	
Lane Util. Factor		0.95								0.86	0.86	
Frpb, ped/bikes		1.00								1.00	1.00	
Flpb, ped/bikes		1.00								1.00	1.00	
Frt		0.97								1.00	0.99	
Flt Protected		1.00								0.95	0.99	
Satd. Flow (prot)		3406								1522	4730	
Flt Permitted		1.00								0.95	0.99	
Satd. Flow (perm)		3406								1522	4730	
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	310	89	0	0	0	0	0	0	698	1130	68
RTOR Reduction (vph)	0	16	0	0	0	0	0	0	0	259	42	0
Lane Group Flow (vph)	0	383	0	0	0	0	0	0	0	202	1393	0
Confl. Peds. (#/hr)	5		5									
Confl. Bikes (#/hr)			2									2
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		35.0								32.0	32.0	
Effective Green, g (s)		35.0								32.0	32.0	
Actuated g/C Ratio		0.47								0.43	0.43	
Clearance Time (s)		4.0								4.0	4.0	
Vehicle Extension (s)		3.0								3.0	3.0	
Lane Grp Cap (vph)		1589								649	2018	
v/s Ratio Prot		c0.11										
v/s Ratio Perm										0.13	0.29	
v/c Ratio		0.24								0.31	0.69	
Uniform Delay, d1		12.0								14.2	17.5	
Progression Factor		1.00								1.00	1.00	
Incremental Delay, d2		0.4								1.3	2.0	
Delay (s)		12.4								15.5	19.4	
Level of Service		B								B	B	
Approach Delay (s)		12.4			0.0			0.0			18.5	
Approach LOS		B			A			A			B	

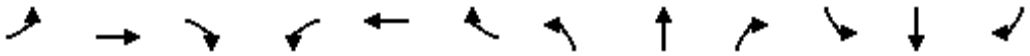
Intersection Summary			
HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	1070	0	0	495	304	239	742	49	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Util. Factor		0.95			0.95	1.00		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.96			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3524			3539	1461		3472	1520			
Flt Permitted		0.84			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		2959			3539	1461		3472	1520			
Peak-hour factor, PHF	0.92	0.92	0.25	0.99	0.96	0.96	0.92	0.92	0.92	0.25	0.25	0.25
Adj. Flow (vph)	80	1163	0	0	516	317	260	807	53	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	87	0	0	2	0	0	0
Lane Group Flow (vph)	0	1243	0	0	516	230	0	1067	51	0	0	0
Confl. Peds. (#/hr)	36		36	52		52	35		35	10		10
Confl. Bikes (#/hr)			5			21						22
Turn Type	Perm			Perm		Perm	Perm		Perm			
Protected Phases		4			8			2				
Permitted Phases	4			8		8	2		2			
Actuated Green, G (s)		18.0			18.0	18.0		32.0	32.0			
Effective Green, g (s)		18.0			18.0	18.0		32.0	32.0			
Actuated g/C Ratio		0.30			0.30	0.30		0.53	0.53			
Clearance Time (s)		5.0			5.0	5.0		5.0	5.0			
Lane Grp Cap (vph)		888			1062	438		1852	811			
v/s Ratio Prot					0.15							
v/s Ratio Perm		c0.42				0.16		0.31	0.03			
v/c Ratio		1.40			0.49	0.53		0.58	0.06			
Uniform Delay, d1		21.0			17.2	17.5		9.4	6.8			
Progression Factor		1.00			1.00	1.00		1.00	1.00			
Incremental Delay, d2		186.7			1.6	4.5		1.3	0.1			
Delay (s)		207.7			18.8	21.9		10.7	6.9			
Level of Service		F			B	C		B	A			
Approach Delay (s)		207.7			20.0			10.6			0.0	
Approach LOS		F			B			B			A	

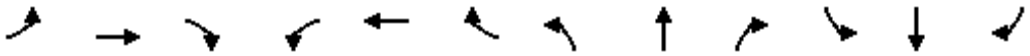
Intersection Summary			
HCM Average Control Delay	89.7	HCM Level of Service	F
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	94.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



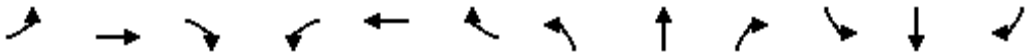
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	751	85	47	653	0	0	0	0	684	782	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0					4.0	4.0	
Lane Util. Factor		0.95			0.95					1.00	0.95	
Frpb, ped/bikes		0.99			1.00					1.00	1.00	
Flpb, ped/bikes		1.00			1.00					0.98	1.00	
Frt		0.98			1.00					1.00	0.99	
Flt Protected		1.00			1.00					0.95	1.00	
Satd. Flow (prot)		3464			3526					1734	3511	
Flt Permitted		1.00			0.87					0.95	1.00	
Satd. Flow (perm)		3464			3062					1734	3511	
Peak-hour factor, PHF	0.25	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.25	0.94	0.96	0.92
Adj. Flow (vph)	0	816	92	51	710	0	0	0	0	728	815	38
RTOR Reduction (vph)	0	19	0	0	0	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	889	0	0	761	0	0	0	0	728	845	0
Confl. Peds. (#/hr)	50		50	25		25	17		17	24		24
Confl. Bikes (#/hr)			16			17			2			
Turn Type				Perm						Perm		
Protected Phases		8			4						6	
Permitted Phases				4						6		
Actuated Green, G (s)		19.0			19.0					19.0	19.0	
Effective Green, g (s)		19.0			19.0					19.0	19.0	
Actuated g/C Ratio		0.42			0.42					0.42	0.42	
Clearance Time (s)		3.0			3.0					4.0	4.0	
Vehicle Extension (s)		2.0			2.0					2.0	2.0	
Lane Grp Cap (vph)		1463			1293					732	1482	
v/s Ratio Prot		c0.26									0.24	
v/s Ratio Perm					0.25					c0.42		
v/c Ratio		0.61			0.59					0.99	0.57	
Uniform Delay, d1		10.1			10.0					12.9	9.9	
Progression Factor		1.00			1.00					1.00	1.00	
Incremental Delay, d2		1.9			2.0					32.0	1.6	
Delay (s)		12.0			12.0					44.9	11.5	
Level of Service		B			B					D	B	
Approach Delay (s)		12.0			12.0			0.0			26.9	
Approach LOS		B			B			A			C	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	85	501	10	22	467	52	81	523	29	133	226	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5			3.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frpb, ped/bikes		1.00			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.99			0.98	
Flt Protected		0.99			1.00			0.99			0.98	
Satd. Flow (prot)		3486			3456			3475			3369	
Flt Permitted		0.82			0.92			0.84			0.60	
Satd. Flow (perm)		2869			3200			2946			2068	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92
Adj. Flow (vph)	92	545	11	24	508	57	88	568	32	145	233	64
RTOR Reduction (vph)	0	3	0	0	17	0	0	8	0	0	32	0
Lane Group Flow (vph)	0	645	0	0	572	0	0	680	0	0	410	0
Confl. Peds. (#/hr)	80		80	58		58	44		44	41		41
Confl. Bikes (#/hr)			14			10			7			4
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Actuated Green, G (s)		21.6			21.6			15.9			15.9	
Effective Green, g (s)		21.6			21.6			15.9			15.9	
Actuated g/C Ratio		0.48			0.48			0.35			0.35	
Clearance Time (s)		3.5			3.5			4.0			4.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1377			1536			1041			731	
v/s Ratio Prot												
v/s Ratio Perm		c0.22			0.18			c0.23			0.20	
v/c Ratio		0.47			0.37			0.65			0.56	
Uniform Delay, d1		7.9			7.4			12.2			11.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.1			0.7			1.5			1.0	
Delay (s)		9.0			8.1			13.7			12.7	
Level of Service		A			A			B			B	
Approach Delay (s)		9.0			8.1			13.7			12.7	
Approach LOS		A			A			B			B	

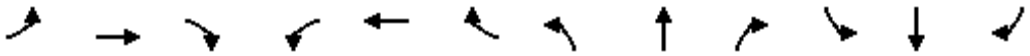
Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	290	1096	0	0	0	0	0	895	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.86						0.91	
Frpb, ped/bikes					1.00						1.00	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.99	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					6270						5026	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					6270						5026	
Peak-hour factor, PHF	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25	0.25	0.25	0.92	0.92
Adj. Flow (vph)	0	0	0	315	1130	0	0	0	0	0	973	62
RTOR Reduction (vph)	0	0	0	0	27	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	0	0	0	1418	0	0	0	0	0	1023	0
Confl. Peds. (#/hr)	32		32	47		47	36		36	29		29
Confl. Bikes (#/hr)			3			13			9			2
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2717						2220	
v/s Ratio Prot											c0.20	
v/s Ratio Perm					0.23							
v/c Ratio					0.52						0.46	
Uniform Delay, d1					12.4						11.7	
Progression Factor					0.65						1.00	
Incremental Delay, d2					0.6						0.7	
Delay (s)					8.7						12.4	
Level of Service					A						B	
Approach Delay (s)		0.0			8.7			0.0			12.4	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM Average Control Delay	10.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

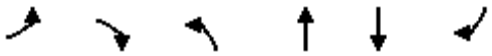
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1183	70	436	1152	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5			4.0				
Lane Util. Factor					0.86			0.86				
Frpb, ped/bikes					1.00			1.00				
Flpb, ped/bikes					1.00			0.97				
Frt					0.99			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6330			6107				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6330			6107				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.95	0.92	0.92	0.96	0.25	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	1245	76	474	1200	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1319	0	0	1658	0	0	0	0
Confl. Peds. (#/hr)	121		121	69		69	118		118	84		84
Confl. Bikes (#/hr)			3									15
Turn Type							Perm					
Protected Phases					6			4				
Permitted Phases							4					
Actuated Green, G (s)					29.9			20.6				
Effective Green, g (s)					29.9			20.6				
Actuated g/C Ratio					0.50			0.34				
Clearance Time (s)					5.5			4.0				
Lane Grp Cap (vph)					3154			2097				
v/s Ratio Prot					c0.21							
v/s Ratio Perm								0.27				
v/c Ratio					0.42			0.79				
Uniform Delay, d1					9.5			17.8				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.4			3.1				
Delay (s)					9.9			20.9				
Level of Service					A			C				
Approach Delay (s)		0.0			9.9			20.9			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		

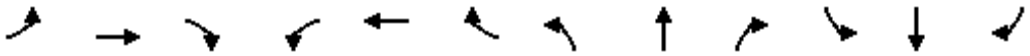
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	80	0	0	1262	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.25	0.92	0.25	0.25
Hourly flow rate (vph)	87	0	0	1372	0	0
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				1055	320	
pX, platoon unblocked						
vC, conflicting volume	349	6	6			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	349	6	6			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	100	100			
cM capacity (veh/h)	619	1069	1605			

Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4
Volume Total	87	343	343	343	343
Volume Left	87	0	0	0	0
Volume Right	0	0	0	0	0
cSH	619	1700	1700	1700	1700
Volume to Capacity	0.14	0.20	0.20	0.20	0.20
Queue Length 95th (ft)	12	0	0	0	0
Control Delay (s)	11.8	0.0	0.0	0.0	0.0
Lane LOS	B				
Approach Delay (s)	11.8	0.0			
Approach LOS	B				

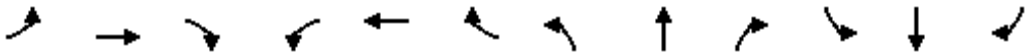
Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	29.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1295	226	0	0	0	0	0	0	60	1100	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5									5.5	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		0.99									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.98									1.00	
Flt Protected		1.00									1.00	
Satd. Flow (prot)		6225									5068	
Flt Permitted		1.00									1.00	
Satd. Flow (perm)		6225									5068	
Peak-hour factor, PHF	0.25	0.96	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.93	0.25
Adj. Flow (vph)	0	1349	246	0	0	0	0	0	0	65	1183	0
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	1580	0	0	0	0	0	0	0	0	1244	0
Confl. Peds. (#/hr)	20		20	30		30	12		12	17		17
Confl. Bikes (#/hr)			5			7			3			
Turn Type										Perm		
Protected Phases		2									4	
Permitted Phases										4		
Actuated Green, G (s)		23.0									26.0	
Effective Green, g (s)		23.0									26.0	
Actuated g/C Ratio		0.38									0.43	
Clearance Time (s)		5.5									5.5	
Lane Grp Cap (vph)		2386									2196	
v/s Ratio Prot		c0.25										
v/s Ratio Perm											0.25	
v/c Ratio		0.66									0.57	
Uniform Delay, d1		15.3									12.8	
Progression Factor		0.83									0.55	
Incremental Delay, d2		1.4									1.0	
Delay (s)		14.1									8.0	
Level of Service		B									A	
Approach Delay (s)		14.1			0.0			0.0			8.0	
Approach LOS		B			A			A			A	

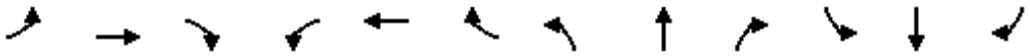
Intersection Summary			
HCM Average Control Delay	11.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	844	0	0	0	0	0	387	156	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.86						0.86				
Frpb, ped/bikes		1.00						0.98				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		6385						6043				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		6385						6043				
Peak-hour factor, PHF	0.92	0.92	0.25	0.25	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25
Adj. Flow (vph)	38	917	0	0	0	0	0	421	161	0	0	0
RTOR Reduction (vph)	0	12	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	943	0	0	0	0	0	568	0	0	0	0
Confl. Peds. (#/hr)	46		46	17		17	53		53	68		68
Confl. Bikes (#/hr)			1			1			6			2
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		15.4						37.6				
Effective Green, g (s)		15.4						37.6				
Actuated g/C Ratio		0.26						0.63				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		1639						3787				
v/s Ratio Prot								c0.09				
v/s Ratio Perm		0.15										
v/c Ratio		0.58						0.15				
Uniform Delay, d1		19.4						4.6				
Progression Factor		1.00						1.00				
Incremental Delay, d2		0.3						0.1				
Delay (s)		19.8						4.7				
Level of Service		B						A				
Approach Delay (s)		19.8			0.0			4.7			0.0	
Approach LOS		B			A			A			A	

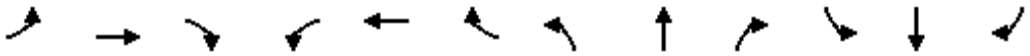
Intersection Summary			
HCM Average Control Delay	14.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	208	1541	0	0	0	0	0	1102	1185	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5				
Lane Util. Factor		0.86						0.91				
Frpb, ped/bikes		1.00						0.99				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.92				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		6355						4638				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		6355						4638				
Peak-hour factor, PHF	0.92	0.98	0.25	0.25	0.25	0.25	0.25	0.94	0.96	0.25	0.25	0.25
Adj. Flow (vph)	226	1572	0	0	0	0	0	1172	1234	0	0	0
RTOR Reduction (vph)	0	11	0	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	1787	0	0	0	0	0	2404	0	0	0	0
Confl. Peds. (#/hr)	22		22	50		50	14		14	6		6
Confl. Bikes (#/hr)			16			1			2			2
Turn Type	Perm											
Protected Phases		1						2				
Permitted Phases	1											
Actuated Green, G (s)		18.0						18.0				
Effective Green, g (s)		18.0						18.0				
Actuated g/C Ratio		0.40						0.40				
Clearance Time (s)		4.5						4.5				
Lane Grp Cap (vph)		2542						1855				
v/s Ratio Prot								c0.52				
v/s Ratio Perm		0.28										
v/c Ratio		0.70						1.93dr				
Uniform Delay, d1		11.3						13.5				
Progression Factor		0.78						1.35				
Incremental Delay, d2		0.6						136.6				
Delay (s)		9.4						154.8				
Level of Service		A						F				
Approach Delay (s)		9.4			0.0			154.8			0.0	
Approach LOS		A			A			F			A	

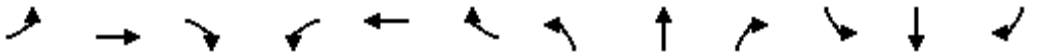
Intersection Summary			
HCM Average Control Delay	92.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



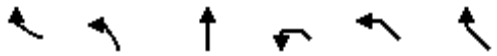
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1580	485	0	0	0	0	0	0	544	1756	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0									3.0	
Lane Util. Factor		0.86									0.91	
Frpb, ped/bikes		1.00									1.00	
Flpb, ped/bikes		1.00									1.00	
Frt		0.96									1.00	
Flt Protected		1.00									0.99	
Satd. Flow (prot)		6145									5015	
Flt Permitted		1.00									0.99	
Satd. Flow (perm)		6145									5015	
Peak-hour factor, PHF	0.25	0.99	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.95	0.25
Adj. Flow (vph)	0	1596	527	0	0	0	0	0	0	591	1848	0
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	2121	0	0	0	0	0	0	0	0	2437	0
Confl. Peds. (#/hr)	4		4	8		8	2		2	12		12
Confl. Bikes (#/hr)			2			2			2			
Turn Type										Perm		
Protected Phases		4									6	
Permitted Phases										6		
Actuated Green, G (s)		18.0									20.0	
Effective Green, g (s)		18.0									20.0	
Actuated g/C Ratio		0.40									0.44	
Clearance Time (s)		4.0									3.0	
Vehicle Extension (s)		2.0									2.0	
Lane Grp Cap (vph)		2458									2229	
v/s Ratio Prot		c0.35										
v/s Ratio Perm											0.49	
v/c Ratio		0.86									1.09	
Uniform Delay, d1		12.4									12.5	
Progression Factor		1.00									1.00	
Incremental Delay, d2		4.3									49.9	
Delay (s)		16.7									62.4	
Level of Service		B									E	
Approach Delay (s)		16.7			0.0			0.0			62.4	
Approach LOS		B			A			A			E	

Intersection Summary			
HCM Average Control Delay	41.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	8	430	66	409	410	0	0	251	1916
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.93		1.00			1.00	0.98
Flpb, ped/bikes				0.98	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1726	1863	1471		1817			1863	1559
Flt Permitted				0.95	1.00	1.00		0.71			1.00	1.00
Satd. Flow (perm)				1726	1863	1471		1316			1863	1559
Peak-hour factor, PHF	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.98
Adj. Flow (vph)	0	0	0	9	467	72	445	446	0	0	273	1955
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	0	0	0	28
Lane Group Flow (vph)	0	0	0	9	467	17	0	891	0	0	273	1927
Confl. Peds. (#/hr)	4		4	20		20	1		1	6		6
Confl. Bikes (#/hr)			10			7						
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					1			2			2	
Permitted Phases				1		1	2					2
Actuated Green, G (s)				14.5	14.5	14.5		34.5			34.5	34.5
Effective Green, g (s)				14.5	14.5	14.5		34.5			34.5	34.5
Actuated g/C Ratio				0.24	0.24	0.24		0.57			0.57	0.57
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				417	450	355		757			1071	896
v/s Ratio Prot					c0.25						0.15	
v/s Ratio Perm				0.01		0.01		0.68				c1.24
v/c Ratio				0.02	1.04	0.05		1.18			0.25	2.15
Uniform Delay, d1				17.3	22.8	17.5		12.8			6.3	12.8
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.0	52.5	0.1		93.2			0.6	521.5
Delay (s)				17.4	75.3	17.5		105.9			6.9	534.3
Level of Service				B	E	B		F			A	F
Approach Delay (s)		0.0			66.8			105.9			469.6	
Approach LOS		A			E			F			F	

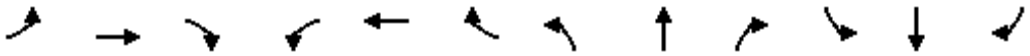
Intersection Summary			
HCM Average Control Delay	321.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.82		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	199.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBR	NBL	NBT	NWL2	NWL	NWR
Lane Configurations						
Volume (vph)	0	215	731	77	66	855
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			3.5		2.0	2.0
Lane Util. Factor			0.95		0.97	0.91
Frpb, ped/bikes			1.00		1.00	1.00
Flpb, ped/bikes			1.00		1.00	1.00
Frt			1.00		0.89	0.85
Flt Protected			0.99		0.99	1.00
Satd. Flow (prot)			3499		3170	1441
Flt Permitted			0.99		0.99	1.00
Satd. Flow (perm)			3499		3170	1441
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.94
Adj. Flow (vph)	0	234	795	84	72	910
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	1029	0	611	455
Confl. Peds. (#/hr)	46					
Confl. Bikes (#/hr)	3					
Turn Type	custom	Perm		Perm		Perm
Protected Phases			3		1	
Permitted Phases	2	3		1		1
Actuated Green, G (s)			16.3		16.2	16.2
Effective Green, g (s)			16.3		16.2	16.2
Actuated g/C Ratio			0.36		0.36	0.36
Clearance Time (s)			3.5		2.0	2.0
Lane Grp Cap (vph)			1267		1141	519
v/s Ratio Prot						
v/s Ratio Perm			0.29		0.19	c0.32
v/c Ratio			0.81		0.54	0.88
Uniform Delay, d1			13.0		11.4	13.5
Progression Factor			0.76		1.00	1.00
Incremental Delay, d2			0.5		1.8	18.5
Delay (s)			10.4		13.2	32.0
Level of Service			B		B	C
Approach Delay (s)			10.4		21.2	
Approach LOS			B		C	

Intersection Summary			
HCM Average Control Delay	15.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	339	711	96	0	0	0	0	622	86	1	81	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5			3.5	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						1.00			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		0.99						0.98			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4924						1832			1862	
Flt Permitted		0.99						1.00			0.72	
Satd. Flow (perm)		1000						1300			1300	
Peak-hour factor, PHF	0.92	0.93	0.92	0.25	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.25
Adj. Flow (vph)	368	765	104	0	0	0	0	676	93	1	88	0
RTOR Reduction (vph)	0	24	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	1213	0	0	0	0	0	758	0	0	89	0
Confl. Peds. (#/hr)	9		9	38		38				2		2
Confl. Bikes (#/hr)			11			4						2
Turn Type	Perm									Perm		
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		22.5						15.5			15.5	
Effective Green, g (s)		22.5						15.5			15.5	
Actuated g/C Ratio		0.50						0.34			0.34	
Clearance Time (s)		3.5						3.5			3.5	
Lane Grp Cap (vph)		500						631			448	
v/s Ratio Prot								c0.41				
v/s Ratio Perm		c1.21									0.07	
v/c Ratio		2.43						1.20			0.20	
Uniform Delay, d1		11.2						14.8			10.4	
Progression Factor		1.00						1.00			0.08	
Incremental Delay, d2		647.8						105.1			0.9	
Delay (s)		659.0						119.9			1.7	
Level of Service		F						F			A	
Approach Delay (s)		659.0			0.0			119.9			1.7	
Approach LOS		F			A			F			A	

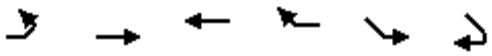
Intersection Summary			
HCM Average Control Delay	433.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.93		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	207	182	1395	1030	213	1166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.94		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3311		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3311		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.94	0.92	0.92	0.92
Adj. Flow (vph)	225	198	1484	1120	232	1267
RTOR Reduction (vph)	0	161	146	0	0	0
Lane Group Flow (vph)	225	37	2458	0	232	1267
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	16.8	16.8	37.7		23.5	65.2
Effective Green, g (s)	16.8	16.8	37.7		23.5	65.2
Actuated g/C Ratio	0.19	0.19	0.42		0.26	0.72
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	330	295	1387		462	2564
v/s Ratio Prot	c0.13		c0.74		0.13	c0.36
v/s Ratio Perm		0.02				
v/c Ratio	0.68	0.13	1.77		0.50	0.49
Uniform Delay, d1	34.1	30.5	26.2		28.3	5.3
Progression Factor	1.00	1.00	1.00		0.73	0.82
Incremental Delay, d2	5.7	0.2	350.3		1.6	0.3
Delay (s)	39.8	30.7	376.4		22.1	4.6
Level of Service	D	C	F		C	A
Approach Delay (s)	35.5		376.4			7.3
Approach LOS	D		F			A

Intersection Summary			
HCM Average Control Delay	222.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	104.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	273	487	265	151	718	478
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3347		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3347		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	297	529	288	164	780	520
RTOR Reduction (vph)	0	0	131	0	0	310
Lane Group Flow (vph)	297	529	321	0	780	210
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	13.0	27.7	10.7		24.1	24.1
Effective Green, g (s)	13.0	27.7	10.7		24.1	24.1
Actuated g/C Ratio	0.22	0.46	0.18		0.40	0.40
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	385	1639	599		713	638
v/s Ratio Prot	c0.17	0.15	c0.10		c0.44	
v/s Ratio Perm						0.13
v/c Ratio	0.77	0.32	0.54		1.09	0.33
Uniform Delay, d1	22.0	10.1	22.3		17.8	12.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	9.2	0.1	0.9		62.3	0.3
Delay (s)	31.2	10.2	23.2		80.1	12.6
Level of Service	C	B	C		F	B
Approach Delay (s)		17.8	23.2		53.1	
Approach LOS		B	C		D	

Intersection Summary			
HCM Average Control Delay	36.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	59.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	340	2180	346	0	615	861	738	1165	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.98			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4940			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4940			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.96	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	354	2370	376	0	661	936	802	1266	0
RTOR Reduction (vph)	0	0	0	21	0	0	0	16	0	0	0
Lane Group Flow (vph)	0	0	0	3079	0	0	661	920	802	1266	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				30.0			17.5	17.5	29.5	51.0	
Effective Green, g (s)				30.0			17.5	17.5	29.5	51.0	
Actuated g/C Ratio				0.33			0.19	0.19	0.33	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1647			688	308	580	2005	
v/s Ratio Prot				c0.62			0.19		c0.45	0.36	
v/s Ratio Perm								c0.58			
v/c Ratio				1.87			0.96	2.99	1.38	0.63	
Uniform Delay, d1				30.0			35.9	36.2	30.3	13.2	
Progression Factor				1.00			1.51	1.52	1.00	1.00	
Incremental Delay, d2				393.7			4.6	894.8	182.8	0.7	
Delay (s)				423.7			58.7	949.9	213.1	13.8	
Level of Service				F			E	F	F	B	
Approach Delay (s)	0.0			423.7			581.0			91.1	
Approach LOS	A			F			F			F	

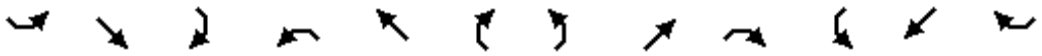
Intersection Summary			
HCM Average Control Delay	359.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.94		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	123.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	489	2163	881	183	372	1030	148	575	26	307
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.99	0.85		0.89				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3180	1441		3136				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3180	1441		3136				1770	3539
Peak-hour factor, PHF	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	532	2301	958	199	404	1120	161	625	28	334
RTOR Reduction (vph)	0	0	10	0	9	0	0	0	0	0
Lane Group Flow (vph)	479	2459	1042	0	1676	0	0	0	653	334
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	28.0	28.0	28.0		37.0				12.0	53.0
Effective Green, g (s)	28.0	28.0	28.0		37.0				12.0	53.0
Actuated g/C Ratio	0.31	0.31	0.31		0.41				0.13	0.59
Clearance Time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	501	989	448		1289				236	2084
v/s Ratio Prot	0.30	c0.77	0.72		c0.53				c0.37	0.09
v/s Ratio Perm										
v/c Ratio	0.96	2.49	2.33		1.91dr				2.77	0.16
Uniform Delay, d1	30.4	31.0	31.0		26.5				39.0	8.4
Progression Factor	0.62	0.63	0.62		1.00				1.00	1.00
Incremental Delay, d2	5.5	669.1	597.6		141.0				806.9	0.2
Delay (s)	24.4	688.7	616.8		167.5				845.9	8.6
Level of Service	C	F	F		F				F	A
Approach Delay (s)		590.0			167.5					562.5
Approach LOS		F			F					F

Intersection Summary			
HCM Average Control Delay	479.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.96		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	153.6%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	2113	296	416	1356	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0	4.0		4.0				
Lane Util. Factor					0.91	1.00		*0.88				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1583		4862				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1583		4862				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.96	0.92	0.98	0.94	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2201	322	424	1443	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	3	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2201	320	0	1866	0	0	0	0
Turn Type						Perm	Perm					
Protected Phases					2			4				
Permitted Phases						2	4					
Actuated Green, G (s)					30.0	30.0		22.0				
Effective Green, g (s)					30.0	30.0		22.0				
Actuated g/C Ratio					0.50	0.50		0.37				
Clearance Time (s)					4.0	4.0		4.0				
Lane Grp Cap (vph)					2543	792		1783				
v/s Ratio Prot					c0.43							
v/s Ratio Perm						0.20		0.38				
v/c Ratio					0.87	0.40		1.05				
Uniform Delay, d1					13.2	9.4		19.0				
Progression Factor					1.00	1.00		1.12				
Incremental Delay, d2					4.3	1.5		22.8				
Delay (s)					17.5	10.9		44.1				
Level of Service					B	B		D				
Approach Delay (s)		0.0			16.6			44.1			0.0	
Approach LOS		A			B			D			A	

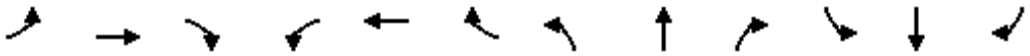
Intersection Summary			
HCM Average Control Delay	28.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	844	1734	0	0	0	0	0	912	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4775						3495	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4775						3495	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	917	1788	0	0	0	0	0	991	90
RTOR Reduction (vph)	0	0	0	17	17	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	634	2037	0	0	0	0	0	1077	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				29.0	29.0						23.0	
Effective Green, g (s)				29.0	29.0						23.0	
Actuated g/C Ratio				0.48	0.48						0.38	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				736	2308						1340	
v/s Ratio Prot											c0.31	
v/s Ratio Perm				0.42	0.43							
v/c Ratio				0.86	0.88						0.80	
Uniform Delay, d1				13.7	14.0						16.5	
Progression Factor				1.29	1.29						1.00	
Incremental Delay, d2				6.4	2.6						5.2	
Delay (s)				24.2	20.6						21.7	
Level of Service				C	C						C	
Approach Delay (s)		0.0			21.5			0.0			21.7	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	291	698	14	22	313	26	21	31	38	86	64	57
Peak Hour Factor	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	316	743	15	24	340	28	23	34	41	93	70	62

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	316	758	392	98	225
Volume Left (vph)	316	0	24	23	93
Volume Right (vph)	0	15	28	41	62
Hadj (s)	0.53	0.02	0.00	-0.17	-0.05
Departure Headway (s)	6.9	6.4	6.3	7.3	6.9
Degree Utilization, x	0.61	1.34	0.68	0.20	0.43
Capacity (veh/h)	513	566	557	435	489
Control Delay (s)	18.8	184.4	21.7	12.1	15.2
Approach Delay (s)	135.7		21.7	12.1	15.2
Approach LOS	F		C	B	C

Intersection Summary			
Delay	88.8		
HCM Level of Service	F		
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		

APPENDIX G.3

Revision of Measure DD Configuration for Harrison Street / Lakeside Drive / 20th Street Triangle

AECOM
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Memorandum

Date:	January 12, 2009
To:	Margaret Stanzione, City of Oakland, Community and Economic Development Agency Tomas Schoenberg, The Swig Company, LLC
From:	Jeffrey Chan, PTP
Subject:	Revision of Measure DD Configuration for Harrison Street / Lakeside Drive / 20th Street Triangle

This memorandum summarizes the proposed revision of the Measure DD configuration for the three intersections at the confluence of Harrison Street, Lakeside Drive, and 20th Street, herein referred to as the "Triangle." The analysis presented below considers the following two intersections, which would be most affected by implementation of Measure DD:

24. Harrison Street / 20th Street / Kaiser Center Access Road; and,
26. Harrison Street / Lakeside Drive.

The third intersection in the Triangle (Intersection #27: Lakeside Drive / 20th Street) would be removed with implementation of Measure DD and would operate without conflicting movements.

Measure DD Configuration

The aim of Measure DD is to enlarge Snow Park and provide enhanced pedestrian access to open space along the shore of Lake Merritt. As originally proposed, Measure DD would remove the 20th Street leg of the Triangle. The primary result of this reconfiguration would be the following changes in traffic flow in the Triangle:

- Eastbound-through vehicles (eastbound vehicles on 20th Street attempting to access Lakeside Drive) would need to first turn left onto northbound Harrison Street before turning right onto Lakeside Drive); and,
- Westbound-through vehicles (westbound vehicles on Lakeside Drive attempting to reach 20th Street) would first need to turn left at Intersection #26.

As Measure DD has already been approved, the Cumulative plus Project Conditions scenario presented in the Measure DD Implementation Project Environmental Impact Report (EIR) was assumed to be the cumulative base scenario for analysis of the Kaiser Center Redevelopment Project—i.e., Cumulative Conditions without the project. Project-related traffic was then added on top to generate Cumulative plus Project Conditions.

Cumulative plus Project Conditions (Kaiser Center Redevelopment Project EIR)

The LOS results for Cumulative plus Project Conditions for the Kaiser Center Redevelopment Project EIR are summarized in **Table 1**.

Table 1: Intersection Level of Service Comparison

Intersection		Existing Conditions	Cumulative Conditions		Cumulative plus Project Conditions
		Kaiser EIR (2008)	DD EIR (2025)[1]	Kaiser EIR (2030)[2]	DD Geometry[3]
AM Peak Hour					
24	Harrison Street / 20th Street	D 40.6	C 25.2	C 28.4	**F 272.8**
26	Harrison Street / Lakeside Drive	A 7.6	C 23.3	C 23.8	C 26.3
PM Peak Hour					
24	Harrison Street / 20th Street	C 34.1	C 22.5	D 47.9	**F 255.9**
26	Harrison Street / Lakeside Drive	B 13.1	C 25.3	D 53.0	**E 66.2**

Notes:
Bold indicates intersections operating at **LOS E** or **LOS F**.
(1) Cumulative plus Project Conditions as presented in the Measure DD Implementation Project EIR.
(2) Cumulative Conditions for the Kaiser Center Redevelopment EIR, assuming identical geometry at Measure DD intersections (#24 and #26) as that presented in the Measure DD Implementation Project EIR for Cumulative plus Project Conditions.
(3) Assumes minor timing and phasing adjustments to accommodate the additional southeastbound approach to be constructed at Intersection #24 as part of the project. An additional eastbound left-turn pocket would be provided, as the existing pocket immediately before the intersection would be removed. Cycle length, however, is assumed to remain constant.

As shown in **Table 1**, the project would contribute to significant cumulative impacts under both the AM and PM peak hours at the intersection of Harrison Street / 20th Street. The project would also potentially contribute to a significant cumulative impact under the PM peak hour at the intersection of Harrison Street / Lakeside Drive.

In order to mitigate the project's contribution to cumulative impacts at the intersection of Harrison Street / 20th Street, the following changes would be required:

- For the AM peak hour, an additional southbound-through lane would be needed, with timing adjustments to increase the green time to this movement.
- For the PM peak hour, the following changes would need to be made:
    - The southeastbound approach (the internal access road) would need to be reconfigured from a through-left and exclusive right to an exclusive left, exclusive through, and exclusive right; and,

- The northbound approach (Harrison Street) would need to be reconfigured from a shared left-through-right and exclusive right to an exclusive left, exclusive through, and two exclusive rights.

These changes would be in addition to the "basic" changes necessitated by the new approach, as detailed in Note #3 of **Table 1**. After these changes, the two intersections would operate at acceptable levels of service.

Microsimulation Analysis

Because of the proximity of the intersections of Harrison Street / 20th Street and Harrison Street / Lakeside Drive and the resulting potential for queuing impacts, a preliminary microsimulation analysis of the roadways and intersections in the immediate vicinity of the project was conducted. The microsimulation analysis concluded the following:

- Substantial queuing would occur on the following movements after reconfiguration:
  - All movements on the northbound approach at Harrison Street / 20th Street, especially the northbound-left and northbound-right movements;
  - All movements on the southeastbound approach (internal access road) at Harrison Street / 20th Street;
  - Eastbound-through movement at Harrison Street / Lakeside Drive (Harrison Street to Harrison Street), leading to spillback queuing affecting throughput at Harrison Street / 20th Street;
  - Southbound-left movement at Harrison Street / Lakeside Drive (Harrison Street to Lakeside Drive), leading to spillback queuing affecting throughput at Harrison Street / 21st Street; and,
  - Northbound-through movement at Harrison Street / Lakeside Drive (Lakeside Drive to Harrison Street).
- The removal of the eastern 20th Street leg at Harrison Street / 20th Street introduces traffic flow conflicts between northbound Harrison Street vehicles bound for Grand Avenue and I-580 and eastbound 20th Street vehicles attempting to access southbound Lakeside Drive to reach 11th / 12th Streets and I-880. This increases the potential for collisions as vehicles attempt to weave into the appropriate lane or make sudden lane changes and turning movements over short distances.

Improvement Measures

Based on the microsimulation analysis, the reconfiguration of the Harrison Street / Lakeside Drive / 20th Street Triangle as originally proposed by Measure DD would result in substantial queuing issues and weaving conflicts as detailed above. These issues would be complicated by the addition of project-generated traffic.

As a possible alternative configuration, it was proposed that the Lakeside Drive section of the Triangle be removed instead. This would present the following benefits:

- Complete removal of one intersection from the roadway network, streamlining traffic flows. The reconfiguration as originally proposed by Measure DD would have removed the 20th Street section of the Triangle, but the intersection of Harrison Street / 20th Street would still have remained because of the presence of conflicting movements.

- Elimination of the intersection queuing and associated spillback queuing impacts at the intersection of Harrison Street / Lakeside Drive. The alternative configuration would result in approximately 600 feet of unobstructed queuing storage along Harrison Street.
- Elimination of the weaving conflicts and potential for collisions discussed previously, as eastbound-through vehicles from 20th Street would no longer have to use Harrison Street to access Lakeside Drive.
- Placement of the new open space where it results in the most benefits. The original proposal called for Snow Park to be expanded, but the new open space would still be separated from Lake Merritt by Lakeside Drive. The alternative configuration removes the Lakeside Drive section of the Triangle and allows existing open space abutting the lake to be expanded west. This reduces the number of crosswalks by one for pedestrians attempting to access the lakeshore from 20th Street west of Harrison Street and enhances the attractiveness of the shoreline area as a lunchtime or recreational spot for employees in nearby office buildings.
- Improved options for project-related traffic, as the alternative configuration improves connections to Lakeside Drive for vehicles coming to and from the internal access road.

The alternative reconfiguration would require changes to lane striping and configuration and signal timing and phasing. The alternative reconfiguration would also likely result in higher delays and poorer level of service (LOS) at the intersection of Harrison Street / 20th Street than the original reconfiguration. Given, however, that it would produce the benefits described above, particularly the improvement of non-auto access to open space—a primary goal of Measure DD—it is recommended that the analysis proceed assuming the alternative configuration.

Next Steps

AECOM will conduct a microsimulation analysis under Cumulative plus Project Conditions of intersections immediately adjacent to the project site and develop a preliminary design for the intersections of Harrison Street / 20th Street, Harrison Street / Lakeside Drive, and, potentially, Harrison Street / 21st Street. The preliminary design will include the following elements:

- Intersection geometry;
- Roadway geometry;
- Signal timing plans;
- Signal phasing plans; and,
- Any additional considerations such as off-peak access to the parking garage, access to the loading docks, pedestrian access, and bikeway facilities.

The proposed design will be presented to City of Oakland Community and Economic Development Agency (CEDA) and Transportation Services Division (TSD) staff for preliminary approval before proceeding with the rest of the analysis.

APPENDIX G.4
Pedestrian Facilities Survey

Inventory of Pedestrian Signals

Intersection		Cross-walk	Signal Head?	Countdown?
13	Harrison Street / 21st Street	S	Y	**N**
		W	NB: Y / **SB: N**	**N**
---	Kaiser Plaza / 21st Street	N	N/A	N/A
		E	N/A	N/A
		W	N/A	N/A
17	Webster Street / 21st Street	N	**N**	**N**
		S	**N**	**N**
		E	NB: Y / **SB: N**	**N**
		W	NB: Y / **SB: N**	**N**
18	Franklin Street / 21st Street	N	Y	Y
		S	Y	Y
		E	Y	Y
		W	Y	Y
22	Franklin Street / 20th Street	N	Y	Y
		S	Y	Y
		E	Y	Y
		W	Y	Y
23	Webster Street / 20th Street	N	Y	Y
		S	**EB: N** / WB: Y	**EB: N** / WB: Y
		E	Y	Y
		W	Y	Y
24	Harrison Street / 20th Street / Kaiser Center Access Road	S	Y	Y
		E	Y	Y
		W	Y	Y
26	Harrison Street / Lakeside Drive	SE	Y	Y
		SW	**EB: N** / WB: Y	**EB: N** / WB: Y

Inventory of Curb Ramps

Intersection		Corner	Curb Ramp?	Detectable Warning?
13	Harrison Street / 21st Street	NW	Y	Y
		SE	Y	Y
		SW	Y	**N**
---	Kaiser Plaza / 21st Street	NE	**Y, but not aligned with crosswalk**	**N**
		NW	N: Y / **W: N**	**N**
		SE	**Y, but not aligned with crosswalk**	**N**
		SW	**N**	**N**
17	Webster Street / 21st Street	NE	Y	**N**
		NW	Y	**N**
		SE	Y	**N**
		SW	Y	**N**
18	Franklin Street / 21st Street	NE	Y	Y
		NW	Y	**N**
		SE	Y	**N**
		SW	Y	**N**
22	Franklin Street / 20th Street	NE	Y	**N**
		NW	Y	**N**
		SE	Y	**N**
		SW	Y	**N**
23	Webster Street / 20th Street	NE	Y	**N**
		NW	Y	**N**
		SE	Y	**N**
		SW	Y	**N**
24	Harrison Street / 20th Street / Kaiser Center Access Road	NE	Y	**N**
		NW	Y	**N**
		SE	Y	**N**
		SW	Y	**N**
26	Harrison Street / Lakeside Drive	SE	Y	**N**
		SW	Y	**N**

APPENDIX G.5
Mode Split Findings

AECOM
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Memorandum

Date:	October 17, 2008
To:	Margaret Stanzione, Community and Economic Development Agency, City of Oakland Gordon Lum, Transportation Services Division, Community and Economic Development Agency, City of Oakland
From:	Jeffrey Chan, PTP
Subject:	Kaiser Center Redevelopment Project Transportation Impact Analysis – Mode Split Findings

This memorandum summarizes the findings from the comparison of mode split and average vehicle occupancy (AVO) results contained in various technical sources documenting travel behavior for the Downtown area in the City of Oakland[(1)]. The results of the comparison facilitate the determination of the most suitable mode split and AVO to be used for the proposed Kaiser Center Redevelopment Project located in the City of Oakland, herein referred to as the Project.

Project Description

The proposed project would primarily consist of two new office towers totaling 1,320,000 square feet of office space adjacent to the existing Kaiser Center office tower, located on the west corner of the block bounded by 21st Street on the north, 20th Street on the south, Webster Street on the west and Harrison Street / Lakeside Drive on the east, herein defined as the "Kaiser Center block." Approximately 48,000 square feet of existing retail space would be removed and replaced with 46,000 square feet of retail located at street level along 20th Street and Webster Street and on the sixth floor adjacent to the existing Kaiser Center rooftop garden.

The project is divided into two phases:

- Development Phase I consists of the 42-story North Tower in conjunction with the street level retail complex along Webster Street, comprising approximately 768,000 square feet of office space and approximately 19,000 square feet of retail space located at street level and on the sixth floor; and,
- Development Phase II, which would be commenced concurrently with or following Development Phase I, consists of the 34-story South Tower in conjunction with the street level retail complex along 20th Street, comprising approximately 552,000 square feet of office space and approximately 27,000 square feet of retail space located at street level and on the sixth floor.

(1) Downtown is defined in the Land Use and Transportation Element of the General Plan (page 67) as the area generally bounded by West Grand Avenue to the north, Lake Merritt and Channel Park to the east, the Oakland Estuary to the south, and I-980 / Brush Street to the west.

A total of 48,000 square feet of existing retail space would be demolished as part of the project. The removal of retail space would be spread across the two phases.

In summary, the overall project (Phase I and Phase II) proposes the following net changes in land use to the Kaiser Center block:

- Increase of 1.32 million square feet of office space; and,
- Decrease of 2,000 square feet of retail space.

The project also proposes new subterranean and above-grade parking consisting of an additional 697 parking spaces. The new parking structures would be incorporated into the existing Kaiser Center Garage. Pedestrian entrances to the office towers would be located on Harrison Street, Webster Street, and 20th Street, while vehicular entrances to the project complex would be via driveways on Harrison Street, 20th Street, and 21st Street. Vehicular access to the garage structure would be provided via the existing entrances and exits located on 21st Street and via the access road on the eastern portion of the block (entrances currently via Harrison Street, 20th Street, and 21st Street).

Data Sources

The mode split and AVO findings were compiled from four different sources with various publication / completion dates:

- *Standard Operating Procedure: Technical Guidelines for Transportation Impact Study*, published by the City of Oakland Community and Economic Development Agency's (CEDA) Transportation Services Division (TSD) in March 2007;
- *Alameda County Congestion Management Agency (ACCMA) Transportation Survey* for the Oakland City Center Complex, commissioned by the Alameda County Congestion Management Agency (ACCMA) in May 1993;
- *Downtown Transportation and Parking Plan*, compiled by Dowling Associates for CEDA and the City of Oakland Redevelopment Agency in October 2003; and,
- Journey to Work Surveys for the 2000 U.S. Census, compiled by the U.S Census Bureau in May 2000.

The results of the mode split and AVO findings from these four sources are summarized in **Table 1**.

Normally, the City of Oakland CEDA TSD has specific mode splits contained in the TSD Guidelines, which are deemed appropriate for projects in Downtown Oakland and account for the extensive transit facilities available in the Downtown area. However, as shown in **Table 1**, different areas of Downtown exhibit different mode split characteristics. These differences are partly a result of the variability in the degree of accessibility by transit facilities, with the City Center Complex being the most accessible by transit facilities and areas north of Downtown being less accessible by transit facilities. The differences are also likely due in part to the availability and cost of parking in the area, with the City Center Garage at high occupancies despite relatively high cost compared to other parking facilities in the Downtown area.

In order to adequately evaluate the potential impacts to area transit facilities due to the Project, it is evident that an alternative mode split would be needed to account for the extensive transit facilities in the vicinity of the Project. In addition, the mode split contained in the TSD Guidelines has a much higher automobile split of 83 percent, compared to the other sources outlined in **Table 1**, which range from 42 percent to 66 percent.

Table 1: Mode Split and Average Vehicle Occupancy Summary

Data		Source				
		Oakland CEDA TSD Guidelines[a]	ACCMA Travel Survey[b]	Downtown Transportation and Parking Plan[c]		2000 U.S. Census[d]
Area of Downtown		Entire Downtown	City Center Complex[1]	City Center Complex[1]	Rest of Downtown[2]	Entire Downtown
Mode Split	Auto	83%	65%	42%	66%	54%
	Transit	17%	30%	55%	30%	27%
	Other	--	5%	3%	4%	19%
Average Vehicle Occupancy (AVO)		--	1.48[3]	1.13	1.16	1.16

Source:
[a] *Transportation Impact Study* (TIS) *Technical Guidelines* - Section 3B, Transportation Services Division, dated March 9, 2007.
[b] *Alameda County Transportation Survey – City Center Complex, Oakland* (ID Number: 10-7-1), data collected May 1993.
[c] *Downtown Transportation and Parking Plan*, Dowling Associates, dated October 2003.
[d] Average of Census Tracts 4013, 4028, 4029, 4030, 4031, 4033, 4034, 4035, and 4036 from the 2000 U.S. Census.

Notes:
[1] "City Center Complex" is defined as the area of Downtown Oakland bounded by 14th Street to the north, 8th Street to the south, Broadway to the east, and Martin Luther King, Jr. Way to the west.
[2] "Rest of Downtown" is defined as the remainder of Downtown Oakland excluding the City Center Complex.
[3] Adjusted average vehicle occupancy.

Upon reviewing the mode split results contained in the four sources, it was determined that the mode split and AVO results from the 2000 U.S. Census would be inappropriate for the purposes of transportation impact analysis for the Project, as the survey compiled information for home-based work trips originating in Downtown Oakland—i.e., trips by residents living in Downtown Oakland. The two other surveys—conducted by ACCMA and by Dowling Associates—were compiled for work trips terminating in Downtown Oakland—i.e., trips by people who work in Downtown Oakland. As the Project land use program consists of office and retail uses, the 2000 U.S. Census results would not be appropriate.

In addition, it was determined that the mode split and AVO results contained in the transportation survey for the Oakland City Center Complex commissioned by ACCMA in May 1993 are superseded by those contained in the *Downtown Transportation and Parking Plan* compiled by Dowling Associates in October 2003. Specifically, the Dowling Associates study evaluated a specific survey subarea coinciding with the area surveyed for the City Center Complex transportation survey by ACCMA. The survey methodologies were also similar, consisting of paper survey forms distributed to employers in the Oakland City Center Complex. Since the Dowling Associates study was completed in October 2003, the study and its associated results for the Oakland City Center Complex effectively supersede and replace those of the ACCMA transportation survey from 1993.

Finally, it was determined that the mode split and AVO results for the "Rest of Downtown" area from the Dowling Associates study would be the most appropriate due to the survey being the most recent and most applicable in terms of location. The "Rest of Downtown" area is generally well-served by transit facilities but includes areas with varying degrees of transit accessibility, with some areas less accessible to transit facilities than others, unlike the City Center Complex, which is immediately adjacent to the Oakland City Center / 12th Street BART Station. It is important to note that in the survey, "Rest of Downtown" area includes the following areas:

- Old Oakland, in the vicinity of Washington Street / 8th Street, within three blocks of the Oakland City Center / 12th Street BART Station;

- Metro Center, in the vicinity of Harrison Street / 8th Street, adjacent to the Lake Merritt BART Station;
- County Center, in the vicinity of Oak Street / 14th Street, within six blocks of both the Lake Merritt BART Station and 12th Street BART Station; and,
- Upper Downtown, in the vicinity of Harrison Street / 20th Street, adjacent to the Project and within two blocks of the 19th Street / Oakland BART Station.

It must be stressed that for the transportation surveys distributed in Metro Center, County Center, and some Upper Downtown office buildings such as the Caltrans Building, the transit mode share tended to be higher than other office buildings in the "Rest of Downtown" area, as the aforementioned office buildings contain offices of State and County public agencies. State and County agencies provide transit subsidies as part of employee benefits, therefore resulting in a higher transit mode share than typically observed at other office buildings.

Therefore, it would be most prudent to use the mode split and AVO results from the *Downtown Transportation and Parking Plan* compiled by Dowling Associates in October 2003, with a mode split of 66 percent automobile, 30 percent transit, and 4 percent other to be used in the Transportation Impact Analysis for the Project. These numbers would be used in lieu of the standard mode split of 83 percent automobile and 17 percent transit as outlined in the City of Oakland CEDA TSD Guidelines. To simplify the analysis, a mode split of 70 percent automobile and 30 percent transit was assumed in all trip generation calculations.

APPENDIX G.6
Travel Demand Model Land Use Findings

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Memorandum

Date:	May 1, 2009
To:	Margaret Stanzione, Community and Economic Development Agency, City of Oakland Gordon Lum, Transportation Services Division, Community and Economic Development Agency, City of Oakland
From:	Jeffrey Chan, PTP
Subject:	Kaiser Center Redevelopment Project Transportation Impact Analysis – Travel Demand Model Land Use Findings

This memorandum summarizes the findings from the comparison of land use (LU) information contained in the Alameda County Congestion Management Agency's Travel Demand Model (ACCMA Model), CUBE Version 2007, based on Association of Bay Area Governments' (ABAG) and Metropolitan Transportation Commission's (MTC) *Projections 2005* LU information.

ACCMA Model *Projections 2005* Land Use Information

The ACCMA *Projections 2005* LU information allocations represent estimates of existing (Year 2005) and future development (Year 2030) in Alameda County. This land use information was assembled during April 2005 through June 2006. The source data were obtained solely from secondary sources such as Census 2000 counts and estimates, the *Census Planning Package 2000*, development capacity and growth projections from General Plan studies, and comments submitted by local jurisdictions.

The final LU allocations in the ACCMA Model for Year 2030 were adjusted to maintain close compliance to the county-wide control totals, within one (1) percent variance from ABAG and MTC *Projections 2005* control totals, as specified by MTC's publication *Guidance for Consistency of Congestion Management Programs with the Regional Transportation Plan.*

The *Projections 2005* LU information contained in the ACCMA Model for the Transportation Analysis Zones (TAZ) within the City of Oakland (City) were summarized for Year 2005 and Year 2030, aggregated by number of households and number of employment by category. **Table 1** summarizes the LU information in the ACCMA Model for the City, with the ABAG control totals for the City also presented for comparison purposes.

Table 1: ACCMA Model *Projections 2005* Land Use Information – City of Oakland

Land Use Type	Year 2005		Year 2030		Growth Year 2005 to Year 2030	
	ACCMA Model	ABAG Projections	ACCMA Model	ABAG Projections	ACCMA Model	ABAG Projections
Residential						
Households	154,726	154,330	195,909	195,690	41,183	41,360
Employment						
Retail	24,470	n/d	39,821	n/d	15,351	n/d
Service	90,051	n/d	131,926	n/d	41,875	n/d
Agricultural	290	n/d	354	n/d	64	n/d
Manufacturing	16,512	n/d	28,530	n/d	12,018	n/d
Wholesale	6,490	n/d	6,470	n/d	-20	n/d
Other	70,687	n/d	73,776	n/d	3,089	n/d
Total	*208,500*	*207,100*	*280,877*	*279,340*	*72,377*	*72,240*

Source: Alameda County Congestion Management Agency, 2006; Association of Bay Area Governments, 2005; AECOM, 2009.

Note: n/d denotes no data available.

As shown in **Table 1**, the ACCMA Model *Projections 2005* LU information for TAZ within the City are within one (1) percent variance of the ABAG *Projections 2005* control totals for both residential and employment LU information types, for both Year 2005 and Year 2030, as specified by the MTC. Therefore, it was prudent and reasonable to use ACCMA Model citywide LU information projections for Year 2005 and Year 2030 for the purpose of traffic projections for the Kaiser Center Project (Project) Transportation Impact Analysis (TIA).

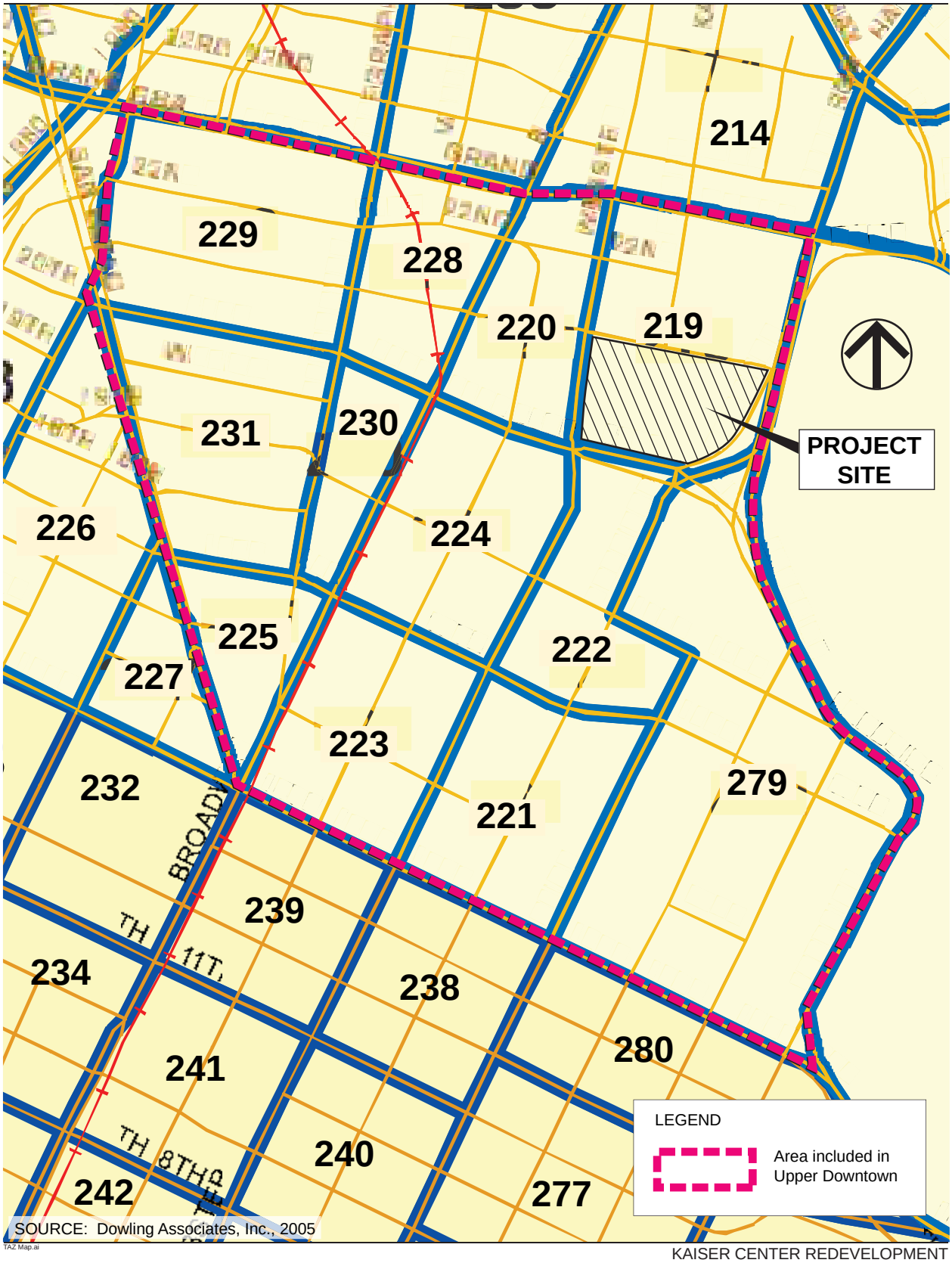
Project Vicinity – Area of Influence

As recommended in the *Mode Split Findings Memorandum* dated October 17, 2008, the Upper Downtown[(1)] portion of the "Rest of Downtown" area, as specified in the *Downtown Transportation and Parking Study Report* competed by Dowling Associates in October 2003, contained travel characteristics most suitable for the purpose of the Project TIA. This project vicinity area also contains LU information that are expected to have the most influence on travel demand projections for the purpose of Project TIA.

Specifically, the Upper Downtown area, in the vicinity of Harrison Street / 20th Street, adjacent to the Project and within two (2) to three (3) blocks of the 19th Street / Oakland BART Station, contains the Project and other approved, pending, and concurrent developments, is chosen as the area of influence for LU information comparison purposes.

In terms of geographic features, the Upper Downtown area is bounded by Grand Avenue to the north, Lake Merritt to the east, 14th Street to the south, and San Pablo Avenue to the west. Technically, the Upper Downtown area is comprised of twelve (12) ACCMA Model TAZ – TAZ 219 to TAZ 225, TAZ 228 to TAZ 231, and TAZ 279. **Figure 1** shows the Upper Downtown area TAZ locations in relation to the rest of the City.

(1) Downtown is defined in the Land Use and Transportation Element of the General Plan (page 67) as the area generally bounded by West Grand Avenue to the north, Lake Merritt and Channel Park to the east, the Oakland Estuary to the south, and I-980 / Brush Street to the west.



TAZ Map.ai

KAISER CENTER REDEVELOPMENT

Figure 1

TAZ MAP – UPPER DOWNTOWN OAKLAND

Land Use Adjustments in Project Vicinity

The following two (2) adjustments were made as part of the Project TIA efforts:

- **TAZ 219**, which contains the Project, had its LU information adjusted to remove 190 retail employment and 1,372 service employment to result in zero (0) net growth from Year 2005 to Year 2030 as part of the TIA, as the TIA adopted a methodology to use Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 7th Edition* trip generation rates combined with mode split information contained in the *Mode Split Findings Memorandum* dated October 17, 2008 for Project-generated trips in lieu of ACCMA Model growth projections for solely this Project; and,
- **TAZ 279**, which contains the Emerald Views Condominiums at 222 19th Street, had its LU information adjusted by an additional 370 dwelling units (DU) and three (3) retail employment (equivalent of approximately 933 square feet (SF) café) as part of the TIA.

All other ACCMA Model TAZ LU information were not adjusted as part of the Project TIA efforts.

Table 2 below summarizes the LU information in the TAZ in the Upper Downtown area and the adjustments made to these LU information as part of the Project TIA.

Table 2: ACCMA Model *Projections 2005* Land Use Information – Upper Downtown

Land Use Type	Year 2005	Year 2030	Growth Year 2005 to Year 2030		
	ACCMA Model	ACCMA Model	ACCMA Model	Kaiser TIA Adjustments	Net After Adjustments
Residential					
Households	3,961	7,360	3,399	370	3,769
Employment					
Retail	1,674	2,802	1,128	-190	938
Service	13,312	20,132	6,820	-1,372	5,448
Agricultural	0	0	0	n/a	0
Manufacturing	1,122	2,175	1,053	n/a	1,053
Wholesale	282	276	-6	n/a	-6
Other	10,710	11,171	461	n/a	461
Total	*27,100*	*36,556*	*9,456*	*-1,562*	*7,894*

Source: Alameda County Congestion Management Agency, 2006; Association of Bay Area Governments, 2005; City of Oakland, 2009; AECOM, 2009.

Note: n/a denotes not adjusted.

Land Use Information from Past, Present, Existing, Approved, Pending, and Reasonably Foreseeable Future Developments in Project Vicinity

The following developments are in the Upper Downtown area, and are considered past, present, existing, approved, pending, and reasonably foreseeable future developments as of the Project's Notice of Preparation date on May 22, 2008. The developments and their respective LU information, aggregated by locations of the development by ACCMA Model TAZ, are as follows:

- **TAZ 223 –** in the vicinity of east of Broadway between 14th Street and 17th Street, encompasses:
    - 1538 Broadway – 69 DU; and,
    - 1640 Broadway – 254 DU, 177,600 SF office, 4,700 SF retail.
- **TAZ 224 –** in the vicinity of east of Broadway between 17th Street and 20th Street, encompasses:
    - 1938 Broadway – 220 DU, 829,500 SF office, 85,200 SF retail.
- **TAZ 229 –** in the vicinity of west of Telegraph Avenue between 20th Street amd West Grand Avenue, encompasses:
    - 630 Thomas Berkley Square – 88 DU, three (3) commercial spaces.
- **TAZ 231 –** in the vicinity of west of Telegraph Avenue between 17th Street and 20th Street, encompasses:
    - Fox Courts – 80 DU, 2,500 SF childcare, art studio;
    - 1755 Broadway – 24 DU;
    - Uptown Development – 665 DU, 14,000 SF retail; and,
    - Uptown Parcel 4 – 370 DU.
- **TAZ 279 –** in the vicinity of east of Alice Street between 14th Street and 20th Street, encompasses:
    - Emerald Views Condominiums at 222 19th Street – 370 DU, 933 SF café; and,
    - Jackson Courtyard Condominiums – 45 DU.

Table 3 below summarizes the Upper Downtown area TAZ LU information from all the above mentioned past, present, existing, approved, pending, and reasonably foreseeable future developments against the net growth after adjustments made to the LU information as part of the Project TIA. Note that LU information for TAZ 279 for the Emerald Views Condominiums at 222 19th Street had been adjusted as part of the Project TIA, and thus are not included in the calculation of past, present, existing, approved, pending, and reasonably foreseeable future developments in the Project vicinity. Detailed calculations of LU information by TAZ are presented in the **Appendix** to this memorandum.

Table 3: ACCMA Model *Projections 2005* Land Use Information – Upper Downtown

Land Use Type	Growth Year 2005 to Year 2030				
	ACCMA Model	**Kaiser TIA Adjustments**	**Net After Adjustments**	**Past, Present, Existing, Approved, Pending, and Reasonably Foreseeable Future Developments**	**Difference**
Residential					
Households	3,399	370	3,769	1,815	1,954
Employment					
Retail	1,128	-190	938	211	727
Service	6,820	-1,372	5,448	3,398	2,050
Agricultural	0	n/a	0	n/a	0
Manufacturing	1,053	n/a	1,053	n/a	1,053
Wholesale	-6	n/a	-6	n/a	-6
Other	461	n/a	461	n/a	461
Total	*9,456*	*-1,562*	*7,894*	*3,609*	*4,285*

Source: Alameda County Congestion Management Agency, 2006; Association of Bay Area Governments, 2005; City of Oakland, 2009; AECOM, 2009.
Note: n/a denotes not adjusted.

As shown in **Table 3**, the calculated growth in the ACCMA Model *Projections 2005* LU information from Year 2005 to Year 2030, even after adjustments made to LU information in TAZ 219 and TAZ 279 as part of the Project TIA, overestimates past, present, existing, approved, pending, and reasonably foreseeable future developments by the following amounts in the LU information for the Upper Downtown area – 1,954 DU, 727 retail employment (equivalent of approximately 363,500 SF of retail space), and 2,050 service employment (equivalent of approximately 615,000 SF of office space). These excesses in LU information were accounted for in the projections of the 2030 Cumulative No Project intersections and roadway traffic volumes in the Project TIA, and as such, represent the maximum-probable development scenario for the Upper Downtown area, as contained in the ACCMA Model *Projections 2005* LU information, which is deemed to be consistent within one (1) percent of the ABAG LU *Projections 2005*.

Therefore, it would be most prudent to recommend no further adjustments to the ACCMA Model LU information for the purpose of the Project TIA, and retain the hybrid trip generation methodology of using ITE *Trip Generation Manual, 7th Edition* trip generation rates in conjunction with the mode split and other travel characteristics results as summarized in the *Mode Split Findings Memorandum* dated October 17, 2008 for the purpose of evaluating Project-related trips and their potential impacts.

Appendix: Kaiser Center Redevelopment Project - Travel Demand Model Land Use Findings - Land Use Calculations and Adjustments

ACCMA Model Year 2005 Land Uses - Upper Downtown Oakland Area

ZONE	TOTHH	HHPOP	TOTPOP	EMPRES	SFHH	MFHH	TACRES	RESACRE	CIACRE	Z2SHARE	TEMP	RETEMP	SEREMP	OTHEMP	AGEMP	MANEMP	WHOEMP
219	1	1	1	0	0	1	22	0	34	0.2290	7522	223	2753	4018	0	464	64
220	1	4	4	0	0	1	12	0	4	0.2290	857	90	340	397	0	30	0
221	823	1178	1178	556	36	787	17	5	6	0.2290	1430	135	395	842	0	58	0
222	2	2	2	1	0	2	13	0	20	0.2290	4494	120	2678	1337	0	269	90
223	23	28	46	22	1	22	17	0	12	0.2290	2654	300	1235	1019	0	80	20
224	44	77	77	34	1	43	17	0	13	0.2290	2922	180	2034	641	0	67	0
225	45	68	68	16	1	44	8	1	15	0.2570	1755	96	942	703	0	10	4
228	0	0	0	0	0	0	12	0	10	0.2570	1206	60	773	302	0	36	35
229	429	597	630	177	15	414	23	9	8	0.2570	958	45	436	438	0	28	11
230	0	0	0	0	0	0	7	0	6	0.2570	740	305	275	130	0	20	10
231	0	0	0	0	0	0	19	0	2	0.2570	239	40	172	27	0	0	0
279	2593	3912	3988	2029	25	2568	49	42	25	0.1990	2323	80	1279	856	0	60	48
Total	**3961**	**5867**	**5994**	**2835**	**79**	**3882**	**216**	**57**	**155**		**27100**	**1674**	**13312**	**10710**	**0**	**1122**	**282**

ACCMA Model Year 2030 Land Uses - Upper Downtown Oakland Area

ZONE	TOTHH	HHPOP	TOTPOP	EMPRES	SFHH	MFHH	TACRES	RESACRE	CIACRE	Z2SHARE	TEMP	RETEMP	SEREMP	OTHEMP	AGEMP	MANEMP	WHOEMP
219	1	1	1	0	0	1	22	0	8	0.1910	9414	416	4125	4086	0	724	63
220	1	5	5	0	0	1	12	4	6	0.1910	2144	211	1026	461	0	446	0
221	1104	1894	1880	894	12	1092	17	0	18	0.1910	1545	173	469	845	0	58	0
222	2	2	2	1	0	2	13	1	21	0.1910	4581	158	2725	1341	0	269	88
223	185	273	436	216	4	181	17	0	18	0.1910	5437	400	3558	1177	0	283	19
224	44	92	92	41	0	44	17	0	8	0.1910	4591	309	3227	776	0	279	0
225	45	83	75	19	4	41	8	6	10	0.2130	2029	182	1127	706	0	10	4
228	0	0	0	0	0	0	12	13	3	0.2130	1409	112	920	307	0	36	34
229	1875	3173	3025	925	154	1721	23	0	6	0.2130	727	85	193	438	0	0	11
230	0	0	0	0	0	0	7	10	3	0.2130	1364	408	780	146	0	20	10
231	1427	3180	3181	934	83	1344	19	0	44	0.2130	650	228	390	32	0	0	0
279	2676	4452	4505	2511	25	2651	49	2	9	0.2270	2665	120	1592	856	0	50	47
Total	**7360**	**13155**	**13202**	**5541**	**282**	**7078**	**216**	**36**	**154**		**36556**	**2802**	**20132**	**11171**	**0**	**2175**	**276**

ACCMA Model Year 2005 to Year 2030 Growth

ZONE	TOTHH	HHPOP	TOTPOP	EMPRES	SFHH	MFHH	TACRES	RESACRE	CIACRE	Z2SHARE	TEMP	RETEMP	SEREMP	OTHEMP	AGEMP	MANEMP	WHOEMP
219	0	0	0	0	0	0	0	0	-26	0	1892	193	1372	68	0	260	-1
220	0	1	1	0	0	0	0	4	2	0	1287	121	686	64	0	416	0
221	281	716	702	338	-24	305	0	-5	12	0	115	38	74	3	0	0	0
222	0	0	0	0	0	0	0	1	1	0	87	38	47	4	0	0	-2
223	162	245	390	194	3	159	0	0	6	0	2783	100	2323	158	0	203	-1
224	0	15	15	7	-1	1	0	0	-5	0	1669	129	1193	135	0	212	0
225	0	15	7	3	3	-3	0	5	-5	0	274	86	185	3	0	0	0
228	0	0	0	0	0	0	0	13	-7	0	203	52	147	5	0	0	-1
229	1446	2576	2395	748	139	1307	0	-9	-2	0	-231	40	-243	0	0	-28	0
230	0	0	0	0	0	0	0	10	-3	0	624	103	505	16	0	0	0
231	1427	3180	3181	934	83	1344	0	0	42	0	411	188	218	5	0	0	0
279	83	540	517	482	0	83	0	-40	-16	0	342	40	313	0	0	-10	-1
Total	**3399**	**7288**	**7208**	**2706**	**203**	**3196**	**0**	**-21**	**-1**		**9456**	**1128**	**6820**	**461**	**0**	**1053**	**-6**

Appendix: Kaiser Center Redevelopment Project - Travel Demand Model Land Use Findings - Land Use Calculations and Adjustments

Kaiser Center TIA Adjustments

ZONE	TOTHH	HHPOP	TOTPOP	EMPRES	SFHH	MFHH	TACRES	RESACRE	CIACRE	Z2SHARE	TEMP	RETEMP	SEREMP	OTHEMP	AGEMP	MANEMP	WHOEMP	
219											**-1565**	**-193**	**-1372**					* Adjusted to zero-out Kaiser Center Project growth
220																		
221																		
222																		
223																		
224																		
225																		
228																		
229																		
230																		
231																		
279	**370**										**3**	**3**						* Adjusted to account for 222-10th Street Development
Total	**370**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**-1562**	**-190**	**-1372**	**0**	**0**	**0**	**0**	

Net Growth After Kaiser Center TIA Adjustments

ZONE	TOTHH	HHPOP	TOTPOP	EMPRES	SFHH	MFHH	TACRES	RESACRE	CIACRE	Z2SHARE	TEMP	RETEMP	SEREMP	OTHEMP	AGEMP	MANEMP	WHOEMP
219	0	0	0	0	0	0	0	0	-26	-0.0380	327	0	0	68	0	260	-1
220	0	1	1	0	0	0	0	4	2	-0.0380	1287	121	686	64	0	416	0
221	281	716	702	338	-24	305	0	-5	12	-0.0380	115	38	74	3	0	0	0
222	0	0	0	0	0	0	0	1	1	-0.0380	87	38	47	4	0	0	-2
223	162	245	390	194	3	159	0	0	6	-0.0380	2783	100	2323	158	0	203	-1
224	0	15	15	7	-1	1	0	0	-5	-0.0380	1669	129	1193	135	0	212	0
225	0	15	7	3	3	-3	0	5	-5	-0.0440	274	86	185	3	0	0	0
228	0	0	0	0	0	0	0	13	-7	-0.0440	203	52	147	5	0	0	-1
229	1446	2576	2395	748	139	1307	0	-9	-2	-0.0440	-231	40	-243	0	0	-28	0
230	0	0	0	0	0	0	0	10	-3	-0.0440	624	103	505	16	0	0	0
231	1427	3180	3181	934	83	1344	0	0	42	-0.0440	411	188	218	5	0	0	0
279	453	540	517	482	0	83	0	-40	-16	0.0280	345	**43**	313	0	0	-10	-1
Total	**3769**	**7288**	**7208**	**2706**	**203**	**3196**	**0**	**-21**	**-1**		**7894**	**938**	**5448**	**461**	**0**	**1053**	**-6**

Approved, Pending, and Planned Project Adjustments

ZONE	TOTHH	HHPOP	TOTPOP	EMPRES	SFHH	MFHH	TACRES	RESACRE	CIACRE	Z2SHARE	TEMP	RETEMP	SEREMP	OTHEMP	AGEMP	MANEMP	WHOEMP	
219																		
220																		
221																		
222																		
223	323										601	9	592					* Adjusted to include 1538, 1640 Broadway
224	220										2964	171	2793					* Adjusted to include 1938 Broadway
225																		
228																		
229	88										6	3	3					* Adjusted to include 630 Thomas Berkley Square
230	1139										38	28	10					* Adjusted to include Fox Courts, 1755 Broadway,
231																		Uptown Development, Uptown Parcel 4
279	45																	* Adjusted to include Jackson Courtyard
Total	**1815**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**		**3609**	**211**	**3398**	**0**	**0**	**0**	**0**	

Appendix: Kaiser Center Redevelopment Project - Travel Demand Model Land Use Findings - Land Use Calculations and Adjustments

Difference

ZONE	TOTHH	HHPOP	TOTPOP	EMPRES	SFHH	MFHH	TACRES	RESACRE	CIACRE	Z2SHARE	TEMP	RETEMP	SEREMP	OTHEMP	AGEMP	MANEMP	WHOEMP
219	0	0	0	0	0	0	0	0	-26		327	0	0	68	0	260	-1
220	0	1	1	0	0	0	0	4	2		1287	121	686	64	0	416	0
221	281	716	702	338	-24	305	0	-5	12		115	38	74	3	0	0	0
222	0	0	0	0	0	0	0	1	1		87	38	47	4	0	0	-2
223	-161	245	390	194	3	159	0	0	6		2182	91	1731	158	0	203	-1
224	-220	15	15	7	-1	1	0	0	-5		-1295	-42	-1600	135	0	212	0
225	0	15	7	3	3	-3	0	5	-5		274	86	185	3	0	0	0
228	0	0	0	0	0	0	0	13	-7		203	52	147	5	0	0	-1
229	1358	2576	2395	748	139	1307	0	-9	-2		-237	37	-246	0	0	-28	0
230	-1139	0	0	0	0	0	0	10	-3		586	75	495	16	0	0	0
231	1427	3180	3181	934	83	1344	0	0	42		411	188	218	5	0	0	0
279	408	540	517	482	0	83	0	-40	-16		345	43	313	0	0	-10	-1
Total	**1954**	**7288**	**7208**	**2706**	**203**	**3196**	**0**	**-21**	**-1**		**4285**	**727**	**2050**	**461**	**0**	**1053**	**-6**

Conversion Rates

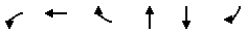
Office	**300**	SQFT / Employee
Retail	**500**	SQFT / Employee

Abbreviations

TOTHH	Total Households
HHPOP	Household Population
TOTPOP	Total Population
EMPRES	Employed Residents
SFHH	Single Family Households
MFHH	Multi-Family Households
TEMP	Total Employment
RETEMP	Retail Employment
SEREMP	Service Employment
OTHEMP	Other Employment
AGEMP	Agricultural Employment
MANEMP	Manufacturing Employment
WHOEMP	Wholesale Employment

APPENDIX G.7
Queue Calculations

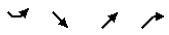
Existing Conditions



Lane Group	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	28	308	52	505	175	1589
v/c Ratio	0.06	0.64	0.12	0.71	0.19	1.78
Control Delay	11.9	21.2	5.2	17.8	7.7	372.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	21.2	5.2	17.8	7.7	372.1
Queue Length 50th (ft)	5	68	0	95	23	~640
Queue Length 95th (ft)	14	124	16	#228	46	#869
Internal Link Dist (ft)		298		747	581	
Turn Bay Length (ft)						
Base Capacity (vph)	521	559	487	715	928	894
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.55	0.11	0.71	0.19	1.78

Intersection Summary

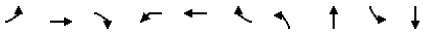
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	SEL2	SET	NET	NER
Lane Group Flow (vph)	457	470	1028	693
v/c Ratio	0.86	0.95	0.48	1.89
Control Delay	34.2	53.6	7.4	433.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	34.2	53.6	7.4	433.0
Queue Length 50th (ft)	123	160	93	~402
Queue Length 95th (ft)	#272	#294	128	#589
Internal Link Dist (ft)		880	451	
Turn Bay Length (ft)				
Base Capacity (vph)	534	495	2155	366
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.86	0.95	0.48	1.89

Intersection Summary

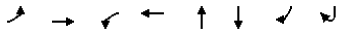
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	194	388	108	69	182	208	320	1117	199	539
v/c Ratio	0.53	0.38	0.23	0.41	0.62	0.50	0.64	1.02	0.92	0.56
Control Delay	40.0	27.9	25.3	44.9	43.8	8.9	42.2	64.9	85.2	30.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	27.9	25.3	44.9	43.8	8.9	42.2	64.9	85.2	30.0
Queue Length 50th (ft)	99	95	43	38	98	0	89	~345	114	134
Queue Length 95th (ft)	#213	142	89	72	143	45	129	#486	#242	191
Internal Link Dist (ft)		1001			87			632		676
Turn Bay Length (ft)	70						90		70	
Base Capacity (vph)	368	1034	470	216	559	608	572	1092	216	961
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.38	0.23	0.32	0.33	0.34	0.56	1.02	0.92	0.56

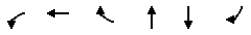
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT	SBR	SBR2
Lane Group Flow (vph)	253	179	11	145	879	199	86	40
v/c Ratio	0.32	0.43	0.06	0.43	0.78	0.43	0.14	0.06
Control Delay	23.2	23.7	26.1	32.1	30.1	39.4	18.6	11.0
Queue Delay	0.2	0.6	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.4	24.3	26.1	32.1	30.1	39.4	18.6	11.0
Queue Length 50th (ft)	45	56	5	36	209	57	35	0
Queue Length 95th (ft)	79	119	8	32	255	77	75	29
Internal Link Dist (ft)		30		382	601	222		
Turn Bay Length (ft)			175				90	90
Base Capacity (vph)	792	412	221	435	1225	458	624	708
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	116	59	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.51	0.05	0.33	0.72	0.43	0.14	0.06

Intersection Summary



Lane Group	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	12	395	56	676	196	1388
v/c Ratio	0.03	0.89	0.14	0.85	0.18	1.47
Control Delay	17.7	48.1	7.1	24.1	6.6	235.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	48.1	7.1	24.1	6.6	235.2
Queue Length 50th (ft)	3	138	0	181	30	~710
Queue Length 95th (ft)	8	#218	21	#398	56	#943
Internal Link Dist (ft)		298		747	581	
Turn Bay Length (ft)						
Base Capacity (vph)	417	450	398	795	1078	945
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.88	0.14	0.85	0.18	1.47

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	NBT	SBT
Lane Group Flow (vph)	891	684	80
v/c Ratio	1.67	1.07	0.18
Control Delay	327.0	74.1	1.2
Queue Delay	0.0	0.0	0.0
Total Delay	327.0	74.1	1.2
Queue Length 50th (ft)	~130	~204	0
Queue Length 95th (ft)	#197	#275	0
Internal Link Dist (ft)	310	104	207
Turn Bay Length (ft)			
Base Capacity (vph)	534	642	448
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.67	1.07	0.18

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	NWL	NWR	NET	SWL	SWT
Lane Group Flow (vph)	269	327	1897	255	810
v/c Ratio	0.73	0.27	1.25	0.59	0.33
Control Delay	44.1	1.4	142.4	30.4	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	1.4	142.4	30.4	6.5
Queue Length 50th (ft)	143	0	~682	121	86
Queue Length 95th (ft)	208	15	#822	m#237	m204
Internal Link Dist (ft)	560		322		429
Turn Bay Length (ft)	150			150	
Base Capacity (vph)	511	1208	1516	434	2484
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.53	0.27	1.25	0.59	0.33

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1421	748	667	389	811
v/c Ratio	0.86	0.91	1.43	0.74	0.40
Control Delay	33.4	51.2	223.8	37.3	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	51.2	223.8	37.3	11.2
Queue Length 50th (ft)	251	~262	~500	189	124
Queue Length 95th (ft)	309	m217	m#412	290	164
Internal Link Dist (ft)	1276	429			958
Turn Bay Length (ft)				200	150
Base Capacity (vph)	1681	819	468	580	2046
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.85	0.91	1.43	0.67	0.40

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Near-Term (2015) without Project Conditions

```
MITIG8 - AM                Wed Aug 26, 2009 11:04:01                Page 1-1
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                        Level Of Service Computation Report
              2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp
********************************************************************************
Average Delay (sec/veh):       9.0        Worst Case Level Of Service: D[ 28.3]
********************************************************************************
Street Name:         Harrison Street          Stanley Place / I-580 EB Off-Ramp
Approach:      North Bound      South Bound      East Bound      West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
-------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled       Yield Sign       Yield Sign
Rights:          Include          Include            Include          Include
Lanes:       0  0  0  0  0    0  0  3  0  0    0  0  0  0  1    0  0  0  0  0
-------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:      0    0     0     0 1060     0     0    0   491     0    0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
Initial Bse:   0    0     0     0 1060     0     0    0   491     0    0     0
Added Vol:     0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:   0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:   0    0     0     0 1060     0     0    0   491     0    0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 0.92  1.00  1.00 1.00  0.92  1.00 1.00  1.00
PHF Volume:    0    0     0     0 1152     0     0    0   534     0    0     0
Reduct Vol:    0    0     0     0    0     0     0    0     0     0    0     0
FinalVolume:   0    0     0     0 1152     0     0    0   534     0    0     0
-------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   6.2 xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   3.3 xxxxx xxxx xxxxx
-------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   384  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   668  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   668  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  0.80  xxxx xxxx  xxxx
-------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   8.1  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx  28.3 xxxxx xxxx xxxxx
LOS by Move:     *    *     *     *    *     *     *    *     D     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:      *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx           28.3           xxxxxx
ApproachLOS:         *                *             D                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************


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```




Lane Group	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	26	362	58	553	182	1871
v/c Ratio	0.06	0.71	0.13	0.80	0.20	2.21
Control Delay	11.7	23.7	5.1	23.0	8.0	563.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	23.7	5.1	23.0	8.0	563.9
Queue Length 50th (ft)	5	80	0	116	26	~834
Queue Length 95th (ft)	17	#156	18	#275	54	#1064
Internal Link Dist (ft)		298		747	581	
Turn Bay Length (ft)						
Base Capacity (vph)	521	559	492	694	901	848
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.65	0.12	0.80	0.20	2.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	NBT	SBT
Lane Group Flow (vph)	1274	382	154
v/c Ratio	1.30	0.59	0.28
Control Delay	157.9	15.5	11.6
Queue Delay	0.0	0.0	0.0
Total Delay	157.9	15.5	11.6
Queue Length 50th (ft)	~159	70	43
Queue Length 95th (ft)	#235	137	m78
Internal Link Dist (ft)	310	104	207
Turn Bay Length (ft)			
Base Capacity (vph)	983	644	551
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.30	0.59	0.28

Intersection Summary

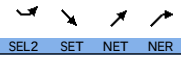
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	NWT	NWR	NET
Lane Group Flow (vph)	2679	137	929
v/c Ratio	1.11	0.17	0.46
Control Delay	78.5	3.1	17.3
Queue Delay	81.0	0.0	0.1
Total Delay	159.6	3.1	17.4
Queue Length 50th (ft)	~569	1	121
Queue Length 95th (ft)	#664	29	157
Internal Link Dist (ft)	378		334
Turn Bay Length (ft)			
Base Capacity (vph)	2415	821	2036
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	341	0	238
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.29	0.17	0.52

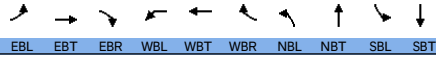
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



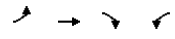
Lane Group	SEL2	SET	NET	NER
Lane Group Flow (vph)	585	596	1352	756
v/c Ratio	1.20	1.20	0.63	2.12
Control Delay	130.1	130.3	9.1	535.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	130.1	130.3	9.1	535.1
Queue Length 50th (ft)	~263	~272	140	~450
Queue Length 95th (ft)	#449	#458	195	#636
Internal Link Dist (ft)		880	451	
Turn Bay Length (ft)				
Base Capacity (vph)	489	498	2153	356
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.20	1.20	0.63	2.12

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



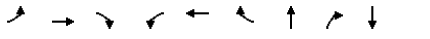
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	226	452	126	74	196	224	383	1175	239	646
v/c Ratio	0.64	0.44	0.27	0.43	0.63	0.51	0.72	1.08	1.11	0.69
Control Delay	44.9	28.9	26.2	45.4	43.6	8.6	44.5	81.5	131.8	33.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	28.9	26.2	45.4	43.6	8.6	44.5	81.5	131.8	33.7
Queue Length 50th (ft)	118	113	52	40	105	0	106	~394	~156	172
Queue Length 95th (ft)	#270	165	104	81	161	56	154	#525	#301	234
Internal Link Dist (ft)		1001			87			632		676
Turn Bay Length (ft)	70						90		70	
Base Capacity (vph)	355	1028	467	216	559	619	572	1091	216	931
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.44	0.27	0.34	0.35	0.36	0.67	1.08	1.11	0.69

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	228	438	148	70	576	124	190	571	145	879
v/c Ratio	0.78	0.59	0.21	0.20	0.92	0.21	1.31	0.42	0.54	0.62
Control Delay	35.9	25.1	4.2	19.5	60.1	12.2	202.3	13.3	29.3	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	25.1	4.2	19.5	60.1	12.2	202.3	13.3	29.3	16.3
Queue Length 50th (ft)	67	186	0	23	330	9	~135	71	59	133
Queue Length 95th (ft)	#177	296	37	m45	#526	m41	m#245	m92	123	195
Internal Link Dist (ft)		468			962			1466		318
Turn Bay Length (ft)				150			70		80	
Base Capacity (vph)	311	746	711	443	623	602	145	1360	268	1427
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.59	0.21	0.16	0.92	0.21	1.31	0.42	0.54	0.62

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	145	684	140	333	910	46	1262	1084	696
v/c Ratio	0.49	0.55	0.24	0.71	0.62	0.07	0.74	1.39	0.41
Control Delay	48.9	28.3	12.6	50.1	25.8	6.1	31.2	204.4	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	28.3	12.6	50.1	25.8	6.1	31.2	204.4	24.2
Queue Length 50th (ft)	46	183	27	105	235	0	253	~761	117
Queue Length 95th (ft)	75	248	73	148	316	22	309	#1011	152
Internal Link Dist (ft)		526			509		546		632
Turn Bay Length (ft)	240			230					
Base Capacity (vph)	549	1253	575	549	1465	630	1702	779	1693
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.55	0.24	0.61	0.62	0.07	0.74	1.39	0.41

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	NBT	SBT	SBR	SBR2
Lane Group Flow (vph)	535	1028	341	154	55
v/c Ratio	0.40	0.79	0.54	0.21	0.07
Control Delay	19.2	24.6	24.6	9.5	2.5
Queue Delay	0.0	62.1	2.1	1.5	0.0
Total Delay	19.2	86.7	26.6	11.0	2.5
Queue Length 50th (ft)	54	204	57	32	0
Queue Length 95th (ft)	87	260	86	63	m11
Internal Link Dist (ft)	30	601	103		
Turn Bay Length (ft)				90	90
Base Capacity (vph)	1332	1407	637	743	843
Starvation Cap Reductn	0	0	169	435	0
Spillback Cap Reductn	12	497	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.41	1.13	0.73	0.50	0.07

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	8	401	61	765	235	1662
v/c Ratio	0.02	0.90	0.15	0.98	0.22	1.77
Control Delay	17.6	49.1	7.0	44.3	6.8	367.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	49.1	7.0	44.3	6.8	367.2
Queue Length 50th (ft)	2	140	0	240	37	~932
Queue Length 95th (ft)	11	#284	24	#480	66	#1174
Internal Link Dist (ft)		298		747	581	
Turn Bay Length (ft)						
Base Capacity (vph)	417	450	402	779	1075	941
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.89	0.15	0.98	0.22	1.77

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	NBT	SBT
Lane Group Flow (vph)	1019	660	76
v/c Ratio	1.94	1.03	0.17
Control Delay	446.4	62.2	1.6
Queue Delay	0.0	0.0	0.0
Total Delay	446.4	62.2	1.6
Queue Length 50th (ft)	~160	~172	1
Queue Length 95th (ft)	#230	#354	m2
Internal Link Dist (ft)	310	104	207
Turn Bay Length (ft)			
Base Capacity (vph)	526	643	448
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.94	1.03	0.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	NWL	NWR	NET	SWL	SWT
Lane Group Flow (vph)	209	185	2146	162	895
v/c Ratio	0.66	0.43	1.34	0.37	0.35
Control Delay	44.0	7.7	179.8	21.1	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	7.7	179.8	21.1	2.5
Queue Length 50th (ft)	112	0	~810	41	23
Queue Length 95th (ft)	169	50	#989	m87	m89
Internal Link Dist (ft)	560		322		429
Turn Bay Length (ft)	150			150	
Base Capacity (vph)	511	589	1603	435	2594
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.41	0.31	1.34	0.37	0.35

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1963	614	730	533	1128
v/c Ratio	1.18	0.89	2.03	0.92	0.56
Control Delay	116.3	54.2	492.1	52.7	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	116.3	54.2	492.1	52.7	13.4
Queue Length 50th (ft)	~479	191	~638	289	196
Queue Length 95th (ft)	#574	m160	m#480	#485	252
Internal Link Dist (ft)	1276	429			958
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1665	688	359	580	2025
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.18	0.89	2.03	0.92	0.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	405	1485	647	1051	384	264
v/c Ratio	0.81	1.52	1.39	1.01dr	1.63	0.13
Control Delay	21.3	258.2	200.8	28.4	329.8	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	258.2	200.8	28.4	329.8	8.4
Queue Length 50th (ft)	178	~686	~527	265	~318	32
Queue Length 95th (ft)	m124	m#477	m#357	348	#491	49
Internal Link Dist (ft)		1206		1205		1978
Turn Bay Length (ft)						
Base Capacity (vph)	501	975	464	1322	236	2084
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	1.52	1.39	0.80	1.63	0.13

Intersection Summary

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95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Cumulative (2030) without Project Conditions

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MITIG8 - AM                Wed Aug 26, 2009 11:58:13                Page 1-1
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                        Level Of Service Computation Report
              2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp
********************************************************************************
Average Delay (sec/veh):      21.6          Worst Case Level Of Service: F[ 68.7]
********************************************************************************
Street Name:         Harrison Street          Stanley Place / I-580 EB Off-Ramp
Approach:      North Bound      South Bound      East Bound      West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
-------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled       Yield Sign       Yield Sign
Rights:          Include          Include            Include          Include
Lanes:       0  0  0  0  0    0  0  3  0  0    0  0  0  0  1    0  0  0  0  0
-------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0     0     0     0  1253     0     0     0   581     0     0     0
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:    0     0     0     0  1253     0     0     0   581     0     0     0
Added Vol:      0     0     0     0     0     0     0     0     0     0     0     0
PasserByVol:    0     0     0     0     0     0     0     0     0     0     0     0
Initial Fut:    0     0     0     0  1253     0     0     0   581     0     0     0
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  0.92  1.00  1.00  1.00  0.93  1.00  1.00  1.00
PHF Volume:     0     0     0     0  1362     0     0     0   625     0     0     0
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
FinalVolume:    0     0     0     0  1362     0     0     0   625     0     0     0
-------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   6.2 xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   3.3 xxxxx xxxx xxxxx
-------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   454  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   610  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   610  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  1.02  xxxx xxxx  xxxx
-------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx  16.2  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx  68.7 xxxxx xxxx xxxxx
LOS by Move:     *    *     *     *    *     *     *    *     F     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:      *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx           68.7           xxxxxx
ApproachLOS:         *              *              F              *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************


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Lane Group	SEL2	SET	NET	NER
Lane Group Flow (vph)	388	394	1289	577
v/c Ratio	0.86	0.85	0.57	1.45
Control Delay	38.2	36.9	7.9	240.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	38.2	36.9	7.9	240.6
Queue Length 50th (ft)	113	114	130	~311
Queue Length 95th (ft)	#250	#250	181	#480
Internal Link Dist (ft)		880	451	
Turn Bay Length (ft)				
Base Capacity (vph)	495	508	2247	398
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.78	0.78	0.57	1.45

Intersection Summary

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	88	153	182	125	217	186	546	725	177	1530
v/c Ratio	0.45	0.25	0.65	0.64	0.58	0.42	0.79	0.53	0.70	1.32
Control Delay	44.3	31.4	41.9	53.2	39.5	7.6	44.2	24.0	53.0	178.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	31.4	41.9	53.2	39.5	7.6	44.2	24.0	53.0	178.4
Queue Length 50th (ft)	47	40	90	68	116	0	147	170	94	~635
Queue Length 95th (ft)	93	61	143	#126	174	50	#249	243	#210	#815
Internal Link Dist (ft)		998			87			632		676
Turn Bay Length (ft)							90		70	
Base Capacity (vph)	196	904	399	216	580	594	692	1378	258	1160
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.17	0.46	0.58	0.37	0.31	0.79	0.53	0.69	1.32

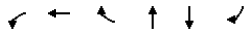
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	126	279	109	672	907	149	1400	426	1644
v/c Ratio	0.45	0.24	0.22	1.22	0.61	0.21	3.84dl	0.54	1.23
Control Delay	48.8	25.1	24.4	153.5	25.2	5.7	98.4	5.2	139.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	25.1	24.4	153.5	25.2	5.7	98.4	5.2	139.7
Queue Length 50th (ft)	40	67	47	~273	232	8	~379	0	~469
Queue Length 95th (ft)	68	100	90	#385	311	47	#473	65	#567
Internal Link Dist (ft)		526			2242		546		632
Turn Bay Length (ft)	240			230					
Base Capacity (vph)	549	1168	492	549	1483	695	1245	783	1336
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.24	0.22	1.22	0.61	0.21	1.12	0.54	1.23

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	29	417	66	636	209	2151
v/c Ratio	0.06	0.79	0.14	0.95	0.24	2.66
Control Delay	11.7	28.0	4.9	42.6	8.4	764.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	28.0	4.9	42.6	8.4	764.3
Queue Length 50th (ft)	5	95	0	149	30	~1015
Queue Length 95th (ft)	18	#208	19	#333	61	#1253
Internal Link Dist (ft)		298		747	581	
Turn Bay Length (ft)						
Base Capacity (vph)	521	559	497	666	878	810
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.75	0.13	0.95	0.24	2.66

Intersection Summary

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Queue shown is maximum after two cycles.

Lane Group	EBT	NBT	SBT
Lane Group Flow (vph)	1467	438	176
v/c Ratio	1.49	0.68	0.32
Control Delay	244.7	18.5	11.4
Queue Delay	0.0	0.0	0.0
Total Delay	244.7	18.5	11.4
Queue Length 50th (ft)	~202	85	50
Queue Length 95th (ft)	#280	#177	m74
Internal Link Dist (ft)	310	104	207
Turn Bay Length (ft)			
Base Capacity (vph)	983	644	551
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.49	0.68	0.32

Intersection Summary

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95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1990	527	298	407	1486
v/c Ratio	1.24dl	0.90	0.76	0.63	0.73
Control Delay	113.0	63.7	34.2	32.7	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	113.0	63.7	34.2	32.7	19.2
Queue Length 50th (ft)	~567	186	94	224	365
Queue Length 95th (ft)	#663	#283	#221	329	451
Internal Link Dist (ft)	1105	413			511
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1710	584	390	651	2037
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.16	0.90	0.76	0.63	0.73

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dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	284	820	360	800	857	561
v/c Ratio	0.58	0.87	0.70	0.89	1.58	0.26
Control Delay	26.2	32.1	18.6	50.0	298.1	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	32.1	18.6	50.0	298.1	10.0
Queue Length 50th (ft)	137	262	108	273	~842	87
Queue Length 95th (ft)	m159	m273	m86	#382	#1079	116
Internal Link Dist (ft)		774		703		185
Turn Bay Length (ft)						
Base Capacity (vph)	501	969	524	902	543	2170
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.85	0.69	0.89	1.58	0.26

Intersection Summary

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Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	NWT	NWR	NET
Lane Group Flow (vph)	3167	162	1098
v/c Ratio	1.31	0.20	0.89dl
Control Delay	166.3	4.1	18.4
Queue Delay	158.2	0.0	0.2
Total Delay	324.4	4.1	18.5
Queue Length 50th (ft)	~758	8	150
Queue Length 95th (ft)	#851	38	191
Internal Link Dist (ft)	378		334
Turn Bay Length (ft)			
Base Capacity (vph)	2415	821	2036
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	511	0	238
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.66	0.20	0.61

Intersection Summary
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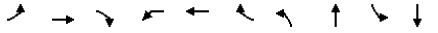
Lane Group	NWL	NWT	SWT
Lane Group Flow (vph)	898	2778	1568
v/c Ratio	1.03	1.02	1.37
Control Delay	41.1	33.3	196.5
Queue Delay	177.0	201.6	0.0
Total Delay	218.1	234.8	196.5
Queue Length 50th (ft)	~403	~409	~557
Queue Length 95th (ft)	m310	m307	#693
Internal Link Dist (ft)		191	1680
Turn Bay Length (ft)			
Base Capacity (vph)	876	2736	1148
Starvation Cap Reductn	252	854	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.44	1.48	1.37

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m Volume for 95th percentile queue is metered by upstream signal.



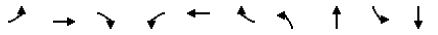
Lane Group	SEL2	SET	NET	NER
Lane Group Flow (vph)	741	754	1711	835
v/c Ratio	1.59	1.57	0.79	2.35
Control Delay	297.8	287.7	12.5	633.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	297.8	287.7	12.5	633.1
Queue Length 50th (ft)	~416	~421	212	~511
Queue Length 95th (ft)	#618	#624	299	#705
Internal Link Dist (ft)		880	451	
Turn Bay Length (ft)				
Base Capacity (vph)	466	481	2153	356
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.59	1.57	0.79	2.35

Intersection Summary
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Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	257	516	188	86	224	255	446	1292	277	784
v/c Ratio	0.78	0.51	0.41	0.48	0.67	0.52	0.81	1.19	1.28	0.86
Control Delay	55.5	30.2	29.9	46.6	43.6	8.1	48.6	122.7	192.6	42.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.5	30.2	29.9	46.6	43.6	8.1	48.6	122.7	192.6	42.8
Queue Length 50th (ft)	140	134	86	47	120	0	126	~469	~202	221
Queue Length 95th (ft)	#334	189	153	92	179	57	#192	#602	#355	#325
Internal Link Dist (ft)		1001			87			632		676
Turn Bay Length (ft)	70						90		70	
Base Capacity (vph)	330	1015	460	216	559	641	572	1090	216	907
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.51	0.41	0.40	0.40	0.40	0.78	1.19	1.28	0.86

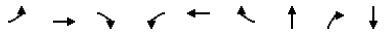
Intersection Summary
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Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	260	499	168	79	657	141	221	662	167	1018
v/c Ratio	0.85	0.67	0.23	0.26	1.08	0.24	2.19	0.49	0.74	0.71
Control Delay	45.2	28.0	4.2	19.8	94.9	12.6	581.7	13.7	44.5	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	28.0	4.2	19.8	94.9	12.6	581.7	13.7	44.5	19.2
Queue Length 50th (ft)	86	222	0	26	~416	9	~197	84	75	175
Queue Length 95th (ft)	#222	#357	40	m46	m#593	m41	m#310	m104	#182	248
Internal Link Dist (ft)		468			962			1466		318
Turn Bay Length (ft)				150			70		80	
Base Capacity (vph)	311	741	719	395	611	596	101	1360	227	1426
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.67	0.23	0.20	1.08	0.24	2.19	0.49	0.74	0.71

Intersection Summary

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m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	416	786	177	381	1042	57	1335	1398	972
v/c Ratio	0.81	0.64	0.32	0.77	0.84	0.11	0.79	1.82	0.58
Control Delay	54.4	30.8	19.2	52.2	37.7	19.2	32.8	391.9	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	30.8	19.2	52.2	37.7	19.2	32.8	391.9	24.9
Queue Length 50th (ft)	131	222	57	120	323	19	275	~1200	164
Queue Length 95th (ft)	#187	292	115	170	#422	48	333	#1461	208
Internal Link Dist (ft)		526			509		546		632
Turn Bay Length (ft)	240			230					
Base Capacity (vph)	549	1225	547	549	1241	519	1689	770	1683
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.64	0.32	0.69	0.84	0.11	0.79	1.82	0.58

Intersection Summary

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Queue shown is maximum after two cycles.



Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	495	127	1835	1274
v/c Ratio	0.68	0.37	0.89	0.36
Control Delay	30.6	8.5	26.0	11.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	30.6	8.5	26.0	11.6
Queue Length 50th (ft)	105	18	391	97
Queue Length 95th (ft)	141	45	#682	156
Internal Link Dist (ft)	280		400	546
Turn Bay Length (ft)	200	160		
Base Capacity (vph)	1450	373	2057	3506
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.34	0.34	0.89	0.36

Intersection Summary

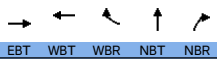
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	NBT	SBT	SBR	SBR2
Lane Group Flow (vph)	658	1480	448	205	124
v/c Ratio	0.55	1.06	0.71	0.29	0.15
Control Delay	22.6	64.6	28.6	11.9	2.2
Queue Delay	0.4	461.0	6.8	3.2	0.8
Total Delay	23.0	525.6	35.3	15.1	3.1
Queue Length 50th (ft)	76	~377	72	50	0
Queue Length 95th (ft)	109	#503	108	94	m20
Internal Link Dist (ft)	30	601	103		
Turn Bay Length (ft)				90	90
Base Capacity (vph)	1187	1397	633	700	833
Starvation Cap Reductn	0	0	139	395	499
Spillback Cap Reductn	170	690	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.65	2.09	0.91	0.67	0.37

Intersection Summary

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m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	1243	516	317	1061	53
v/c Ratio	1.40	0.49	0.60	0.57	0.07
Control Delay	209.7	19.1	16.2	11.0	6.7
Queue Delay	0.0	0.0	0.0	3.4	0.0
Total Delay	209.7	19.1	16.2	14.3	6.7
Queue Length 50th (ft)	~327	79	55	123	8
Queue Length 95th (ft)	#442	120	129	173	21
Internal Link Dist (ft)	299	570		197	
Turn Bay Length (ft)					
Base Capacity (vph)	888	1062	527	1852	813
Starvation Cap Reductn	0	0	0	672	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.40	0.49	0.60	0.90	0.07

Intersection Summary

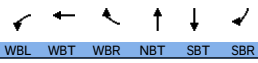
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Lane Group	EBT	NBT
Lane Group Flow (vph)	1755	2399
v/c Ratio	0.69	1.93dr
Control Delay	9.0	156.0
Queue Delay	0.0	24.3
Total Delay	9.0	180.3
Queue Length 50th (ft)	81	~320
Queue Length 95th (ft)	m86	m#412
Internal Link Dist (ft)	276	196
Turn Bay Length (ft)		
Base Capacity (vph)	2554	1858
Starvation Cap Reductn	0	75
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.69	1.35

Intersection Summary

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dr Defacto Right Lane. Recode with 1 though lane as a right lane.



Lane Group	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	9	467	72	891	273	1936
v/c Ratio	0.02	1.04	0.18	1.18	0.25	2.10
Control Delay	17.6	79.4	6.7	111.2	7.1	514.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	79.4	6.7	111.2	7.1	514.2
Queue Length 50th (ft)	2	~188	0	~399	43	~1163
Queue Length 95th (ft)	12	#345	26	#596	77	#1414
Internal Link Dist (ft)		298		747	581	
Turn Bay Length (ft)						
Base Capacity (vph)	417	450	410	757	1071	924
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	1.04	0.18	1.18	0.25	2.10

Intersection Summary

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Queue shown is maximum after two cycles.



Lane Group	EBT	NBT	SBT
Lane Group Flow (vph)	1186	769	89
v/c Ratio	2.26	1.20	0.20
Control Delay	589.5	122.8	1.7
Queue Delay	13.7	18.6	0.0
Total Delay	603.2	141.4	1.7
Queue Length 50th (ft)	~196	~255	1
Queue Length 95th (ft)	#270	#429	m2
Internal Link Dist (ft)	310	104	207
Turn Bay Length (ft)			
Base Capacity (vph)	525	643	448
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	7	22	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	2.29	1.24	0.20

Intersection Summary

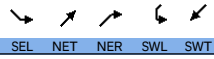
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Lane Group	NWL	NWR	NET	SWL	SWT
Lane Group Flow (vph)	225	198	2452	232	1216
v/c Ratio	0.68	0.43	1.60	0.50	0.47
Control Delay	44.0	7.4	296.9	23.0	5.3
Queue Delay	0.0	0.0	0.0	0.0	0.3
Total Delay	44.0	7.4	296.9	23.0	5.5
Queue Length 50th (ft)	120	0	~1043	67	64
Queue Length 95th (ft)	179	51	#1185	m135	m188
Internal Link Dist (ft)	560		322		429
Turn Bay Length (ft)	150			150	
Base Capacity (vph)	511	598	1530	462	2562
Starvation Cap Reductn	0	0	0	0	616
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.33	1.60	0.50	0.62

Intersection Summary

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Queue shown is maximum after two cycles.
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Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	3100	661	861	802	1215
v/c Ratio	1.86	0.96	2.66	1.38	0.60
Control Delay	412.1	58.5	768.0	210.6	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	412.1	58.5	768.0	210.6	14.1
Queue Length 50th (ft)	~969	212	~858	~612	220
Queue Length 95th (ft)	#1061	m148	m#534	#833	282
Internal Link Dist (ft)	1276	429			958
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1668	688	324	580	2025
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.86	0.96	2.66	1.38	0.60

Intersection Summary

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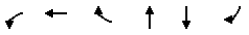


Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	479	2406	1032	1607	653	334
v/c Ratio	0.96	2.44	2.25	1.81dr	2.77	0.16
Control Delay	27.4	663.9	583.0	141.3	825.8	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.4	663.9	583.0	141.3	825.8	8.6
Queue Length 50th (ft)	231	~1322	~1041	~606	~639	41
Queue Length 95th (ft)	m83	m#549	m#415	#744	#847	61
Internal Link Dist (ft)		1206		1205		1978
Turn Bay Length (ft)						
Base Capacity (vph)	501	988	458	1296	236	2084
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.96	2.44	2.25	1.24	2.77	0.16

Intersection Summary

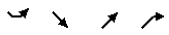
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Existing plus Project (Phase I and II) Conditions



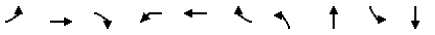
Lane Group	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	28	309	52	505	175	1592
v/c Ratio	0.06	0.64	0.12	0.71	0.19	1.78
Control Delay	11.9	21.2	5.2	17.9	7.7	374.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	21.2	5.2	17.9	7.7	374.3
Queue Length 50th (ft)	5	68	0	95	24	~643
Queue Length 95th (ft)	14	125	16	#228	46	#871
Internal Link Dist (ft)		298		747	581	
Turn Bay Length (ft)						
Base Capacity (vph)	521	559	487	714	928	893
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.55	0.11	0.71	0.19	1.78

Intersection Summary
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Queue shown is maximum after two cycles.



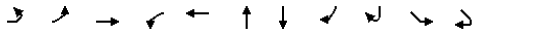
Lane Group	SEL2	SET	NET	NER
Lane Group Flow (vph)	457	470	1112	907
v/c Ratio	0.88	0.95	0.52	2.54
Control Delay	38.6	53.6	7.8	719.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	38.6	53.6	7.8	719.4
Queue Length 50th (ft)	131	160	103	~567
Queue Length 95th (ft)	#285	#294	143	#766
Internal Link Dist (ft)		880	451	
Turn Bay Length (ft)				
Base Capacity (vph)	519	495	2155	357
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.88	0.95	0.52	2.54

Intersection Summary
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Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



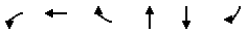
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	204	388	113	69	182	208	426	1402	199	582
v/c Ratio	0.55	0.38	0.24	0.41	0.62	0.50	0.78	1.28	0.92	0.64
Control Delay	40.9	27.9	25.7	44.9	43.8	8.9	47.0	163.3	85.2	32.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	27.9	25.7	44.9	43.8	8.9	47.0	163.3	85.2	32.5
Queue Length 50th (ft)	104	95	46	38	98	0	120	~541	114	151
Queue Length 95th (ft)	#228	142	94	72	143	45	#173	#676	#242	208
Internal Link Dist (ft)		1001			87			632		676
Turn Bay Length (ft)	70						90		70	
Base Capacity (vph)	368	1034	470	216	559	608	572	1093	216	914
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.38	0.24	0.32	0.33	0.34	0.74	1.28	0.92	0.64

Intersection Summary
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Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL2	EBL	EBT	WBL	WBT	NBT	SBT	SBR	SBR2	SEL	SER2
Lane Group Flow (vph)	16	280	182	11	149	893	204	87	40	215	103
v/c Ratio	0.05	0.46	0.57	0.06	0.44	1.12	0.45	0.48	0.17	1.29	0.38
Control Delay	47.0	53.0	55.7	25.0	32.7	100.8	29.3	35.8	9.2	199.8	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	53.0	55.7	25.0	32.7	100.8	29.3	35.8	9.2	199.8	16.1
Queue Length 50th (ft)	9	85	102	5	38	~275	56	48	4	~139	11
Queue Length 95th (ft)	m27	128	164	14	61	#407	79	98	27	#273	57
Internal Link Dist (ft)			450		382	601	222			205	
Turn Bay Length (ft)	100	100		175				90	90		50
Base Capacity (vph)	354	604	319	221	434	799	458	180	233	167	270
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.46	0.57	0.05	0.34	1.12	0.45	0.48	0.17	1.29	0.38

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
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Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	12	395	56	676	196	1407
v/c Ratio	0.03	0.89	0.14	0.85	0.18	1.49
Control Delay	17.7	48.1	7.1	24.1	6.6	244.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.7	48.1	7.1	24.1	6.6	244.1
Queue Length 50th (ft)	3	138	0	181	30	~725
Queue Length 95th (ft)	8	#218	21	#398	56	#959
Internal Link Dist (ft)		298		747	581	
Turn Bay Length (ft)						
Base Capacity (vph)	417	450	398	795	1078	945
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.88	0.14	0.85	0.18	1.49

Intersection Summary

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Queue shown is maximum after two cycles.



Lane Group	EBT	NBT	SBT
Lane Group Flow (vph)	941	684	80
v/c Ratio	1.77	1.07	0.18
Control Delay	373.0	74.1	1.2
Queue Delay	0.0	0.0	0.0
Total Delay	373.0	74.1	1.2
Queue Length 50th (ft)	~141	~204	0
Queue Length 95th (ft)	#209	#275	0
Internal Link Dist (ft)	310	104	207
Turn Bay Length (ft)			
Base Capacity (vph)	531	642	448
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.77	1.07	0.18

Intersection Summary

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Queue shown is maximum after two cycles.



Lane Group	NWL	NWR	NET	SWL	SWT
Lane Group Flow (vph)	269	327	2056	255	875
v/c Ratio	0.73	0.27	1.35	0.59	0.35
Control Delay	44.1	1.4	186.9	30.5	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	1.4	186.9	30.5	7.0
Queue Length 50th (ft)	143	0	~782	130	153
Queue Length 95th (ft)	208	15	#922m	#236 m	225
Internal Link Dist (ft)	560		322		429
Turn Bay Length (ft)	150			150	
Base Capacity (vph)	511	1208	1519	434	2484
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.53	0.27	1.35	0.59	0.35

Intersection Summary

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Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1421	748	749	389	863
v/c Ratio	0.86	0.92	1.61	0.74	0.42
Control Delay	33.4	50.4	302.7	37.0	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	50.4	302.7	37.0	11.5
Queue Length 50th (ft)	251	~261	~602	189	135
Queue Length 95th (ft)	309	m204m	#453	290	177
Internal Link Dist (ft)	1276	429			958
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1681	813	466	580	2041
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.85	0.92	1.61	0.67	0.42

Intersection Summary

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95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Near-Term (2015) plus Project (Phase I) Conditions

Lane Group	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	26	362	58	553	182	1872
v/c Ratio	0.06	0.71	0.13	0.80	0.20	2.21
Control Delay	11.7	23.7	5.1	23.0	8.0	564.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	23.7	5.1	23.0	8.0	564.4
Queue Length 50th (ft)	5	80	0	116	26	~835
Queue Length 95th (ft)	17	#156	18	#275	54	#1065
Internal Link Dist (ft)		298		747	581	
Turn Bay Length (ft)						
Base Capacity (vph)	521	559	492	694	901	848
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.65	0.12	0.80	0.20	2.21

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	NBT	SBT
Lane Group Flow (vph)	1278	382	154
v/c Ratio	1.30	0.59	0.28
Control Delay	160.2	15.5	11.6
Queue Delay	0.0	0.0	0.0
Total Delay	160.2	15.5	11.6
Queue Length 50th (ft)	~160	70	43
Queue Length 95th (ft)	#236	137	m77
Internal Link Dist (ft)	310	104	207
Turn Bay Length (ft)			
Base Capacity (vph)	982	644	551
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.30	0.59	0.28

Intersection Summary
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Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	NWT	NWR	NET
Lane Group Flow (vph)	2724	137	932
v/c Ratio	1.13	0.17	0.46
Control Delay	86.3	3.3	17.3
Queue Delay	87.8	0.0	0.1
Total Delay	174.0	3.3	17.4
Queue Length 50th (ft)	~586	2	121
Queue Length 95th (ft)	#681	30	157
Internal Link Dist (ft)	378		334
Turn Bay Length (ft)			
Base Capacity (vph)	2415	820	2036
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	359	0	238
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.32	0.17	0.52

Intersection Summary
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95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	SEL2	SET	NET	NER	NER2
Lane Configurations					
Volume (vph)	738	349	1276	680	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	3.5	3.5	
Lane Util. Factor	0.95	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	
Flt Protected	0.95	0.98	1.00	1.00	
Satd. Flow (prot)	1681	1738	3539	1583	
Flt Permitted	0.95	0.98	1.00	1.00	
Satd. Flow (perm)	1681	1738	3539	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	802	379	1387	739	107
RTOR Reduction (vph)	37	34	0	0	0
Lane Group Flow (vph)	548	562	1387	846	0
Confl. Peds. (#/hr)				2	
Confl. Bikes (#/hr)					
Turn Type	Perm			custom	
Protected Phases		4	5	1	
Permitted Phases	4			1	
Actuated Green, G (s)	16.0	16.0	36.5	13.5	
Effective Green, g (s)	16.0	16.0	36.5	13.5	
Actuated g/C Ratio	0.27	0.27	0.61	0.22	
Clearance Time (s)	4.0	4.0	3.5	3.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	448	463	2153	356	
v/s Ratio Prot			c0.39	c0.53	
v/s Ratio Perm	c0.33	0.32			
v/c Ratio	1.22	1.21	0.64	2.38	
Uniform Delay, d1	22.0	22.0	7.6	23.2	
Progression Factor	1.00	1.00	1.00	1.00	
Incremental Delay, d2	118.7	114.3	1.5	628.0	
Delay (s)	140.7	136.3	9.1	651.2	
Level of Service	F	F	A	F	
Approach Delay (s)		138.5	252.4		
Approach LOS		F	F		

Intersection Summary

HCM Average Control Delay	213.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	WBL2	WBL	WBT	WBR	NBL2	NBL	NBT	NBR
Lane Configurations												
Volume (vph)	212	425	101	20	52	16	180	206	10	391	1093	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0			4.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	0.95	1.00			1.00	1.00	1.00		0.97	0.95	
Frpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	0.96		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00			1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85			1.00	1.00	0.85		1.00	0.99	
Flt Protected	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583			1770	1863	1522		3433	3482	
Flt Permitted	0.95	1.00	1.00			0.95	1.00	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3539	1583			1770	1863	1522		3433	3482	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	226	452	107	21	57	17	196	224	11	425	1188	112
RTOR Reduction (vph)	0	0	7	0	0	0	0	187	0	0	8	0
Lane Group Flow (vph)	226	452	121	0	0	74	196	37	0	436	1292	0
Confl. Peds. (#/hr)	26											20
Confl. Bikes (#/hr)								20				9
Turn Type	Prot		Perm			Prot	Prot	Perm	Prot	Prot		
Protected Phases	3	8				7	7	4		1	1	6
Permitted Phases			8					4				
Actuated Green, G (s)	18.9	26.1	26.1				7.7	14.9	14.9		14.5	27.2
Effective Green, g (s)	18.9	26.1	26.1				7.7	14.9	14.9		14.5	27.2
Actuated g/C Ratio	0.21	0.29	0.29				0.09	0.17	0.17		0.16	0.30
Clearance Time (s)	4.0	5.0	5.0				4.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0				3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	372	1026	459				151	308	252		553	1052
v/s Ratio Prot	c0.13	0.13					0.04	c0.11			0.13	c0.37
v/s Ratio Perm			0.08					0.02				
v/c Ratio	0.61	0.44	0.26				0.49	0.64	0.15		0.79	1.23
Uniform Delay, d1	32.2	26.0	24.6				39.3	35.0	32.1		36.3	31.4
Progression Factor	1.00	1.00	1.00				1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.8	0.3	0.3				2.5	4.3	0.3		7.3	111.3
Delay (s)	35.0	26.3	24.9				41.8	39.3	32.4		43.6	142.7
Level of Service	C	C	C				D	D	C		D	F
Approach Delay (s)		28.5						36.5				117.8
Approach LOS		C						D				F

Intersection Summary				
HCM Average Control Delay	76.6	HCM Level of Service	E	
HCM Volume to Capacity ratio	0.92			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	82.2%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	629	129	350	846	42	11	1314	1058	2	620	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00		0.91	1.00		0.91	
Frpb, ped/bikes	1.00	1.00	0.94	1.00	1.00	0.92		1.00	0.93		0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85		0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		1.00	1.00		1.00	
Satd. Flow (prot)	3433	3539	1484	3433	3539	1460		5082	1466		4986	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.93	1.00		0.94	
Satd. Flow (perm)	3433	3539	1484	3433	3539	1460		4735	1466		4669	
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.93	0.92	0.92	0.92	0.92	0.92	0.96	0.92
Adj. Flow (vph)	145	684	140	357	910	46	12	1428	1150	2	646	65
RTOR Reduction (vph)	0	0	46	0	0	27	0	0	251	0	12	0
Lane Group Flow (vph)	145	684	94	357	910	19	0	1440	899	0	701	0
Confl. Peds. (#/hr)	31		31	48		48	42		42	34		34
Confl. Bikes (#/hr)			22			15			22			20
Turn Type	Prot		Perm	Prot		Perm	Perm		Perm	Perm		
Protected Phases	1	6		5	2			4			4	
Permitted Phases			6			2	4		4	4		
Actuated Green, G (s)	8.6	35.0	35.0	14.0	41.4	41.4		36.0	36.0		36.0	
Effective Green, g (s)	8.6	35.0	35.0	14.0	41.4	41.4		36.0	36.0		36.0	
Actuated g/C Ratio	0.09	0.35	0.35	0.14	0.41	0.41		0.36	0.36		0.36	
Clearance Time (s)	4.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	
Lane Grp Cap (vph)	295	1239	519	481	1465	604		1705	528		1681	
v/s Ratio Prot	0.04	0.19		c0.10	c0.26							
v/s Ratio Perm			0.06			0.01		0.30	c0.61		0.15	
v/c Ratio	0.49	0.55	0.18	0.74	0.62	0.03		0.84	1.70		0.42	
Uniform Delay, d1	43.6	26.2	22.6	41.3	23.1	17.4		29.4	32.0		24.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.5	1.8	0.8	5.4	2.0	0.1		5.3	324.3		0.8	
Delay (s)	44.1	28.0	23.3	46.6	25.1	17.5		34.8	356.3		24.9	
Level of Service	D	C	C	D	C	B		C	F		C	
Approach Delay (s)		29.7			30.7			177.5			24.9	
Approach LOS		C			C			F			C	

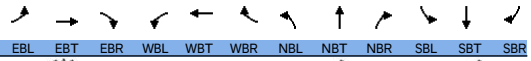
Intersection Summary				
HCM Average Control Delay	97.9	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.06			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	122.3%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL2	EBL	EBR	NBL2	NBL	NBT	SBT	SBR	SBR2	SEL	SER	SER2
Lane Configurations												
Volume (vph)	7	389	103	97	26	828	188	268	51	0	128	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0				4.0	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.94				0.95	0.91	0.91	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00				1.00	1.00	1.00	1.00		1.00	0.98
Flpb, ped/bikes	0.48	1.00				1.00	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.97				1.00	0.94	0.85	0.85		0.85	0.85
Flt Protected	0.95	0.96				0.99	1.00	1.00	1.00		1.00	1.00
Satd. Flow (prot)	841	4894				3517	3186	1441	1583		1583	1554
Flt Permitted	0.95	0.96				0.99	1.00	1.00	1.00		1.00	1.00
Satd. Flow (perm)	841	4894				3517	3186	1441	1583		1583	1554
Peak-hour factor, PHF	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95
Adj. Flow (vph)	7	423	112	105	28	900	204	291	55	0	135	58
RTOR Reduction (vph)	0	72	0	0	0	0	0	0	32	0	0	44
Lane Group Flow (vph)	7	463	0	0	0	1033	341	154	23	0	135	14
Confl. Peds. (#/hr)	22								74			
Confl. Bikes (#/hr)						7			8			7
Turn Type	Prot			Split	Split		custom	custom			custom	custom
Protected Phases	5	1		8	8	8	2	6	6			
Permitted Phases		1						6			9	2
Actuated Green, G (s)	0.8	13.1				16.0	17.2	29.5	29.5		7.7	17.2
Effective Green, g (s)	0.8	13.1				16.0	17.2	29.5	29.5		7.7	17.2
Actuated g/C Ratio	0.01	0.19				0.23	0.25	0.42	0.42		0.11	0.25
Clearance Time (s)	4.0	4.0				4.0	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	2.0				2.0	2.0	2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	10	916				804	783	607	667		174	382
v/s Ratio Prot	0.01	c0.09				c0.29	c0.11	0.11	0.01			
v/s Ratio Perm											c0.09	0.01
v/c Ratio	0.70	0.51				1.28	0.44	0.25	0.03		0.78	0.04
Uniform Delay, d1	34.5	25.5				27.0	22.3	13.1	11.9		30.3	20.1
Progression Factor	1.00	1.00				1.00	1.41	1.63	2.67		1.00	1.00
Incremental Delay, d2	120.0	2.0				137.6	0.1	1.0	0.1		17.7	0.0
Delay (s)	154.5	27.5				164.6	31.6	22.3	31.8		48.0	20.1
Level of Service	F	C				F	C	C	C		D	C
Approach Delay (s)		29.2				164.6	29.0			39.6		
Approach LOS		C				F	C			D		

Intersection Summary				
HCM Average Control Delay	90.3	HCM Level of Service	F	
HCM Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	62.9%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	7	369	56	351	352	0	0	216	1638
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Lane Util. Factor				1.00	1.00	1.00		1.00			1.00	1.00
Frpb, ped/bikes				1.00	1.00	0.93		1.00			1.00	0.98
Flpb, ped/bikes				0.98	1.00	1.00		1.00			1.00	1.00
Frt				1.00	1.00	0.85		1.00			1.00	0.85
Flt Protected				0.95	1.00	1.00		0.98			1.00	1.00
Satd. Flow (prot)				1726	1863	1471		1817			1863	1559
Flt Permitted				0.95	1.00	1.00		0.72			1.00	1.00
Satd. Flow (perm)				1726	1863	1471		1350			1863	1559
Peak-hour factor, PHF	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.98
Adj. Flow (vph)	0	0	0	8	401	61	382	383	0	0	235	1671
RTOR Reduction (vph)	0	0	0	0	0	46	0	0	0	0	0	41
Lane Group Flow (vph)	0	0	0	8	401	15	0	765	0	0	235	1630
Confl. Peds. (#/hr)	4		4	20		20	1		1	6		6
Confl. Bikes (#/hr)			10			7						
Turn Type				Perm		Perm	Perm					Perm
Protected Phases					1			2			2	
Permitted Phases				1		1	2					2
Actuated Green, G (s)				14.4	14.4	14.4		34.6			34.6	34.6
Effective Green, g (s)				14.4	14.4	14.4		34.6			34.6	34.6
Actuated g/C Ratio				0.24	0.24	0.24		0.58			0.58	0.58
Clearance Time (s)				5.5	5.5	5.5		5.5			5.5	5.5
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)				414	447	353		779			1074	899
v/s Ratio Prot					c0.22						0.13	
v/s Ratio Perm				0.00		0.01		0.57				c1.05
v/c Ratio				0.02	0.90	0.04		0.98			0.22	1.81
Uniform Delay, d1				17.4	22.1	17.5		12.4			6.2	12.7
Progression Factor				1.00	1.00	1.00		1.00			1.00	1.00
Incremental Delay, d2				0.0	20.2	0.0		28.2			0.5	370.3
Delay (s)				17.4	42.2	17.6		40.6			6.6	383.0
Level of Service				B	D	B		D			A	F
Approach Delay (s)		0.0			38.6			40.6			336.6	
Approach LOS		A			D			D			F	

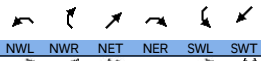
Intersection Summary				
HCM Average Control Delay	219.9	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.54			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0	
Intersection Capacity Utilization	173.2%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	291	590	83	0	0	0	0	534	74	1	69	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5			3.5	
Lane Util. Factor		0.91						1.00			1.00	
Frpb, ped/bikes		1.00						1.00			1.00	
Flpb, ped/bikes		1.00						1.00			1.00	
Frt		0.99						0.98			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		4920						1832			1862	
Flt Permitted		0.99						1.00			0.84	
Satd. Flow (perm)		1000						1300			1300	
Peak-hour factor, PHF	0.92	0.93	0.92	0.25	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.25
Adj. Flow (vph)	316	634	90	0	0	0	0	580	80	1	75	0
RTOR Reduction (vph)	0	25	0	0	0	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	1016	0	0	0	0	0	649	0	0	76	0
Confl. Peds. (#/hr)	9		9	38		38				2		2
Confl. Bikes (#/hr)			11			4						2
Turn Type	Perm									Perm		
Protected Phases		1						2			2	
Permitted Phases	1									2		
Actuated Green, G (s)		22.5						15.5			15.5	
Effective Green, g (s)		22.5						15.5			15.5	
Actuated g/C Ratio		0.50						0.34			0.34	
Clearance Time (s)		3.5						3.5			3.5	
Lane Grp Cap (vph)		500						631			448	
v/s Ratio Prot								c0.35				
v/s Ratio Perm		c1.02									0.06	
v/c Ratio		2.03						1.03			0.17	
Uniform Delay, d1		11.2						14.8			10.3	
Progression Factor		1.00						1.00			0.08	
Incremental Delay, d2		470.9						43.3			0.8	
Delay (s)		482.2						58.0			1.5	
Level of Service		F						E			A	
Approach Delay (s)		482.2			0.0			58.0			1.5	
Approach LOS		F			A			E			A	

Intersection Summary				
HCM Average Control Delay	304.0	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.62			
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	62.1%	ICU Level of Service	B	
Analysis Period (min)	15			

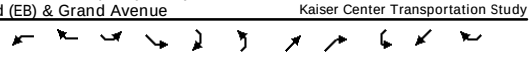
c Critical Lane Group



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	192	170	1199	862	149	847
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.94		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1583	3314		1770	3539
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	1583	3314		1770	3539
Peak-hour factor, PHF	0.92	0.92	0.94	0.92	0.92	0.92
Adj. Flow (vph)	209	185	1276	937	162	921
RTOR Reduction (vph)	0	152	136	0	0	0
Lane Group Flow (vph)	209	33	2077	0	162	921
Turn Type		Perm			Prot	
Protected Phases	4		6		5	2
Permitted Phases		4				
Actuated Green, G (s)	16.0	16.0	39.9		22.1	66.0
Effective Green, g (s)	16.0	16.0	39.9		22.1	66.0
Actuated g/C Ratio	0.18	0.18	0.44		0.25	0.73
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	315	281	1469		435	2595
v/s Ratio Prot	c0.12		c0.63		0.09	c0.26
v/s Ratio Perm		0.02				
v/c Ratio	0.66	0.12	1.41		0.37	0.35
Uniform Delay, d1	34.5	31.1	25.0		28.2	4.3
Progression Factor	1.00	1.00	1.00		0.66	0.46
Incremental Delay, d2	5.2	0.2	190.2		1.9	0.3
Delay (s)	39.7	31.3	215.3		20.3	2.3
Level of Service	D	C	F		C	A
Approach Delay (s)	35.7		215.3			5.0
Approach LOS	D		F			A

Intersection Summary				
HCM Average Control Delay	134.4	HCM Level of Service	F	
HCM Volume to Capacity ratio	0.97			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	89.7%	ICU Level of Service	E	
Analysis Period (min)	15			

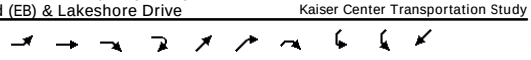
c Critical Lane Group



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	316	1362	142	0	571	703	490	1062	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.99			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4962			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4962			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.96	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	329	1480	154	0	614	764	533	1154	0
RTOR Reduction (vph)	0	0	0	11	0	0	0	52	0	0	0
Lane Group Flow (vph)	0	0	0	1952	0	0	614	712	533	1154	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				30.0			17.5	17.5	29.5	51.0	
Effective Green, g (s)				30.0			17.5	17.5	29.5	51.0	
Actuated g/C Ratio				0.33			0.19	0.19	0.33	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1654			688	308	580	2005	
v/s Ratio Prot				c0.39			0.17		c0.30	0.33	
v/s Ratio Perm								c0.45			
v/c Ratio				1.18			0.89	2.31	0.92	0.58	
Uniform Delay, d1				30.0			35.3	36.2	29.1	12.5	
Progression Factor				1.00			1.48	1.55	1.00	1.00	
Incremental Delay, d2				87.6			1.9	591.8	19.6	0.4	
Delay (s)				117.6			54.1	648.0	48.7	12.9	
Level of Service				F			D	F	D	B	
Approach Delay (s)	0.0			117.6			383.3			24.2	
Approach LOS	A			F			F			C	

Intersection Summary				
HCM Average Control Delay	159.1	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.34			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0	
Intersection Capacity Utilization	88.6%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	414	1198	609	169	346	550	102	329	24	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.98	0.85		0.90				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3138	1441		3192				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3138	1441		3192				1770	3539
Peak-hour factor, PHF	0.92	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	450	1274	662	184	376	598	111	358	26	264
RTOR Reduction (vph)	0	0	16	0	9	0	0	0	0	0
Lane Group Flow (vph)	405	1511	638	0	1076	0	0	0	384	264
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	28.0	28.0	28.0		37.0				12.0	53.0
Effective Green, g (s)	28.0	28.0	28.0		37.0				12.0	53.0
Actuated g/C Ratio	0.31	0.31	0.31		0.41				0.13	0.59
Clearance Time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	501	976	448		1312				236	2084
v/s Ratio Prot	0.25	c0.48	0.44		c0.34				c0.22	0.07
v/s Ratio Perm										
v/c Ratio	0.81	1.55	1.42		1.06dr				1.63	0.13
Uniform Delay, d1	28.5	31.0	31.0		23.5				39.0	8.2
Progression Factor	0.65	0.66	0.65		1.00				1.00	1.00
Incremental Delay, d2	1.3	247.1	192.2		5.8				300.8	0.1
Delay (s)	19.9	267.7	212.2		29.4				339.8	8.3
Level of Service	B	F	F		C				F	A
Approach Delay (s)		214.5			29.4					204.7
Approach LOS		F			C					F

Intersection Summary				
HCM Average Control Delay	166.4	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.21			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0	
Intersection Capacity Utilization	96.6%	ICU Level of Service	F	
Analysis Period (min)	15			

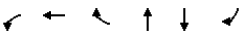
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

Near-Term (2015) plus Project (Phase I and II) Conditions

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--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                        Level Of Service Computation Report
              2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp
********************************************************************************
Average Delay (sec/veh):      13.0        Worst Case Level Of Service: E[ 45.4]
********************************************************************************
Street Name:         Harrison Street           Stanley Place / I-580 EB Off-Ramp
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
-------------|---------------||---------------||---------------||---------------|
Control:        Uncontrolled      Uncontrolled      Yield Sign        Yield Sign
Rights:            Include           Include           Include           Include
Lanes:       0  0  0  0  0    0  0  3  0  0    0  0  0  0  1    0  0  0  0  0
-------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0     0     0     0  1270     0     0     0   517     0     0     0
Growth Adj:  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
Initial Bse:    0     0     0     0  1270     0     0     0   517     0     0     0
Added Vol:      0     0     0     0     0     0     0     0     0     0     0     0
PasserByVol:    0     0     0     0     0     0     0     0     0     0     0     0
Initial Fut:    0     0     0     0  1270     0     0     0   517     0     0     0
User Adj:    1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00  1.00
PHF Adj:     1.00  1.00  1.00  1.00  0.92  1.00  1.00  1.00  0.93  1.00  1.00  1.00
PHF Volume:     0     0     0     0  1380     0     0     0   556     0     0     0
Reduct Vol:     0     0     0     0     0     0     0     0     0     0     0     0
FinalVolume:    0     0     0     0  1380     0     0     0   556     0     0     0
-------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   6.2 xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   3.3 xxxxx xxxx xxxxx
-------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   460  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   605  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   605  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  0.92  xxxx xxxx  xxxx
-------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx  11.7  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx  45.4 xxxxx xxxx xxxxx
LOS by Move:     *     *     *     *     *     *     *     *     E     *     *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:      *     *     *     *     *     *     *     *     *     *     *
ApproachDel:    xxxxxx           xxxxxx           45.4           xxxxxx
ApproachLOS:         *                *                E                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************


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Lane Group	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	26	364	58	553	182	1873
v/c Ratio	0.06	0.72	0.13	0.80	0.20	2.21
Control Delay	11.7	23.9	5.1	23.0	8.0	565.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	23.9	5.1	23.0	8.0	565.0
Queue Length 50th (ft)	5	80	0	116	26	~836
Queue Length 95th (ft)	17	#158	18	#275	54	#1066
Internal Link Dist (ft)		298		747	581	
Turn Bay Length (ft)						
Base Capacity (vph)	521	559	492	694	901	848
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.65	0.12	0.80	0.20	2.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	NBT	SBT
Lane Group Flow (vph)	1282	382	154
v/c Ratio	1.31	0.59	0.28
Control Delay	162.0	15.5	11.5
Queue Delay	0.0	0.0	0.0
Total Delay	162.0	15.5	11.5
Queue Length 50th (ft)	~161	70	43
Queue Length 95th (ft)	#237	137	m75
Internal Link Dist (ft)	310	104	207
Turn Bay Length (ft)			
Base Capacity (vph)	982	644	551
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.31	0.59	0.28

Intersection Summary

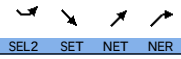
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	NWT	NWR	NET
Lane Group Flow (vph)	2855	137	937
v/c Ratio	1.18	0.17	0.46
Control Delay	109.4	3.6	17.4
Queue Delay	106.0	0.0	0.1
Total Delay	215.5	3.6	17.5
Queue Length 50th (ft)	~637	4	122
Queue Length 95th (ft)	#732	31	158
Internal Link Dist (ft)	378		334
Turn Bay Length (ft)			
Base Capacity (vph)	2415	817	2036
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	403	0	238
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.42	0.17	0.52

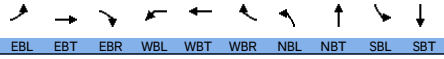
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



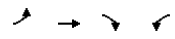
Lane Group	SEL2	SET	NET	NER
Lane Group Flow (vph)	585	596	1434	970
v/c Ratio	1.21	1.20	0.67	2.72
Control Delay	137.5	131.3	9.7	801.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	137.5	131.3	9.7	801.1
Queue Length 50th (ft)	~270	~272	154	~617
Queue Length 95th (ft)	#455	#458	215	#819
Internal Link Dist (ft)		880	451	
Turn Bay Length (ft)				
Base Capacity (vph)	482	497	2153	356
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.21	1.20	0.67	2.72

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



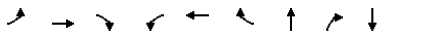
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	236	452	131	74	196	224	489	1460	239	689
v/c Ratio	0.66	0.44	0.28	0.43	0.63	0.51	0.87	1.34	1.11	0.77
Control Delay	46.2	28.9	26.7	45.4	43.6	8.6	53.6	186.4	131.8	37.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	28.9	26.7	45.4	43.6	8.6	53.6	186.4	131.8	37.0
Queue Length 50th (ft)	125	113	55	40	105	0	140	~577	~156	187
Queue Length 95th (ft)	#284	165	107	81	161	56	#222	#714	#301	253
Internal Link Dist (ft)		1001			87			632		676
Turn Bay Length (ft)	70						90		70	
Base Capacity (vph)	355	1028	467	216	559	619	572	1092	216	897
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.44	0.28	0.34	0.35	0.36	0.85	1.34	1.11	0.77

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	228	445	149	70	717	125	228	600	145	884
v/c Ratio	0.78	0.60	0.21	0.20	1.15	0.21	1.59	0.44	0.57	0.62
Control Delay	35.9	25.3	4.2	20.0	121.3	13.3	317.7	13.5	31.1	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	25.3	4.2	20.0	121.3	13.3	317.7	13.5	31.1	16.5
Queue Length 50th (ft)	67	190	0	24	~487	9	~180	77	60	135
Queue Length 95th (ft)	#177	302	37	m45	m#695	m41	m#290	m97	127	197
Internal Link Dist (ft)		468			962			1466		318
Turn Bay Length (ft)				150			70		80	
Base Capacity (vph)	311	746	711	438	623	599	143	1361	254	1427
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.60	0.21	0.16	1.15	0.21	1.59	0.44	0.57	0.62

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	154	692	143	381	910	46	1637	1227	741
v/c Ratio	0.51	0.56	0.26	0.77	0.62	0.07	0.96	1.58	0.44
Control Delay	49.0	29.1	15.3	52.2	26.0	6.2	46.0	286.2	24.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	29.1	15.3	52.2	26.0	6.2	46.0	286.2	24.7
Queue Length 50th (ft)	48	190	36	120	236	0	369	~956	126
Queue Length 95th (ft)	78	252	84	170	318	23	#478	#1214	163
Internal Link Dist (ft)		526			509		546		632
Turn Bay Length (ft)	240			230					
Base Capacity (vph)	549	1225	554	549	1456	626	1706	778	1689
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.56	0.26	0.69	0.63	0.07	0.96	1.58	0.44

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL2	EBL	NBT	SBT	SBR	SBR2	SER	SER2
Lane Group Flow (vph)	15	564	1040	346	157	55	168	115
v/c Ratio	0.15	0.48	1.30	0.54	0.24	0.07	0.93	0.29
Control Delay	34.9	21.3	168.9	39.3	21.6	11.7	85.8	7.5
Queue Delay	0.0	0.0	539.3	3.1	1.7	0.0	0.0	0.0
Total Delay	34.9	21.3	708.2	42.5	23.3	11.7	85.8	7.5
Queue Length 50th (ft)	6	63	~308	86	59	0	73	0
Queue Length 95th (ft)	24	93	#423	129	117	m30	#182	38
Internal Link Dist (ft)		450	601	103				
Turn Bay Length (ft)	100	100			90	90	75	75
Base Capacity (vph)	101	1183	803	637	667	762	181	402
Starvation Cap Reductn	0	0	0	193	367	0	0	0
Spillback Cap Reductn	0	22	614	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.49	5.50	0.78	0.52	0.07	0.93	0.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	8	401	61	765	235	1682
v/c Ratio	0.02	0.90	0.15	0.98	0.22	1.79
Control Delay	17.6	49.1	7.0	44.3	6.8	376.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	49.1	7.0	44.3	6.8	376.7
Queue Length 50th (ft)	2	140	0	240	37	~948
Queue Length 95th (ft)	11	#284	24	#480	66	#1192
Internal Link Dist (ft)		298		747	581	
Turn Bay Length (ft)						
Base Capacity (vph)	417	450	402	779	1075	941
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.89	0.15	0.98	0.22	1.79

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	NBT	SBT
Lane Group Flow (vph)	1069	660	76
v/c Ratio	2.04	1.03	0.17
Control Delay	492.1	62.2	1.6
Queue Delay	0.0	0.0	0.0
Total Delay	492.1	62.2	1.6
Queue Length 50th (ft)	~171	~172	1
Queue Length 95th (ft)	#242	#354	m2
Internal Link Dist (ft)	310	104	207
Turn Bay Length (ft)			
Base Capacity (vph)	524	643	448
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	2.04	1.03	0.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	NWL	NWR	NET	SWL	SWT
Lane Group Flow (vph)	209	185	2298	162	946
v/c Ratio	0.66	0.43	1.43	0.37	0.36
Control Delay	44.0	7.7	220.7	21.3	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	7.7	220.7	21.3	2.5
Queue Length 50th (ft)	112	0	~906	41	23
Queue Length 95th (ft)	169	50	#1085	m88	m93
Internal Link Dist (ft)	560		322		429
Turn Bay Length (ft)	150			150	
Base Capacity (vph)	511	589	1605	435	2594
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.41	0.31	1.43	0.37	0.36

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1963	614	805	533	1179
v/c Ratio	1.18	0.89	2.24	0.92	0.58
Control Delay	116.3	54.2	583.9	52.7	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	116.3	54.2	583.9	52.7	13.8
Queue Length 50th (ft)	~479	191	~728	289	210
Queue Length 95th (ft)	#574	m151	m#508	#485	269
Internal Link Dist (ft)	1276	429			958
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1665	688	359	580	2025
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.18	0.89	2.24	0.92	0.58

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	405	1539	667	1129	384	264
v/c Ratio	0.81	1.57	1.44	1.11dr	1.63	0.13
Control Delay	21.6	280.1	221.4	31.3	329.8	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.6	280.1	221.4	31.3	329.8	8.4
Queue Length 50th (ft)	182	~723	~556	293	~318	32
Queue Length 95th (ft)	m123	m#483	m#359	#389	#491	49
Internal Link Dist (ft)		1206		1205		1978
Turn Bay Length (ft)						
Base Capacity (vph)	501	979	463	1324	236	2084
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	1.57	1.44	0.85	1.63	0.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Cumulative (2030) plus Project (Phase I and II) Conditions

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MITIG8 - AM                Wed Aug 26, 2009 12:17:34                Page 1-1
--------------------------------------------------------------------------------
--------------------------------------------------------------------------------
                        Level Of Service Computation Report
              2000 HCM Unsignalized Method (Future Volume Alternative)
********************************************************************************
Intersection #1 Harrison Street / Stanley Place / I-580 EB Off-Ramp
********************************************************************************
Average Delay (sec/veh):      36.0        Worst Case Level Of Service: F[123.7]
********************************************************************************
Street Name:         Harrison Street          Stanley Place / I-580 EB Off-Ramp
Approach:      North Bound      South Bound      East Bound      West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:       Uncontrolled     Uncontrolled      Yield Sign        Yield Sign
Rights:           Include          Include          Include          Include
Lanes:       0  0  0  0  0    0  0  3  0  0    0  0  0  0  1    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0     0     0     0 1463     0     0     0     0   607     0     0     0
Growth Adj:  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00  1.00 1.00  1.00
Initial Bse:    0     0     0     0 1463     0     0     0     0   607     0     0     0
Added Vol:      0     0     0     0    0     0     0     0     0     0     0     0     0
PasserByVol:    0     0     0     0    0     0     0     0     0     0     0     0     0
Initial Fut:    0     0     0     0 1463     0     0     0     0   607     0     0     0
User Adj:    1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00  1.00 1.00  1.00
PHF Adj:     1.00 1.00  1.00  1.00 0.92  1.00  1.00 1.00  0.93  1.00  1.00 1.00  1.00
PHF Volume:     0     0     0     0 1590     0     0     0     0   653     0     0     0
Reduct Vol:     0     0     0     0    0     0     0     0     0     0     0     0     0
FinalVolume:    0     0     0     0 1590     0     0     0     0   653     0     0     0
------------|---------------||---------------||---------------||---------------|
Critical Gap Module:
Critical Gp:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   6.2 xxxxx xxxx xxxxx
FollowUpTim:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx   3.3 xxxxx xxxx xxxxx
------------|---------------||---------------||---------------||---------------|
Capacity Module:
Cnflict Vol: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   530  xxxx xxxx xxxxx
Potent Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   553  xxxx xxxx xxxxx
Move Cap.:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx   553  xxxx xxxx xxxxx
Volume/Cap:  xxxx xxxx  xxxx  xxxx xxxx  xxxx  xxxx xxxx  1.18  xxxx xxxx  xxxx
------------|---------------||---------------||---------------||---------------|
Level Of Service Module:
2Way95thQ:   xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx  23.1  xxxx xxxx xxxxx
Control Del:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx 123.7 xxxxx xxxx xxxxx
LOS by Move:     *    *     *     *    *     *     *    *     F     *    *     *
Movement:     LT - LTR - RT    LT - LTR - RT    LT - LTR - RT    LT - LTR - RT
Shared Cap.: xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx  xxxx xxxx xxxxx
SharedQueue:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shrd ConDel:xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx xxxxx xxxx xxxxx
Shared LOS:      *    *     *     *    *     *     *    *     *     *    *     *
ApproachDel:    xxxxxx           xxxxxx           123.7           xxxxxx
ApproachLOS:         *                *               F                *
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************

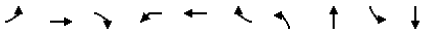

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Lane Group	SEL2	SET	NET	NER
Lane Group Flow (vph)	388	394	1297	633
v/c Ratio	0.86	0.85	0.58	1.59
Control Delay	38.4	37.0	8.0	301.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	38.4	37.0	8.0	301.7
Queue Length 50th (ft)	113	115	131	~354
Queue Length 95th (ft)	#250	#250	182	#530
Internal Link Dist (ft)		880	451	
Turn Bay Length (ft)				
Base Capacity (vph)	494	507	2246	398
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.79	0.78	0.58	1.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	153	203	125	217	186	566	786	177	1787
v/c Ratio	0.43	0.24	0.70	0.64	0.66	0.44	0.80	0.58	0.70	1.61
Control Delay	43.2	30.8	44.7	53.2	43.4	8.1	44.1	25.4	53.2	302.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.2	30.8	44.7	53.2	43.4	8.1	44.1	25.4	53.2	302.5
Queue Length 50th (ft)	48	39	102	68	116	0	152	194	94	~827
Queue Length 95th (ft)	95	61	162	#126	174	50	#263	267	#210	#982
Internal Link Dist (ft)		998			87			632		676
Turn Bay Length (ft)							90		70	
Base Capacity (vph)	208	904	397	216	580	594	710	1350	257	1113
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.17	0.51	0.58	0.37	0.31	0.80	0.58	0.69	1.61

Intersection Summary

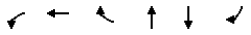
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Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	128	282	110	920	907	149	1477	428	1880
v/c Ratio	0.46	0.24	0.22	1.68	0.61	0.22	3.84dl	0.55	1.43
Control Delay	48.8	25.1	25.4	341.4	25.3	6.1	117.2	5.2	224.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	25.1	25.4	341.4	25.3	6.1	117.2	5.2	224.0
Queue Length 50th (ft)	40	68	49	~443	232	9	~413	0	~593
Queue Length 95th (ft)	69	101	93	#565	312	49	#508	65	#691
Internal Link Dist (ft)		526			2242		546		632
Turn Bay Length (ft)	240			230					
Base Capacity (vph)	549	1168	489	549	1482	693	1260	785	1318
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.24	0.22	1.68	0.61	0.22	1.17	0.55	1.43

Intersection Summary

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Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	29	418	66	636	209	2153
v/c Ratio	0.06	0.79	0.14	0.95	0.24	2.66
Control Delay	11.7	28.2	4.9	42.6	8.4	766.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	28.2	4.9	42.6	8.4	766.6
Queue Length 50th (ft)	5	96	0	149	30	~1016
Queue Length 95th (ft)	18	#210	19	#333	61	#1255
Internal Link Dist (ft)		298		747	581	
Turn Bay Length (ft)						
Base Capacity (vph)	521	559	497	666	878	809
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.75	0.13	0.95	0.24	2.66

Intersection Summary

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Queue shown is maximum after two cycles.

Lane Group	EBT	NBT	SBT
Lane Group Flow (vph)	1474	438	176
v/c Ratio	1.50	0.68	0.32
Control Delay	248.6	18.5	11.2
Queue Delay	0.0	0.0	0.0
Total Delay	248.6	18.5	11.2
Queue Length 50th (ft)	~203	85	50
Queue Length 95th (ft)	#282	#177	m67
Internal Link Dist (ft)	310	104	207
Turn Bay Length (ft)			
Base Capacity (vph)	982	644	551
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.50	0.68	0.32

Intersection Summary

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Queue shown is maximum after two cycles.
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Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1990	527	300	407	1734
v/c Ratio	1.26dl	0.90	0.77	0.63	0.85
Control Delay	116.0	63.7	34.7	32.7	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	116.0	63.7	34.7	32.7	24.0
Queue Length 50th (ft)	~572	186	95	224	485
Queue Length 95th (ft)	#668	#283	#224	329	598
Internal Link Dist (ft)	1105	413			511
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1700	584	390	651	2037
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.17	0.90	0.77	0.63	0.85

Intersection Summary

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Queue shown is maximum after two cycles.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	284	822	360	802	857	561
v/c Ratio	0.58	0.87	0.70	0.89	1.58	0.26
Control Delay	26.1	32.0	18.5	50.2	298.4	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	32.0	18.5	50.2	298.4	10.0
Queue Length 50th (ft)	137	263	107	274	~842	87
Queue Length 95th (ft)	m157	m272	m85	#384	#1079	116
Internal Link Dist (ft)		774		703		185
Turn Bay Length (ft)						
Base Capacity (vph)	501	969	524	902	542	2170
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.85	0.69	0.89	1.58	0.26

Intersection Summary

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95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	NWT	NWR	NET
Lane Group Flow (vph)	3343	162	1106
v/c Ratio	1.38	0.20	0.89dl
Control Delay	198.5	4.4	18.4
Queue Delay	195.8	0.0	0.2
Total Delay	394.4	4.4	18.6
Queue Length 50th (ft)	~826	9	151
Queue Length 95th (ft)	#919	41	193
Internal Link Dist (ft)	378		334
Turn Bay Length (ft)			
Base Capacity (vph)	2415	818	2036
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	578	0	238
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.82	0.20	0.62

Intersection Summary
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Queue shown is maximum after two cycles.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



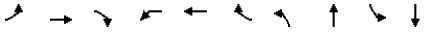
Lane Group	NWL	NWT	SWT
Lane Group Flow (vph)	942	2909	1613
v/c Ratio	1.08	1.07	1.41
Control Delay	61.0	54.1	213.5
Queue Delay	190.7	215.2	0.0
Total Delay	251.7	269.3	213.5
Queue Length 50th (ft)	~455	~462	~583
Queue Length 95th (ft)	m309	m306	#718
Internal Link Dist (ft)		191	1680
Turn Bay Length (ft)			
Base Capacity (vph)	876	2731	1148
Starvation Cap Reductn	252	852	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.51	1.55	1.41

Intersection Summary
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Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



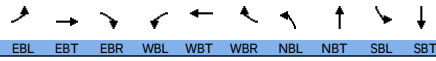
Lane Group	SEL2	SET	NET	NER
Lane Group Flow (vph)	741	754	1792	1049
v/c Ratio	1.50	1.48	0.86	2.95
Control Delay	257.8	248.0	15.6	899.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	257.8	248.0	15.6	899.7
Queue Length 50th (ft)	~418	~423	232	~678
Queue Length 95th (ft)	#621	#627	331	#886
Internal Link Dist (ft)		880	451	
Turn Bay Length (ft)				
Base Capacity (vph)	495	511	2153	356
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	1.50	1.48	0.83	2.95

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	268	516	192	86	224	255	552	1577	277	827
v/c Ratio	0.81	0.51	0.42	0.48	0.67	0.52	0.97	1.44	1.28	0.93
Control Delay	58.6	30.2	30.0	46.6	43.6	8.1	68.7	232.6	192.6	50.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	30.2	30.0	46.6	43.6	8.1	68.7	232.6	192.6	50.2
Queue Length 50th (ft)	147	134	88	47	120	0	162	~653	~202	237
Queue Length 95th (ft)	#349	189	156	92	179	57	#264	#790	#355	#354
Internal Link Dist (ft)		1001			87			632		676
Turn Bay Length (ft)	70						90		70	
Base Capacity (vph)	330	1015	460	216	559	641	572	1092	216	891
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.51	0.42	0.40	0.40	0.40	0.97	1.44	1.28	0.93

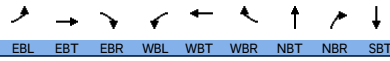
Intersection Summary
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Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	260	505	170	79	798	142	259	692	167	1024
v/c Ratio	0.85	0.68	0.24	0.26	1.31	0.24	2.62	0.51	0.78	0.72
Control Delay	45.2	28.3	4.2	20.3	181.8	14.3	769.0	14.0	49.9	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	28.3	4.2	20.3	181.8	14.3	769.0	14.0	49.9	19.4
Queue Length 50th (ft)	86	226	0	27	~582	13	~241	91	76	177
Queue Length 95th (ft)	#222	#369	40	m46	m#729	m45	m#354	m109	#189	252
Internal Link Dist (ft)		468			962			1466		318
Turn Bay Length (ft)				150			70		80	
Base Capacity (vph)	311	741	720	391	611	589	99	1360	215	1427
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.68	0.24	0.20	1.31	0.24	2.62	0.51	0.78	0.72

Intersection Summary

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Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	426	795	180	429	1042	57	1710	1541	1017
v/c Ratio	0.82	0.66	0.34	0.83	0.84	0.11	1.01	2.00	0.62
Control Delay	55.2	31.7	21.2	55.5	38.0	20.2	56.9	474.3	26.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.2	31.7	21.2	55.5	38.0	20.2	56.9	474.3	26.0
Queue Length 50th (ft)	136	228	65	137	323	20	~402	~1396	176
Queue Length 95th (ft)	#201	296	123	#203	#422	49	#517	#1660	224
Internal Link Dist (ft)		526			509		546		632
Turn Bay Length (ft)	240			230					
Base Capacity (vph)	549	1199	530	549	1236	515	1693	770	1634
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.66	0.34	0.78	0.84	0.11	1.01	2.00	0.62

Intersection Summary

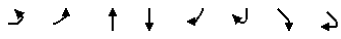
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Queue shown is maximum after two cycles.



Lane Group	EBL	NBL	NBT	SBT
Lane Group Flow (vph)	1064	129	1867	1374
v/c Ratio	0.81	0.48	1.34	0.58
Control Delay	26.6	18.6	185.8	22.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	26.6	18.6	185.8	22.0
Queue Length 50th (ft)	225	34	~666	162
Queue Length 95th (ft)	286	70	#825	211
Internal Link Dist (ft)	280		400	546
Turn Bay Length (ft)	200	160		
Base Capacity (vph)	1450	289	1390	2371
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.73	0.45	1.34	0.58

Intersection Summary

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Queue shown is maximum after two cycles.



Lane Group	EBL2	EBL	NBT	SBT	SBR	SBR2	SER	SER2
Lane Group Flow (vph)	14	687	1492	452	208	124	166	212
v/c Ratio	0.14	0.58	1.87	0.71	0.31	0.16	0.92	0.44
Control Delay	34.6	23.2	418.8	45.3	23.8	11.8	83.4	7.3
Queue Delay	0.0	0.0	282.2	25.9	3.6	0.8	0.0	0.0
Total Delay	34.6	23.3	701.0	71.2	27.5	12.6	83.4	7.3
Queue Length 50th (ft)	6	81	~527	115	85	0	72	0
Queue Length 95th (ft)	22	115	#653	#165	160	m54	#179	51
Internal Link Dist (ft)		450	601	103				
Turn Bay Length (ft)	100	100			90	90	50	50
Base Capacity (vph)	101	1185	798	633	667	800	181	480
Starvation Cap Reductn	0	0	0	189	368	462	0	0
Spillback Cap Reductn	0	24	705	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.59	16.04	1.02	0.70	0.37	0.92	0.44

Intersection Summary

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Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBT	WBT	WBR	NBT	NBR
Lane Group Flow (vph)	1243	516	317	1067	53
v/c Ratio	1.40	0.49	0.60	0.58	0.07
Control Delay	209.7	19.1	16.3	11.0	6.7
Queue Delay	0.0	0.0	0.0	3.5	0.0
Total Delay	209.7	19.1	16.3	14.5	6.7
Queue Length 50th (ft)	~327	79	56	124	8
Queue Length 95th (ft)	#442	120	130	174	21
Internal Link Dist (ft)	299	570		197	
Turn Bay Length (ft)					
Base Capacity (vph)	888	1062	525	1852	813
Starvation Cap Reductn	0	0	0	670	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.40	0.49	0.60	0.90	0.07

Intersection Summary

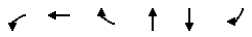
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	NBT
Lane Group Flow (vph)	1798	2406
v/c Ratio	0.70	1.93dr
Control Delay	9.4	158.0
Queue Delay	0.0	24.4
Total Delay	9.4	182.4
Queue Length 50th (ft)	88	~321
Queue Length 95th (ft)	m91	m#412
Internal Link Dist (ft)	276	196
Turn Bay Length (ft)		
Base Capacity (vph)	2553	1857
Starvation Cap Reductn	0	75
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.70	1.35

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.



Lane Group	WBL	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	9	467	72	891	273	1955
v/c Ratio	0.02	1.04	0.18	1.18	0.25	2.12
Control Delay	17.6	79.4	6.7	111.2	7.1	523.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.6	79.4	6.7	111.2	7.1	523.4
Queue Length 50th (ft)	2	~188	0	~399	43	~1179
Queue Length 95th (ft)	12	#345	26	#596	77	#1429
Internal Link Dist (ft)		298		747	581	
Turn Bay Length (ft)						
Base Capacity (vph)	417	450	410	757	1071	924
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	1.04	0.18	1.18	0.25	2.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBT	NBT	SBT
Lane Group Flow (vph)	1237	769	89
v/c Ratio	2.36	1.20	0.20
Control Delay	634.7	122.8	1.7
Queue Delay	14.4	18.6	0.0
Total Delay	649.1	141.4	1.7
Queue Length 50th (ft)	~208	~255	1
Queue Length 95th (ft)	#282	#429	m2
Internal Link Dist (ft)	310	104	207
Turn Bay Length (ft)			
Base Capacity (vph)	524	643	448
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	7	22	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	2.39	1.24	0.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	NWL	NWR	NET	SWL	SWT
Lane Group Flow (vph)	225	198	2604	232	1267
v/c Ratio	0.68	0.43	1.70	0.50	0.49
Control Delay	44.0	7.4	339.9	23.2	5.2
Queue Delay	0.0	0.0	0.0	0.0	0.3
Total Delay	44.0	7.4	339.9	23.2	5.5
Queue Length 50th (ft)	120	0	~1139	66	64
Queue Length 95th (ft)	179	51	#1281	m139	m195
Internal Link Dist (ft)	560		322		429
Turn Bay Length (ft)	150			150	
Base Capacity (vph)	511	598	1532	462	2562
Starvation Cap Reductn	0	0	0	0	611
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.33	1.70	0.50	0.65

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	3100	661	936	802	1266
v/c Ratio	1.86	0.96	2.89	1.38	0.63
Control Delay	412.1	58.6	870.5	210.6	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	412.1	58.6	870.5	210.6	14.6
Queue Length 50th (ft)	~969	213	~950	~612	234
Queue Length 95th (ft)	#1061	m140	m#557	#833	300
Internal Link Dist (ft)	1276	429			958
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1668	688	324	580	2025
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.86	0.96	2.89	1.38	0.63

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	479	2459	1052	1685	653	334
v/c Ratio	0.96	2.48	2.30	1.91dr	2.77	0.16
Control Delay	27.5	685.6	602.5	166.1	825.8	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.5	685.6	602.5	166.1	825.8	8.6
Queue Length 50th (ft)	236	~1359	~1069	~654	~639	41
Queue Length 95th (ft)	m84	m#551	m#416	#793	#847	61
Internal Link Dist (ft)		1206		1205		1978
Turn Bay Length (ft)						
Base Capacity (vph)	501	990	458	1298	236	2084
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.96	2.48	2.30	1.30	2.77	0.16

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

APPENDIX G.8
Collision Summary Sheets

City of Oakland
Traffic Engineering Department
Traffic Collision History Report

Location: Harrison St / Stanley Pl
Date Range Reported: 1/1/2006 - 12/31/2008
Total Number of Collisions: 2

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
3074212	3/2/07	08:51	25	North	Hit Object	Fixed Object	South	Ran Off Road			Unsafe Speed	0	0
3237011	6/15/07	18:30	48	West	Sideswipe	Parked Motor Vehicle	West	Parked	West	Making Right Turn	Improper Turning	0	0

Total Number of Collisions: 2

Settings Used For Query

Parameter	Setting
Street Name	HARRISON ST
Cross Street	STANLEY PL
Starting Date	1/1/2006
Ending Date	12/31/2008
Intersection	Intersection Related

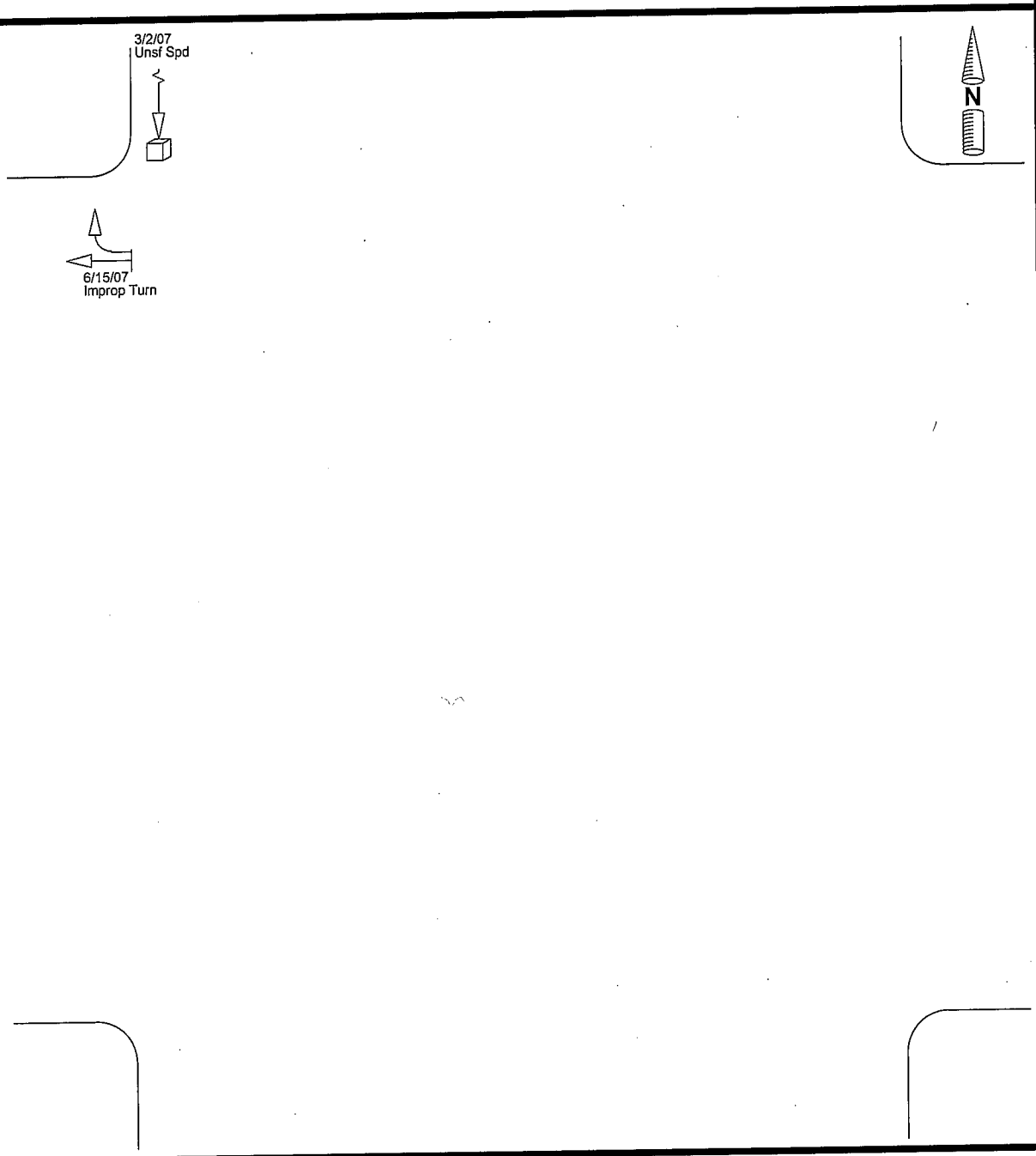
Collision Diagram

Horizontal Street: STANLEY PL

Vertical Street: HARRISON ST

From: 1/1/2006 To: 12/31/2008

Date Prepared: 8/27/2009



Number of Collisions

2	Property Damage Only
0	Injury Collisions
0	Fatal Collisions
2	Total Collisions

Legend

- Moving Vehicle
- Stopped Vehicle
- Backing Vehicle
- Ran Off Road
- Movement Unknown
- Right Turn
- Left Turn
- Sideswipe
- Day
- Night
- Pedestrian
- Fixed Object
- Bicycle
- DUI
- Injury
- Fatal

Color Legend - Highest Degree of Injury

Maroon = Fatal

Purple = Severe Injury

Green = Other Visible Injury

Teal = Complaint of Pain

Dark Blue = Property Damage Only

Settings Used For Query

Parameter	Setting
Street Name	HARRISON ST
Cross Street	STANLEY PL
Starting Date	1/1/2006
Ending Date	12/31/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division

Traffic Collision History Report

Location: Oakland Avenue / Perry Place
Date Range Reported: 10/1/2003 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1200773	1/7/04	15:30	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
1248805	1/30/04	16:36	100	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	0	0
1517020	7/11/04	13:15	0	In Int.	Sideswipe	Other Motor Vehicle	East	Making Left Turn	East	Making Left Turn	Improper Turning	0	0
1999451	5/4/05	09:40	27	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	0	0
2834308	10/5/06	07:10	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2903700	11/15/06	18:00	0	In Int.	Sideswipe	Other Motor Vehicle	East	Proceeding Straight	North	Making Left Turn	Improper Turning	0	0
2988939	1/3/07	19:30	0	In Int.	Hit Object	Fixed Object	North	Ran Off Road			Improper Turning	0	0
3115732	2/25/07	10:50	55	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	0	0

Total Number of Collisions: 8

City of Oakland
Transportation Services Division

Traffic Collision History Report

Location: Harrison Street / 27th Street
Date Range Reported: 10/1/2003 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1046002	10/3/03	14:30	0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Left Turn	North	Making Left Turn	Improper Turning	0	0
1060881	10/15/03	18:30	0	In Int.	Broadside	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Unknown	0	0
1097604	10/31/03	17:00	0	In Int.	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Making Left Turn	Improper Turning	0	0
1132411	11/12/03	17:12	0	In Int.	Head-On	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	2	0
1149390	11/27/03	23:00	0	In Int.	Broadside	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	0	0
1158322	12/1/03	15:00	0	In Int.	Hit Object	Fixed Object	South	Making Right Turn			Improper Turning	0	0
1145710	12/3/03	20:19	0	In Int.	Head-On	Other Motor Vehicle	South	Proceeding Straight	North	Making Left Turn	Other Hazardous Movement	2	0
1145750	12/4/03	10:45	0	In Int.	Sideswipe	Other Motor Vehicle	North	Changing Lanes	West	Making Left Turn	Improper Turning	0	0
1173795	12/13/03	09:45	0	In Int.	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Unsafe Speed	0	0
1173845	12/17/03	08:33	0	In Int.	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Stopped in Road	Unsafe Speed	0	0
1221913	1/12/04	06:46	0	In Int.	Head-On	Other Motor Vehicle	North	Making Left Turn	South	Proceeding Straight	Traffic Signals and Signs	0	0
1248610	1/13/04	17:44	0	In Int.	Broadside	Other Motor Veh	East	Proceeding Stra	North	Proceeding Stra	Traffic Signals an	0	0

						icle		ight		ight	d Signs		
1291052	2/10/04	05:55	150	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Parked	Improper Turning	0	0
1383751	4/12/04	16:50	0	In Int.	Hit Object	Fixed Object	East	Making Right Turn			Improper Turning	0	0
1517024	7/11/04	14:36	0	In Int.	Broadside	Motor Vehicle on Other Roadway	West	Making Left Turn	South	Proceeding Straight	Traffic Signals and Signs	0	0
1883768	11/14/04	13:00	0	In Int.	Sideswipe	Other Motor Vehicle	South	Making Left Turn	South	Making Left Turn	Improper Turning	0	0
1821604	12/29/04	18:00	0	In Int.	Broadside	Other Motor Vehicle	North	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	0	0
2094580	6/20/05	11:46	0	In Int.	Sideswipe	Other Motor Vehicle	West	Making Right Turn	West	Making Right Turn	Other	0	0
2144795	7/25/05	15:30	0	In Int.	Vehicle - Pedestrian	Other Motor Vehicle	West	Making Right Turn	West	Proceeding Straight	Other	1	0
2187871	8/19/05	07:30	0	In Int.	Sideswipe	Other Motor Vehicle	East	Proceeding Straight	East	Making Left Turn	Improper Turning	0	0
2484611	1/19/06	08:00	130	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Speed	1	0
2585853	4/20/06	05:40	0	In Int.	Head-On	Other Motor Vehicle	North	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	0	0
2693292	6/26/06	13:00	0	In Int.	Broadside	Other Motor Vehicle	East	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	0	0
2844261	10/17/06	19:51	0	In Int.	Broadside	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	0	0
2942472	12/8/06	23:00	25	East	Rear-End	Other Motor Vehicle	East	Backing	East	Proceeding Straight	Unsafe Starting or Backing	0	0
2968574	12/27/06	18:50	0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	0	0
2989635	1/9/07	13:12	30	North	Sideswipe	Other Motor Vehicle	South	Changing Lanes	Not Stated	Proceeding Straight	Unsafe Lane Change	0	0

3098866	3/12/07	06:07	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
3092822	3/18/07	10:11	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	2	0

Total Number of Collisions: 29

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Broadway / 27th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1687966	10/7/04	08:25	0	In Int.	Other	Bicycle	East	Proceeding Straight	North	Proceeding Straight	Wrong Side of Road	0	0
1821627	12/20/04	12:00	0	In Int.	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Making Right Turn	Unsafe Speed	0	0
2122641	7/1/05	14:45	20	North	Sideswipe	Other Motor Vehicle	South	Making Right Turn	South	Stopped in Road	Improper Turning	0	0
2205392	8/26/05	12:00	0	In Int.	Broadside	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	0	0
2241168	9/9/05	08:30	30	North	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Making Right Turn	Traffic Signals and Signs	0	0
2361620	10/20/05	18:15	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2348692	11/28/05	17:57	0	In Int.	Vehicle - Pedestrian	Pedestrian	East	Making Left Turn	West	Other	Ped R/W Violation	1	0
2474880	1/27/06	19:50	0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	0	0
2515780	2/28/06	11:18	0	In Int.	Head-On	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	1	0
2521738	3/4/06	15:50	0	In Int.	Broadside	Other Motor Vehicle	North	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	0	0
2515857	3/5/06	19:30	0	In Int.	Vehicle - Pedestrian	Pedestrian	East	Making Left Turn	North	Proceeding Straight	Ped R/W Violation	0	0
2985773	1/11/07	18:06	0	In Int.	Sideswipe	Other Motor Vehicle	West	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	0	0
3045750	1/27/07	06:37	6	South	Hit Object	Fixed Object	South	Other Unsafe Turning			Unsafe Speed	0	0
3092597	2/23/07	02:06	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	2	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Broadway / 27th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 14

Settings Used For Query

Parameter	Setting
Street Name	Broadway
Cross Street	27th Street
Starting Date	10/1/2004
Ending Date	9/30/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Telegraph Avenue / 27th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1831302	12/2/04	11:20	0	In Int.	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Proceeding Straight	Unsafe Speed	0	0
1831336	12/11/04	06:57	0	In Int.	Vehicle - Pedestrian	Pedestrian	North	Proceeding Straight	Not Stated	Making Left Turn	Pedestrian Violation	1	0
1982840	4/13/05	05:30	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2179059	8/3/05	08:03	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2342288	10/20/05	11:40	9	West	Broadside	Bicycle	East	Proceeding Straight	South	Proceeding Straight	Other Hazardous Movement	1	0
2304455	10/23/05		40	East	Sideswipe	Parked Motor Vehicle	East	Proceeding Straight	Not Stated	Parked	Wrong Side of Road	0	0
2342395	10/25/05	16:00	10	West	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Unsafe Speed	0	0
2386981	12/15/05	14:40	0	In Int.	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	0	0
2403381	12/27/05	09:30	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	West	Making Left Turn	Other Hazardous Movement	0	0
2407359	1/3/06	22:45	0	In Int.	Not Stated	Non-Collision	West	Making Right Turn	South	Making Right Turn	Improper Turning	0	0
2458150	1/25/06	06:15	0	In Int.	Broadside	Bicycle	West	Proceeding Straight	South	Making Right Turn	Traffic Signals and Signs	0	0
2555890	3/19/06	18:55	0	In Int.	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Making Right Turn	Unknown	0	0
2844352	10/12/06	20:54	0	In Int.	Sideswipe	Other Motor Vehicle	North	Changing Lanes	North	Proceeding Straight	Improper Turning	0	0
2922096	12/4/06	10:48	17	South	Broadside	Other Motor Vehicle	East	Making Right Turn	North	Stopped in Road	Improper Turning	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Telegraph Avenue / 27th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2946032	12/16/06	01:51	0	In Int.	Broadside	Other Motor Vehicle	West	Not Stated	South	Proceeding Straight	Traffic Signals and Signs	0	0
3321511	8/1/07	10:53	20	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	0	0

Total Number of Collisions: 16

Settings Used For Query

Parameter	Setting
Street Name	Telegraph Avenue
Cross Street	27th Street
Starting Date	10/1/2004
Ending Date	9/30/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Northgate Avenue / 27th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1708879	10/14/04	13:05	14	North	Broadside	Other Motor Vehicle	West	Making Right Turn	West	Proceeding Straight	Improper Turning	0	0
1834061	12/30/04	15:49	0	In Int.	Head-On	Other Motor Vehicle	Not Stated	Proceeding Straight	Not Stated	Making Left Turn	Traffic Signals and Signs	1	0
1997496	4/19/05	18:00	0	In Int.	Other	Bicycle	West	Proceeding Straight	North	Making Right Turn	Improper Turning	0	0
2044284	5/4/05	15:50	0	In Int.	Broadside	Other Motor Vehicle	West	Making Right Turn	West	Proceeding Straight	Improper Turning	0	0
2044356	5/17/05	16:18	0	In Int.	Sideswipe	Other Motor Vehicle	South	Making Left Turn	South	Making Left Turn	Improper Turning	0	0
2059288	5/24/05	07:15	0	In Int.	Sideswipe	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2058927	5/25/05	11:18	0	In Int.	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Stopped in Road	Unsafe Speed	2	0
2061576	6/2/05	09:15	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	1	0
2085069	6/10/05	17:45	0	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	South	Proceeding Straight	Improper Turning	1	0
2094429	6/24/05	06:50	0	In Int.	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	South	Making Left Turn	Improper Turning	1	0
2158397	7/11/05	07:35	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	South	Making Left Turn	Traffic Signals and Signs	1	0
2187878	7/13/05	16:30	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2225771	9/5/05	16:40	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	2	0
2257348	9/29/05	16:15	0	In Int.	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Northgate Avenue / 27th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2304405	9/30/05	18:00	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	2	0
2342344	10/24/05	09:30	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2348632	11/13/05	13:00	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Making Left Turn	Traffic Signals and Signs	2	0
2388230	12/1/05	17:50	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	2	0
2394365	12/5/05	15:36	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	1	0
2390572	12/20/05	16:45	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	2	0
2407327	1/2/06	13:55	0	In Int.	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Unsafe Speed	0	0
2422608	1/5/06	16:57	0	In Int.	Not Stated	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2515820	3/4/06	11:40	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2523369	3/11/06	12:36	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	1	0
2555859	3/24/06	17:57	0	In Int.	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Other	2	0
2615468	4/29/06	18:25	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Making Left Turn	Traffic Signals and Signs	0	0
2632398	5/6/06	10:00	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2639614	5/23/06	18:06	0	In Int.	Head-On	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Northgate Avenue / 27th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2844396	10/17/06	17:05	5	East	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Stopped in Road	Unsafe Speed	0	0
2855408	10/24/06	17:37	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2870549	10/27/06	17:00	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Making Right Turn	Unknown	1	0
2906730	11/16/06	09:33	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2914037	11/19/06	19:25	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	East	Making Left Turn	Traffic Signals and Signs	0	0
2903732	11/21/06	15:59	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
2942560	11/28/06	17:50	0	In Int.	Overturned	Not Stated	East	Proceeding Straight	South	Making Left Turn	Traffic Signals and Signs	0	0
2922053	12/2/06	21:33	0	In Int.	Broadside	Other Motor Vehicle	South	Other Unsafe Turning	Not Stated	Parked	Improper Turning	1	0
3054064	12/19/06	07:04	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	1	0
3056560	2/12/07	10:45	10	East	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Stopped in Road	Unsafe Speed	0	0
3078694	3/10/07	09:37	0	In Int.	Hit Object	Fixed Object	South	Other Unsafe Turning			Unsafe Speed	0	0
3296863	7/29/07	17:51	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	1	0
3359543	8/30/07	09:00	10	East	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Stopped in Road	Unsafe Speed	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Northgate Avenue / 27th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kll

Total Number of Collisions: 41

Settings Used For Query

Parameter	Setting
Street Name	Northgate Avenue
Cross Street	27th Street
Starting Date	10/1/2004
Ending Date	9/30/2008
Intersection	Intersection Related

City of Oakland
Traffic Engineering Department
Traffic Collision History Report

Location: W Grand Av / Northgate Av
Date Range Reported: 1/1/2006 - 12/31/2008
Total Number of Collisions: 6

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2586573	4/12/06	10:22	20	Not Stated	Rear-End	Other Motor Vehicle	Not Stated	Stopped in Road	Not Stated	Slowing/Stopping	Unsafe Speed	1	0
2901247	10/30/06	13:35	0	In Int.	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Proceeding Straight	Unsafe Speed	1	0
3184262	5/1/07	13:45	50	West	Sideswipe	Other Motor Vehicle	East	Proceeding Straight	East	Changing Lanes	Unsafe Lane Change	0	0
3210728	6/5/07	09:00	0	In Int.	Sideswipe	Other Motor Vehicle	East	Proceeding Straight	East	Making U Turn	Improper Turning	0	0
3245802	6/29/07	13:03	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	West	Making U Turn	Auto R/W Violation	1	0
3472139	8/30/07	18:10	0	In Int.	Sideswipe	Other Motor Vehicle	East	Making Left Turn	East	Making Left Turn	Improper Turning	0	0

City of Oakland
Traffic Engineering Department
Traffic Collision History Report

Location: W Grand Av / Northgate Av
Date Range Reported: 1/1/2006 - 12/31/2008
Total Number of Collisions: 6

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 6

Settings Used For Query

Parameter	Setting
Street Name	W GRAND AV
Cross Street	NORTHGATE AV
Starting Date	1/1/2006
Ending Date	12/31/2008
Intersection	Intersection Related

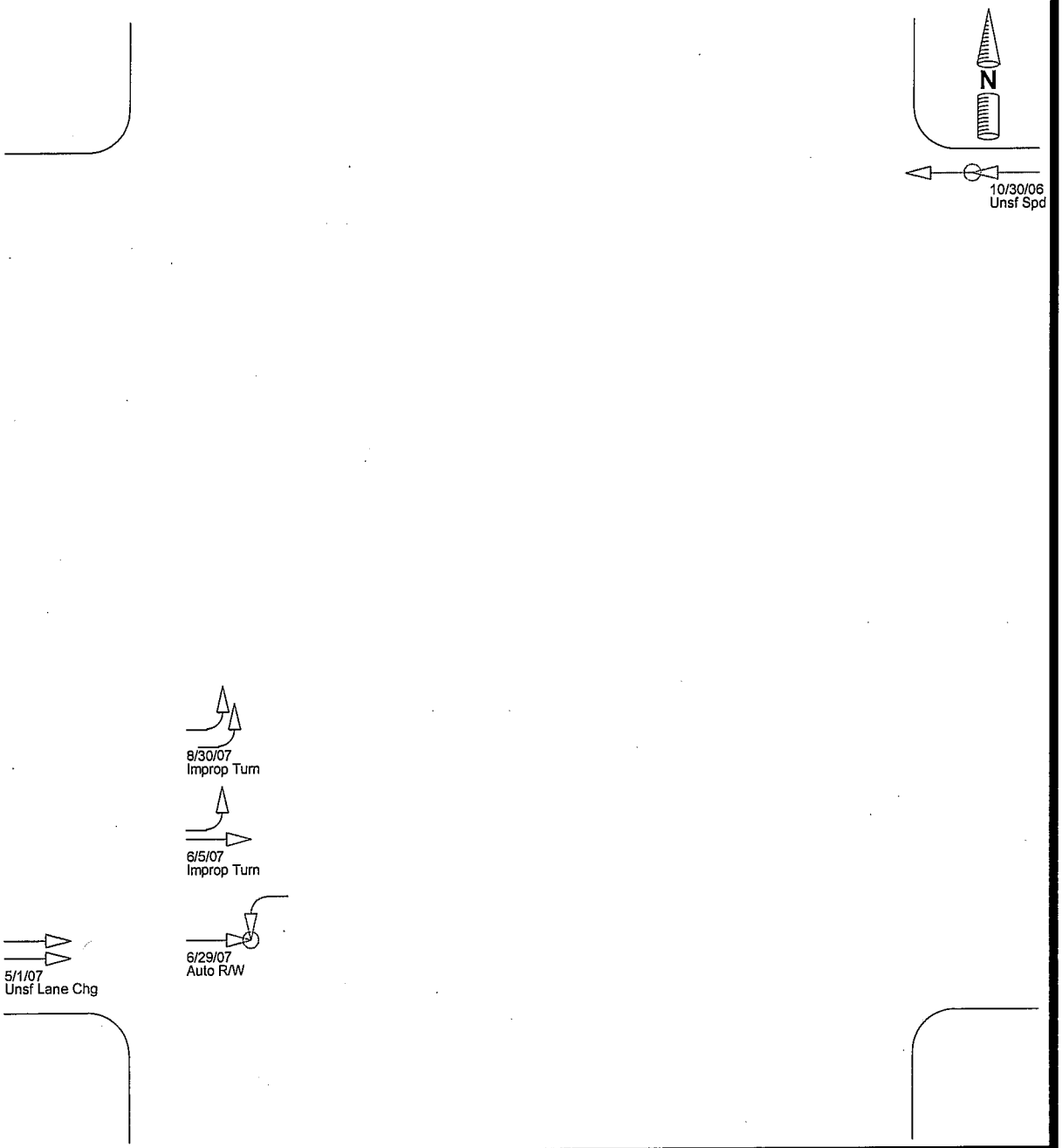
Collision Diagram

Horizontal Street: W GRAND AV

Vertical Street: NORTHGATE AV

From: 1/1/2006 To: 12/31/2008

Date Prepared: 8/27/2009



Number of Collisions

3 Property Damage Only
3 Injury Collisions
0 Fatal Collisions
6 Total Collisions

Collisions Not Plotted: 1

Legend

Moving Vehicle
Stopped Vehicle
Backing Vehicle
Ran Off Road
Movement Unknown
Right Turn
Left Turn
Sideswipe
Day
Night
Pedestrian
Fixed Object
Bicycle
DUI
Injury
Fatal

Color Legend - Highest Degree of Injury

Maroon = Fatal

Purple = Severe Injury

Green = Other Visible Injury

Teal = Complaint of Pain

Dark Blue = Property Damage Only

Settings Used For Query

Parameter	Setting
Street Name	W GRAND AV
Cross Street	NORTHGATE AV
Starting Date	1/1/2006
Ending Date	12/31/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Telegraph Avenue / Grand Avenue
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1893002	12/17/04	10:02	0	In Int.	Broadside	Pedestrian	West	Making U Turn	South	Proceeding Straight	Ped R/W Violation	0	0
1821607	12/20/04	18:30	0	In Int.	Head-On	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	0	0
1987251	4/9/05	19:30	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
1999474	4/28/05	00:37	0	In Int.	Head-On	Fixed Object	South	Making Left Turn			Improper Turning	1	0
2059291	5/26/05	08:45	0	In Int.	Head-On	Other Motor Vehicle	West	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	2	0
2119813	6/29/05	11:35	0	In Int.	Head-On	Fixed Object	East	Making Right Turn			Improper Turning	0	0
2152405	7/6/05	12:45	0	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	0	0
2342325	10/29/05		0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Right Turn	East	Proceeding Straight	Driving Under Influence	0	0
2342084	10/29/05	00:55	0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Right Turn	East	Proceeding Straight	Driving Under Influence	0	0
2386985	12/14/05	02:20	20	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	0	0
2396842	12/22/05	06:45	3	North	Vehicle - Pedestrian	Pedestrian	West	Other	North	Proceeding Straight	Pedestrian Violation	1	0
2508528	2/13/06	18:41	0	In Int.	Not Stated	Bicycle	South	Stopped in Road	North	Stopped in Road	Unknown	1	0
2548597	3/25/06	01:40	0	In Int.	Head-On	Other Motor Vehicle	North	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	0	0
2563239	4/4/06	22:25	2	East	Hit Object	Fixed Object	East	Proceeding Straight			Improper Turning	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Telegraph Avenue / Grand Avenue
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2683080	6/3/06	02:10	30	East	Not Stated	Bicycle	West	Proceeding Straight	West	Stopped in Road	Unsafe Speed	1	0
2703707	6/25/06	12:17	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	3	0
3109029	3/26/07	00:23	0	In Int.	Broadside	Other Motor Vehicle	West	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	0	0
3282982	7/13/07	14:48	0	In Int.	Broadside	Other Motor Vehicle	West	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	0	0
3283192	7/20/07	09:03	0	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	0	0
3481255	9/9/07	18:04	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	1	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Telegraph Avenue / Grand Avenue
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 20

Settings Used For Query

Parameter	Setting
Street Name	Telegraph Avenue
Cross Street	Grand Avenue
Starting Date	10/1/2004
Ending Date	9/30/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Broadway / Grand Avenue
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1735155	11/5/04	06:00	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Auto R/W Violation	0	0
2059374	5/28/05	15:10	0	In Int.	Broadside	Not Stated	North	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	1	0
2186169	8/17/05	18:10	0	In Int.	Broadside	Bicycle	West	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	1	0
2265819	10/8/05	16:50	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	2	0
2496680	2/27/06	12:35	0	In Int.	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Following Too Closely	0	0
2555915	3/25/06	02:00	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2806372	9/20/06	20:20	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Driving Under Influence	0	0
2965252	12/16/06	21:50	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
3067040	2/26/07	19:30	0	In Int.	Head-On	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	0	0
3071252	3/3/07	22:35	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	4	0
3283022	7/17/07	11:05	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
3346820	8/24/07	19:47	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	3	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Broadway / Grand Avenue
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 12

Settings Used For Query

Parameter	Setting
Street Name	Broadway
Cross Street	Grand Avenue
Starting Date	10/1/2004
Ending Date	9/30/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division

Traffic Collision History Report

Location: Webster Street / Grand Avenue
Date Range Reported: 10/1/2003 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1393190	4/19/04	13:03	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	1	0
1399293	5/6/04	11:00	30	West	Sideswipe	Other Motor Vehicle	South	Making Left Turn	South	Parked	Improper Turning	0	0
1472103	5/23/04	09:59	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
1649206	8/24/04	18:26	0	In Int.	Head-On	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	0	0
2181236	8/16/05	16:03	0	In Int.	Sideswipe	Other Motor Vehicle	East	Making Right Turn	East	Proceeding Straight	Improper Turning	0	0

Total Number of Collisions: 5

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Harrison Street / Grand Avenue
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1639671	10/4/04	20:07	0	In Int.	Head-On	Other Motor Vehicle	South	Proceeding Straight	North	Making Left Turn	Other	0	0
1687802	10/5/04	14:45	100	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	1	0
2329314	11/2/05	12:45	0	In Int.	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	0	0
2586664	4/9/06	10:00	30	South	Sideswipe	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	0	0
2605543	4/26/06	20:25	0	In Int.	Sideswipe	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Improper Turning	0	0
2682938	6/6/06	13:09	30	West	Sideswipe	Bicycle	East	Changing Lanes	East	Slowing/Stopping	Improper Turning	1	0
2870510	10/28/06	23:15	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	2	0
3075980	2/23/07	07:38	0	In Int.	Sideswipe	Other Motor Vehicle	West	Making Left Turn	South	Proceeding Straight	Traffic Signals and Signs	0	0
3108962	3/23/07	08:51	18	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Proceeding Straight	Unsafe Speed	1	0

Location: Harrison Street / Grand Avenue
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 9

Settings Used For Query

Parameter	Setting
Street Name	Harrison Street
Cross Street	Grand Avenue
Starting Date	10/1/2004
Ending Date	9/30/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division

Traffic Collision History Report

Location: Harrison Street / 21st Street
Date Range Reported: 10/1/2003 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1288143	1/9/04	15:27	51	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Making Right Turn	Unknown	0	0
1214704	1/9/04	17:25	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Making Left Turn	Traffic Signals and Signs	0	0
1417465	5/6/04	13:59	0	In Int.	Rear-End	Other Motor Vehicle	South	Proceeding Straight	East	Making Left Turn	Traffic Signals and Signs	0	0
2567432	4/6/06	08:00	0	In Int.	Sideswipe	Other Motor Vehicle	South	Changing Lanes	South	Proceeding Straight	Improper Turning	0	0
2632256	5/22/06	18:15	15	North	Hit Object	Other Object	West	Proceeding Straight			Other	0	0
2922144	12/3/06	02:26	12	South	Rear-End	Other Motor Vehicle	North	Stopped in Road	North	Stopped in Road	Unsafe Speed	0	0
2926200	12/4/06	11:58	0	In Int.	Head-On	Other Motor Vehicle	South	Proceeding Straight	East	Making Left Turn	Wrong Side of Road	0	0

Total Number of Collisions: 7

City of Oakland
Transportation Services Division

Traffic Collision History Report

Location: Webster Street / 21st Street
Date Range Reported: 10/1/2003 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1339052	2/13/04	11:08	40	North	Sideswipe	Parked Motor Vehicle	South	Proceeding Straight	South	Parked	Improper Turning	0	0
2111291	7/1/05	02:25	15	West	Other	Non-Collision	East	Stopped in Road	Not Stated	Other	Other Than Driver or Ped	1	0
2181244	8/17/05	12:00	30	North	Sideswipe	Other Motor Vehicle	South	Changing Lanes	South	Proceeding Straight	Improper Turning	0	0

Total Number of Collisions: 3

City of Oakland
Transportation Services Division

Traffic Collision History Report

Location: Franklin Street / 21st Street
Date Range Reported: 10/1/2003 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1200735	12/27/03	02:40	21	West	Head-On	Fixed Object	North	Making Left Turn			Driving Under Influence	1	0
1708844	11/3/04	10:38	0	In Int.	Broadside	Other Motor Vehicle	North	Changing Lanes	North	Proceeding Straight	Improper Turning	0	0
2012204	4/29/05	16:50	10	South	Broadside	Other Motor Vehicle	North	Making Right Turn	North	Proceeding Straight	Improper Turning	0	0
2569721	3/29/06	13:15	0	In Int.	Sideswipe	Other Motor Vehicle	North	Changing Lanes	Not Stated	Making Left Turn	Improper Turning	0	0
2871827	10/30/06	23:50	0	In Int.	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	4	0
2993522	1/3/07	14:45	14	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Slowing/Stopping	Unsafe Speed	0	0

Total Number of Collisions: 6

City of Oakland
Transportation Services Division

Traffic Collision History Report

Location: Broadway / 21st Street
Date Range Reported: 10/1/2003 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1143484	11/19/03	14:00	0	In Int.	Head-On	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	2	0
1517045	7/8/04	12:10	12	East	Hit Object	Fixed Object	East	Ran Off Road			Improper Turning	0	0
1783587	12/22/04	11:30	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2179115	8/2/05	21:20	0	In Int.	Broadside	Other Motor Vehicle	East	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	0	0
2241269	9/15/05	13:24	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2422564	1/4/06	17:15	0	In Int.	Vehicle - Pedestrian	Pedestrian	East	Not Stated	North	Proceeding Straight	Pedestrian Violation	1	0
2615487	4/27/06	08:44	0	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	3	0
2683005	6/1/06	07:13	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	2	0

Total Number of Collisions: 8

City of Oakland
Transportation Services Division

Traffic Collision History Report

Location: Telegraph Avenue / 20th Street
Date Range Reported: 10/1/2003 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1063970	10/20/03	16:00	10	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Following Too Closely	0	0
1262697	2/1/04	00:15	35	North	Broadside	Other Motor Vehicle	East	Making Left Turn	North	Proceeding Straight	Improper Turning	1	0
1597213	7/14/04	20:30	25	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Following Too Closely	0	0
1821635	12/20/04	14:00	0	In Int.	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Improper Turning	0	0
2458102	1/25/06	15:40	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
2508495	2/9/06	08:15	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	1	0
2584174	4/16/06	20:15	50	North	Sideswipe	Other Motor Vehicle	South	Other Unsafe Turning	South	Proceeding Straight	Improper Turning	0	0
2687172	6/19/06	11:31	0	In Int.	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	South	Proceeding Straight	Unknown	0	0
2879876	11/3/06	11:42	0	In Int.	Not Stated	Not Stated	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	1	0
3011336	1/25/07	16:40	36	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Making Right Turn	Unsafe Speed	0	0
3077772	3/13/07	14:35	6	East	Vehicle - Pedestrian	Pedestrian	South	Making Left Turn	North	Not Stated	Ped R/W Violation	0	0
3332483	8/22/07	13:48	0	In Int.	Sideswipe	Other Motor Vehicle	West	Backing	North	Stopped in Road	Unsafe Starting or Backing	0	0

Total Number of Collisions: 12

City of Oakland
Traffic Engineering Department
Traffic Collision History Report

Location: Broadway / 20th St
Date Range Reported: 1/1/2006 - 12/31/2008
Total Number of Collisions: 6

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2409511	1/6/06	12:23	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	West	Making Left Turn	Auto R/W Violation	2	0
2993585	1/3/07	11:49	0	In Int.	Broadside	Other Motor Vehicle	West	Stopped in Road	North	Proceeding Straight	Auto R/W Violation	0	0
3071244	2/18/07	02:40	38	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Proceeding Straight	Driving Under Influence	0	0
3145303	4/24/07	16:38	20	West	Broadside	Other Motor Vehicle	West	Proceeding Straight	East	Making Left Turn	Improper Turning	0	0
3448744	10/23/07	09:15	0	In Int.	Sideswipe	Parked Motor Vehicle	North	Parked	North	Proceeding Straight	Improper Turning	0	0
3596676	1/28/08	23:39	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0

City of Oakland
Traffic Engineering Department
Traffic Collision History Report

Location: Broadway / 20th St
Date Range Reported: 1/1/2006 - 12/31/2008
Total Number of Collisions: 6

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 6

Settings Used For Query

Parameter	Setting
Street Name	BROADWAY
Cross Street	20TH ST
Starting Date	1/1/2006
Ending Date	12/31/2008
Intersection	Intersection Related

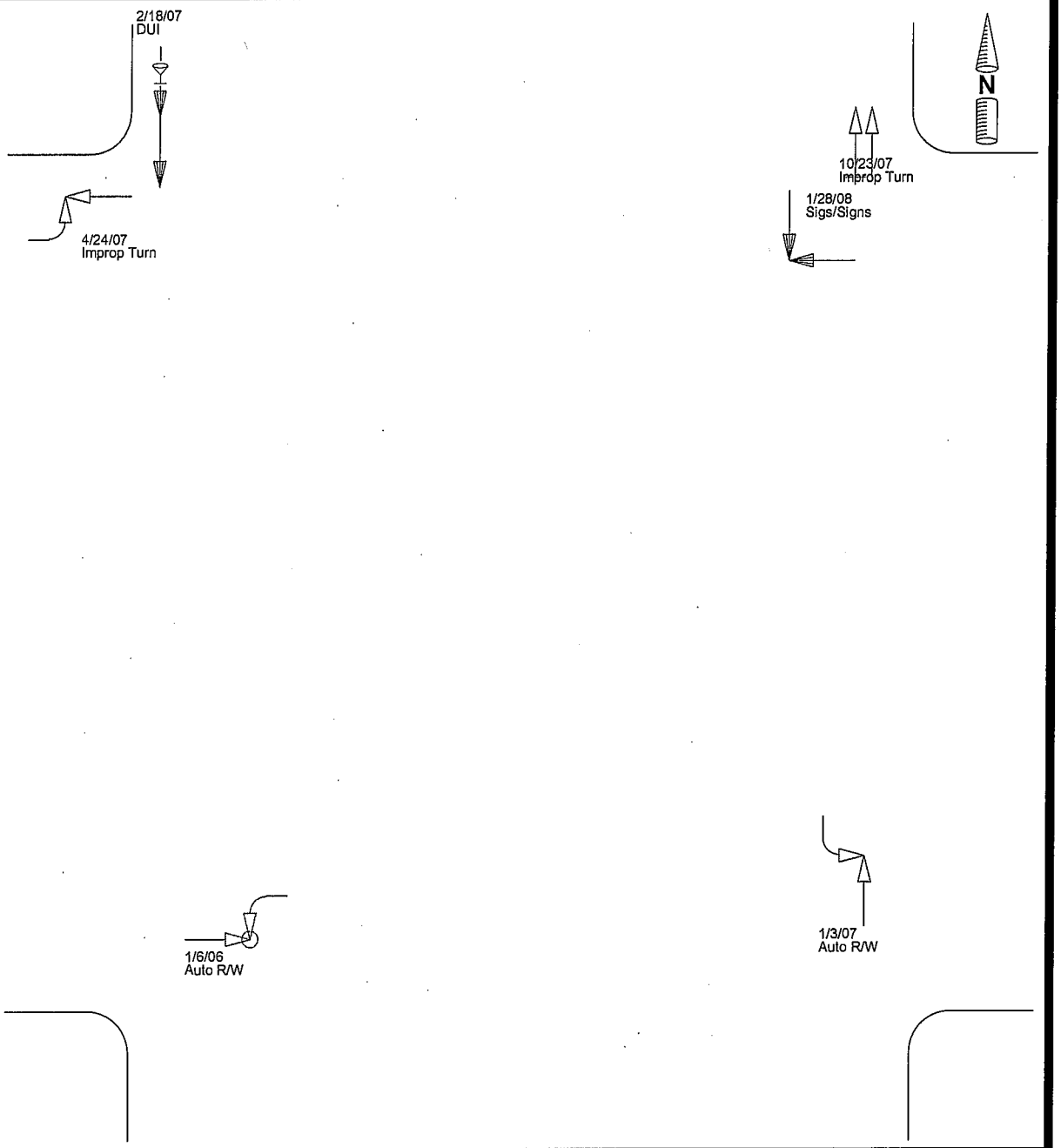
Collision Diagram

Horizontal Street: 20TH ST

Vertical Street: BROADWAY

From: 1/1/2006 To: 12/31/2008

Date Prepared: 8/27/2009



Number of Collisions

5	Property Damage Only
1	Injury Collisions
0	Fatal Collisions
6	Total Collisions

Legend

- Moving Vehicle
- Stopped Vehicle
- Backing Vehicle
- Ran Off Road
- Movement Unknown
- Right Turn
- Left Turn
- Sideswipe
- Day
- Night
- Pedestrian
- Fixed Object
- Bicycle
- DUI
- Injury
- Fatal

Color Legend - Highest Degree of Injury

Maroon = Fatal

Purple = Severe Injury

Green = Other Visible Injury

Teal = Complaint of Pain

Dark Blue = Property Damage Only

Settings Used For Query

Parameter	Setting
Street Name	BROADWAY
Cross Street	20TH ST
Starting Date	1/1/2006
Ending Date	12/31/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division

Traffic Collision History Report

Location: Franklin Street / 20th Street
Date Range Reported: 10/1/2003 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1294180	2/27/04	15:05	0	In Int.	Sideswipe	Other Motor Vehicle	West	Making Right Turn	West	Stopped in Road	Improper Turning	0	0
1294232	2/28/04	12:00	0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Left Turn	North	Proceeding Straight	Improper Turning	0	0
1373049	4/9/04	15:40	50	South	Broadside	Other Motor Vehicle	North	Entering Traffic	North	Making Right Turn	Unknown	0	0
1517755	6/13/04	16:50	0	In Int.	Broadside	Not Stated	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
1648933	8/28/04	09:55	0	In Int.	Sideswipe	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Improper Turning	0	0
1649190	9/11/04	10:50	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
1695286	10/26/04	13:45	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Other	0	0
1777486	12/13/04	15:17	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2682975	6/1/06	15:10	0	In Int.	Sideswipe	Other Motor Vehicle	West	Making Right Turn	West	Making Right Turn	Unknown	0	0
2835916	10/12/06	15:41	0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	0	0
2906766	11/16/06	19:22	0	In Int.	Broadside	Bicycle	East	Other Unsafe Turning	North	Proceeding Straight	Traffic Signals and Signs	1	0
3388784	9/20/07	08:15	0	In Int.	Broadside	Motor Vehicle on Other Roadway	West	Proceeding Straight	North	Proceeding Straight	Other	1	0

Total Number of Collisions: 12

City of Oakland
Transportation Services Division

Traffic Collision History Report

Location: Webster Street / 20th Street
Date Range Reported: 10/1/2003 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1072812	10/21/03	10:05	0	In Int.	Broadside	Other Motor Vehicle	East	Stopped in Road	South	Proceeding Straight	Traffic Signals and Signs	0	0
2538166	3/17/06	08:25	15	North	Sideswipe	Other Motor Vehicle	South	Making Right Turn	South	Proceeding Straight	Improper Turning	0	0

Total Number of Collisions: 2

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Harrison Street / 20th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1752223	11/22/04	08:00	0	In Int.	Sideswipe	Parked Motor Vehicle	East	Proceeding Straight	East	Parked	Improper Turning	0	0
2012227	5/1/05	06:23	0	In Int.	Sideswipe	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Other	1	0
2202154	8/22/05	11:15	0	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	East	Proceeding Straight	Other Hazardous Movement	1	0
2632288	5/18/06	17:00	0	In Int.	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Following Too Closely	0	0
3297003	7/25/07	09:45	10	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Speed	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Harrison Street / 20th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 5

Settings Used For Query

Parameter	Setting
Street Name	Harrison Street
Cross Street	20th Street
Starting Date	10/1/2004
Ending Date	9/30/2008
Intersection	Intersection Related

City of Oakland
Traffic Engineering Department
Traffic Collision History Report

Location: Harrison St / Lakeside Dr (1)
Date Range Reported: 1/1/2006 - 12/31/2008
Total Number of Collisions: 8

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2632288	5/18/06	17:00	0	In Int.	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Following Too Closely	0	0
2687144	6/19/06	12:29	15	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Proceeding Straight	Unsafe Speed	0	0
3240692	6/21/07	09:00	50	West	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Proceeding Straight	Improper Turning	0	0
3297003	7/25/07	09:45	10	North	Rear-End	Other Motor Vehicle	South	Stopped in Road	South	Proceeding Straight	Unsafe Speed	0	0
3472387	10/22/07	16:27	15	South	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
3451104	10/30/07	15:19	30	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Speed	3	0
3472256	11/17/07	11:10	10	North	Rear-End	Other Motor Vehicle	South	Backing	South	Stopped in Road	Unsafe Starting or Backing	0	0
3795441	6/24/08	13:33	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0

City of Oakland
Traffic Engineering Department
Traffic Collision History Report

Location: Harrison St / Lakeside Dr (1)
Date Range Reported: 1/1/2006 - 12/31/2008
Total Number of Collisions: 8

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 8

Settings Used For Query

Parameter	Setting
Street Name	HARRISON ST
Cross Street	LAKESIDE DR (1)
Starting Date	1/1/2006
Ending Date	12/31/2008
Intersection	Intersection Related

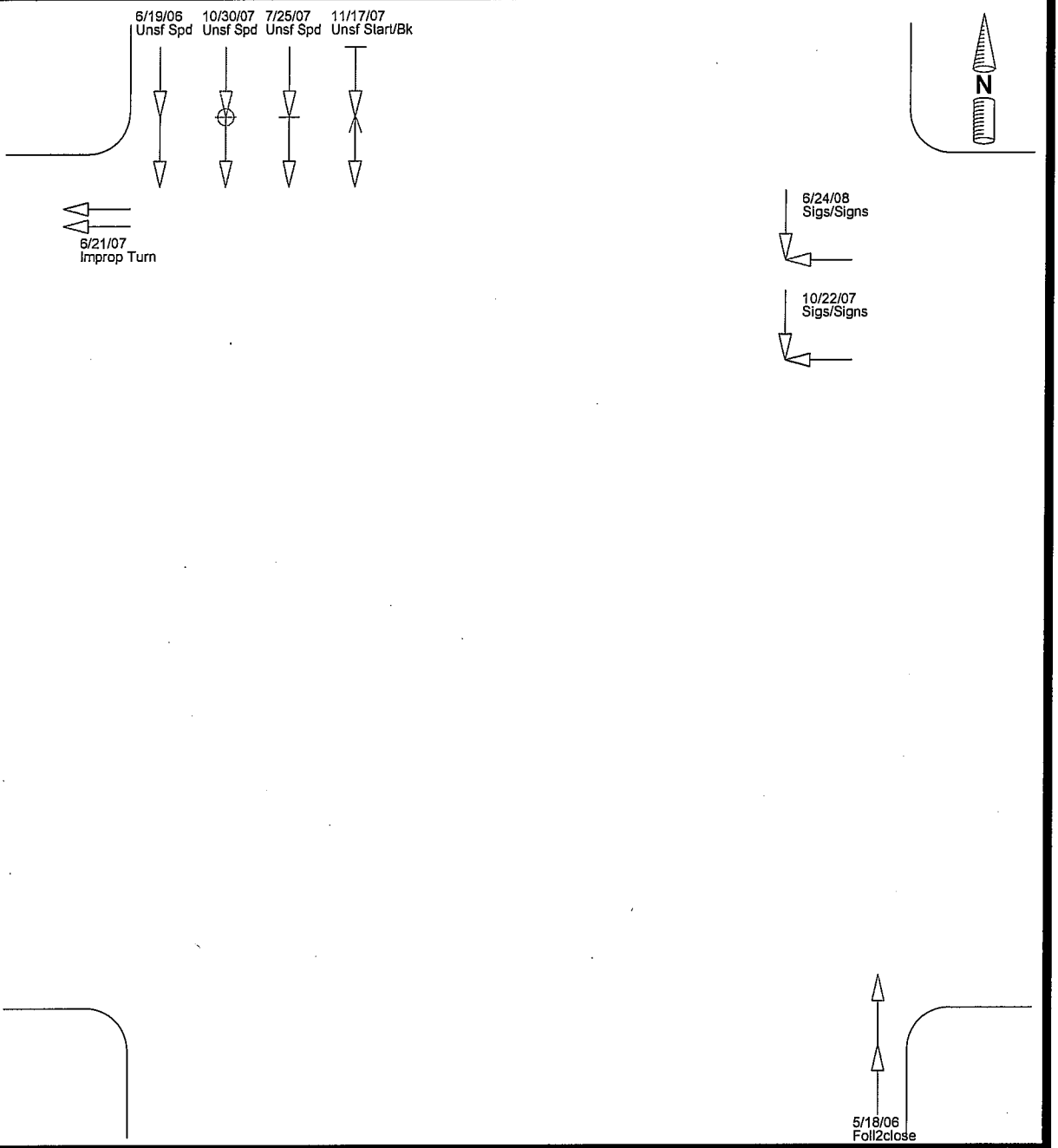
Collision Diagram

Horizontal Street: LAKESIDE DR (1)

Vertical Street: HARRISON ST

From: 1/1/2006 **To:** 12/31/2008

Date Prepared: 8/27/2009



Number of Collisions

7	Property Damage Only
1	Injury Collisions
0	Fatal Collisions
8	Total Collisions

Legend

- Moving Vehicle
- Stopped Vehicle
- Backing Vehicle
- Ran Off Road
- Movement Unknown
- Right Turn
- Left Turn
- Sideswipe
- Day
- Night
- Pedestrian
- Fixed Object
- Bicycle
- DUI
- Injury
- Fatal

Color Legend - Highest Degree of Injury

Maroon = Fatal

Purple = Severe Injury

Green = Other Visible Injury

Teal = Complaint of Pain

Dark Blue = Property Damage Only

Settings Used For Query

Parameter	Setting
Street Name	HARRISON ST
Cross Street	LAKESIDE DR (1)
Starting Date	1/1/2006
Ending Date	12/31/2008
Intersection	Intersection Related

City of Oakland
Traffic Engineering Department
Traffic Collision History Report

Location: Harrison St / Lakeside Dr (4)
Date Range Reported: 1/1/2006 - 12/31/2008
Total Number of Collisions: 6

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2567432	4/6/06	08:00	0	In Int.	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	South	Changing Lanes	Improper Turning	0	0
2632256	5/22/06	18:15	15	North	Hit Object	Other Object	West	Proceeding Straight			Other	0	0
2922144	12/3/06	02:26	12	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	0	0
2926200	12/4/06	11:58	0	In Int.	Head-On	Other Motor Vehicle	East	Making Left Turn	South	Proceeding Straight	Wrong Side of Road	0	0
3236458	6/20/07	23:19	10	South	Rear-End	Other Motor Vehicle	North	Stopped in Road	North	Proceeding Straight	Unsafe Speed	0	0
3430124	10/13/07	01:35	0	In Int.	Rear-End	Other Motor Vehicle	East	Stopped in Road	East	Proceeding Straight	Unsafe Speed	0	0

City of Oakland
Traffic Engineering Department
Traffic Collision History Report

Location: Harrison St / Lakeside Dr (4)
Date Range Reported: 1/1/2006 - 12/31/2008
Total Number of Collisions: 6

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 6

Settings Used For Query

Parameter	Setting
Street Name	HARRISON ST
Cross Street	LAKESIDE DR (4)
Starting Date	1/1/2006
Ending Date	12/31/2008
Intersection	Intersection Related

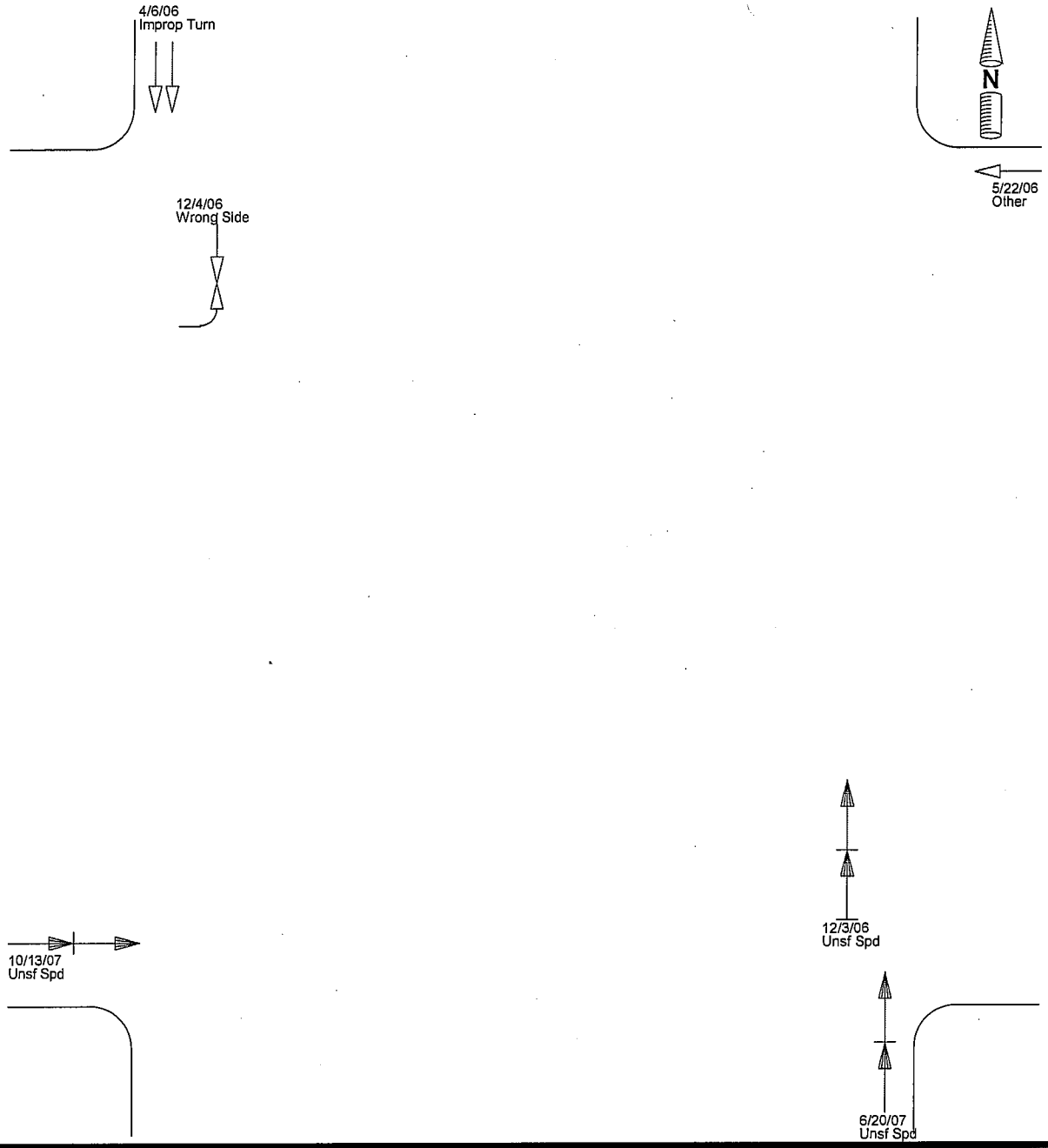
Collision Diagram

Horizontal Street: HARRISON ST

Vertical Street: LAKESIDE DR (4)

From: 1/1/2006 To: 12/31/2008

Date Prepared: 8/27/2009



Number of Collisions

6 Property Damage Only
0 Injury Collisions
0 Fatal Collisions
6 Total Collisions

Legend

- Moving Vehicle
- Stopped Vehicle
- Backing Vehicle
- Ran Off Road
- Movement Unknown
- Right Turn
- Left Turn
- Sideswipe
- Day
- Night
- Pedestrian
- Fixed Object
- Bicycle
- DUI
- Injury
- Fatal

Color Legend - Highest Degree of Injury

Maroon = Fatal

Purple = Severe Injury

Green = Other Visible Injury

Teal = Complaint of Pain

Dark Blue = Property Damage Only

Settings Used For Query

Parameter	Setting
Street Name	HARRISON ST
Cross Street	LAKESIDE DR (4)
Starting Date	1/1/2006
Ending Date	12/31/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division

Traffic Collision History Report

Location: Lakeside Drive / 20th Street
Date Range Reported: 10/1/2003 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1447122	6/5/04	19:00	1	South	Sideswipe	Other Motor Vehicle	North	Making Right Turn	North	Stopped in Road	Improper Turning	0	0
1546029	7/29/04	11:00	40	North	Rear-End	Other Motor Vehicle	South	Stopped in Road	South	Stopped in Road	Unsafe Speed	0	0
2687144	6/19/06	12:29	15	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Proceeding Straight	Unsafe Speed	0	0

Total Number of Collisions: 3

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Brush Street / 18th Street
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
0548257	12/8/02	11:00	0	In Int.	Not Stated	Other Motor Vehicle	West	Making Left Turn	South	Proceeding Straight	Unknown	0	0
0659880	2/3/03	14:25	10	North	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Other	0	0
0688743	2/8/03	10:10	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Unknown	0	0
0696320	2/24/03	16:49	0	In Int.	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Speed	1	0
0688448	2/28/03	20:21	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Making Left Turn	Traffic Signals and Signs	0	0
1046135	9/29/03	08:40	15	South	Hit Object	Fixed Object	South	Not Stated			Unknown	1	0
1058994	10/7/03	16:15	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Auto R/W Violation	1	0
1063211	10/16/03	16:26	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1097697	10/30/03	17:45	0	In Int.	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Speed	1	0
1097694	11/2/03	11:28	0	In Int.	Broadside	Motor Vehicle on Other	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1132356	11/8/03	23:10	0	In Int.	Broadside	Pedestrian	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1305667	3/2/04	12:25	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1355821	3/12/04	08:45	22	South	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Hazardous Parking	1	0
1372983	4/7/04	10:59	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	1	0
1390251	4/13/04	14:01	24	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Speed	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Brush Street / 18th Street
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1528240	5/13/04	15:40	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1446900	5/29/04	23:45	0	In Int.	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1466381	6/7/04	08:22	50	North	Sideswipe	Other Motor Vehicle	South	Changing Lanes	South	Proceeding Straight	Improper Turning	0	0
1541997	7/18/04	12:25	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
1652761	9/23/04	16:45	0	In Int.	Vehicle - Pedestrian	Pedestrian	South	Making Left Turn	West	Other	Ped R/W Violation	1	0
1795615	12/9/04	14:55	11	West	Vehicle - Pedestrian	Pedestrian	West	Proceeding Straight	North	Proceeding Straight	Ped R/W Violation	1	0
1987220	4/9/05	10:53	20	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Proceeding Straight	Unsafe Speed	1	0
2012200	4/29/05	17:05	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
2014611	5/8/05	10:54	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	2	0
2058903	5/25/05	11:00	0	In Int.	Sideswipe	Other Motor Vehicle	South	Changing Lanes	South	Proceeding Straight	Improper Turning	0	0
2070723	6/6/05	13:25	0	In Int.	Broadside	Non-Collision	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	3	0
2101260	6/17/05	11:55	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
2241154	9/17/05	10:30	0	In Int.	Sideswipe	Other Motor Vehicle	South	Changing Lanes	South	Slowing/Stopping	Improper Turning	0	0
2279151	9/24/05	14:21	10	West	Broadside	Not Stated	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
2388202	12/2/05	10:20	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Brush Street / 18th Street
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2484603	1/27/06	19:45	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
2651068	5/13/06	13:32	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2687186	6/18/06	14:45	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2946019	12/15/06	16:30	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
2985814	12/17/06	02:30	0	In Int.	Hit Object	Fixed Object	South	Proceeding Straight			Unsafe Speed	0	0
2985805	1/11/07	13:58	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
3011385	1/23/07	15:32	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
3109001	3/19/07	11:00	0	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	South	Proceeding Straight	Improper Turning	1	0
3346879	8/25/07	09:23	0	In Int.	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Speed	0	0
3359577	8/30/07	14:08	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
3353224	9/18/07	14:45	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Brush Street / 18th Street
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 41

Settings Used For Query

Parameter	Setting
Street Name	Brush Street
Cross Street	18th Street
Starting Date	10/1/2002
Ending Date	9/30/2007
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Castro Street / 17th Street
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
0461031	10/10/02	16:10	0	In Int.	Broadside	Bicycle	West	Proceeding Straight	East	Making Left Turn	Wrong Side of Road	1	0
0558332	12/21/02	15:30	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
0776458	1/18/03	20:30	0	In Int.	Sideswipe	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Unknown	0	0
0620514	1/21/03	18:25	0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Right Turn	North	Making Right Turn	Unsafe Lane Change	0	0
0665304	2/18/03	10:20	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	East	Making Left Turn	Unknown	0	0
0688451	2/27/03	17:30	0	In Int.	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	0	0
0840658	5/22/03	14:35	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Unknown	0	0
1094254	9/18/03	21:42	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
1149365	11/19/03	07:10	0	In Int.	Sideswipe	Other Motor Vehicle	East	Making Left Turn	East	Making Left Turn	Unknown	1	0
1191533	12/19/03	14:25	0	In Int.	Broadside	Other Motor Vehicle	North	Entering Traffic	West	Proceeding Straight	Auto R/W Violation	0	0
1201017	1/1/04	14:30	20	South	Sideswipe	Other Motor Vehicle	North	Making Right Turn	North	Proceeding Straight	Improper Turning	0	0
1377814	3/22/04	07:00	0	In Int.	Sideswipe	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
1383265	4/3/04	00:00	0	In Int.	Broadside	Other Motor Vehicle	East	Making Right Turn	North	Not Stated	Traffic Signals and Signs	1	0
1472121	4/3/04	23:46	0	In Int.	Broadside	Other Motor Vehicle	East	Making Right Turn	North	Proceeding Straight	Traffic Signals and Signs	1	0
1389348	4/21/04	22:45	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Other Hazardous Movement	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Castro Street / 17th Street
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1389426	4/22/04	14:50	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
1525801	5/3/04	11:15	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Unknown	3	0
1624837	9/13/04	08:50	0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Left Turn	East	Proceeding Straight	Improper Turning	0	0
1688050	10/10/04	06:20	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
1810578	12/26/04	12:00	20	West	Sideswipe	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Improper Turning	0	0
2043887	5/11/05	17:50	0	In Int.	Sideswipe	Other Motor Vehicle	East	Proceeding Straight	North	Making Left Turn	Improper Turning	0	0
2077705	6/13/05	07:30	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2077738	6/14/05	23:30	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2342227	10/17/05	12:46	0	In Int.	Sideswipe	Motor Vehicle on Other	North	Proceeding Straight	East	Proceeding Straight	Unknown	1	0
2348295	11/11/05	07:32	0	In Int.	Sideswipe	Other Motor Vehicle	East	Proceeding Straight	East	Proceeding Straight	Unknown	0	0
2388223	12/3/05	10:54	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	1	0
2489901	2/1/06	11:30	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2567375	4/6/06	13:44	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2687164	6/18/06	21:47	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2845868	10/14/06	00:40	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Castro Street / 17th Street
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2856514	10/21/06	14:12	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
3298902	8/1/07	07:35	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	1	0

Total Number of Collisions: 32

Settings Used For Query

Parameter	Setting
Street Name	Castro Street
Cross Street	17th Street
Starting Date	10/1/2002
Ending Date	9/30/2007
Intersection	Intersection Related

City of Oakland
Transportation Services Division

Traffic Collision History Report

Location: Castro Street / 12th Street
Date Range Reported: 10/1/2003 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1056682	10/9/03	18:20	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Making Right Turn	Improper Turning	0	0
1093232	10/27/03	11:29	50	South	Rear-End	Other Motor Vehicle	South	Backing	North	Stopped in Road	Unsafe Starting or Backing	0	0
1097616	10/31/03	15:22	0	In Int.	Sideswipe	Other Motor Vehicle	West	Making Right Turn	West	Making Right Turn	Unknown	0	0
1191612	12/20/03	20:30	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	West	Making Right Turn	Other Hazardous Movement	0	0
1191597	12/20/03	21:30	0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Right Turn	North	Making Right Turn	Improper Turning	0	0
1221905	1/6/04	16:45	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
1248691	1/12/04	12:00	0	In Int.	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Making Right Turn	Other Hazardous Movement	0	0
1291767	2/14/04	14:30	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	West	Making Right Turn	Other	0	0
1388292	3/22/04	08:05	0	In Int.	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Proceeding Straight	Improper Turning	0	0
1381098	3/29/04	16:00	0	In Int.	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Making Right Turn	Other Hazardous Movement	0	0
1472171	5/16/04	01:00	0	In Int.	Sideswipe	Other Motor Vehicle	West	Ran Off Road	West	Ran Off Road	Unknown	0	0

1510616	6/18/04	11:30	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
1647766	7/16/04	14:36	0	In Int.	Sideswipe	Other Motor Vehicle	West	Making Right Turn	West	Making Right Turn	Improper Turning	0	0
1590951	8/18/04	17:55	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	2	0
1714577	11/6/04	09:00	0	In Int.	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Making Right Turn	Improper Turning	0	0
1714881	11/9/04	14:32	0	In Int.	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Making Right Turn	Improper Turning	0	0
2043903	5/10/05	10:10	21	North	Sideswipe	Other Motor Vehicle	North	Changing Lanes	North	Proceeding Straight	Unsafe Lane Change	0	0
2059414	5/30/05	19:45	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2178977	8/4/05	17:30	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	West	Making Right Turn	Improper Turning	0	0
2178965	8/5/05	22:30	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
2209408	8/31/05	16:45	0	In Int.	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Making Right Turn	Other Hazardous Movement	0	0
2257345	9/30/05	15:00	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2361607	11/28/05	13:13	0	In Int.	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Making Right Turn	Other Hazardous Movement	0	0
2467634	2/3/06	09:50	0	In Int.	Sideswipe	Other Motor Vehicle	Not Stated	Proceeding Straight	West	Proceeding Straight	Improper Turning	0	0
2683950	5/31/06	09:35	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2687209	6/21/06	07:09	0	In Int.	Broadside	Motor Vehicle on Other Roadway	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
2703663	6/30/06	00:05	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Other Improper Driving	0	0

2971258	12/16/06	15:00	0	In Int.	Sideswipe	Other Motor Vehicle	West	Making Right Turn	West	Making Right Turn	Unsafe Lane Change	0	0
3010361	1/14/07	20:50	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
3011300	1/19/07	23:00	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
3092866	3/8/07	11:10	0	In Int.	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Auto R/W Violation	0	0
3255844	7/3/07	16:40	0	In Int.	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Making Right Turn	Improper Turning	0	0
3283201	7/20/07	10:59	27	West	Broadside	Other Motor Vehicle	West	Making Right Turn	North	Proceeding Straight	Auto R/W Violation	0	0
3283205	7/20/07	14:00	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	West	Making Right Turn	Improper Turning	0	0
3325130	7/28/07	17:10	0	In Int.	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Making Right Turn	Improper Turning	0	0

Total Number of Collisions: 35

City of Oakland
Transportation Services Division

Traffic Collision History Report

Location: Brush Street / 11th Street
Date Range Reported: 10/1/2003 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1058399	10/4/03	07:48	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	1	0
1145720	11/18/03	09:25	0	In Int.	Sideswipe	Other Motor Vehicle	South	Making Left Turn	South	Making Left Turn	Other Hazardous Movement	0	0
1356274	4/4/04	15:00	0	In Int.	Broadside	Other Motor Vehicle	Not Stated	Proceeding Straight	South	Making Left Turn	Improper Turning	0	0
1597234	7/6/04	10:05	25	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Starting or Backing	0	0
1524963	7/13/04	19:57	0	In Int.	Hit Object	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Other Hazardous Movement	0	0
1624841	9/13/04	08:00	0	In Int.	Broadside	Not Stated	Not Stated	Proceeding Straight	East	Making Left Turn	Improper Turning	0	0
2205435	8/27/05	10:15	0	In Int.	Sideswipe	Other Motor Vehicle	South	Making Left Turn	South	Making Left Turn	Improper Turning	0	0
2585836	4/20/06	10:23	0	In Int.	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	South	Making Left Turn	Improper Turning	0	0
2671941	6/10/06	12:58	0	In Int.	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Starting or Backing	1	0
2688941	6/22/06	17:15	15	East	Sideswipe	Other Motor Vehicle	East	Making Left Turn	East	Making Left Turn	Improper Turning	0	0
3317290	8/13/07	10:06	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	1	0

Total Number of Collisions: 11

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Oak Street / 14th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2005149	5/8/05	01:10	0	In Int.	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Stopped in Road	Unsafe Speed	0	0
2070731	6/6/05	14:22	0	In Int.	Broadside	Other Motor Vehicle	West	Making Left Turn	East	Proceeding Straight	Other Hazardous Movement	1	0
2329313	11/5/05	17:21	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2537563	3/19/06	22:25	86	West	Rear-End	Parked Motor Vehicle	East	Proceeding Straight	East	Parked	Improper Turning	0	0
2830483	10/8/06	09:40	0	In Int.	Broadside	Other Motor Vehicle	East	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	2	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Oak Street / 14th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 5

Settings Used For Query

Parameter	Setting
Street Name	Oak Street
Cross Street	14th Street
Starting Date	10/1/2004
Ending Date	9/30/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Madison Street / 14th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1993668	4/21/05	09:00	0	In Int.	Hit Object	Fixed Object	South	Ran Off Road			Other Than Driver or Ped	1	0
2074444	6/4/05	08:32	0	In Int.	Sideswipe	Other Motor Vehicle	East	Making Left Turn	East	Making Left Turn	Improper Turning	0	0
2245931	9/23/05	02:15	30	East	Head-On	Fixed Object	West	Ran Off Road			Improper Turning	0	0
2337956	10/31/05		0	In Int.	Not Stated	Other Motor Vehicle	South	Making Left Turn	South	Making Left Turn	Unsafe Lane Change	0	0
2308195	10/31/05		0	In Int.	Sideswipe	Parked Motor Vehicle	East	Proceeding Straight	East	Parked	Unsafe Speed	0	0
2360042	11/27/05	15:30	0	In Int.	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	South	Making Left Turn	Other Hazardous Movement	0	0
2632338	5/17/06	13:55	39	East	Sideswipe	Parked Motor Vehicle	West	Proceeding Straight	West	Merging	Improper Turning	0	0
3056526	2/21/07	11:30	0	In Int.	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	South	Making Left Turn	Other Hazardous Movement	0	0
3095061	3/22/07	17:15	15	East	Rear-End	Other Motor Vehicle	East	Slowing/Stopping	East	Slowing/Stopping	Unsafe Speed	0	0
3346832	8/25/07	11:29	0	In Int.	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	South	Making Right Turn	Improper Turning	0	0
3377718	9/10/07	00:11	0	In Int.	Sideswipe	Other Motor Vehicle	South	Making Left Turn	South	Proceeding Straight	Improper Turning	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Madison Street / 14th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 11

Settings Used For Query

Parameter	Setting
Street Name	Madison Street
Cross Street	14th Street
Starting Date	10/1/2004
Ending Date	9/30/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division

Traffic Collision History Report

Location: Harrison Street / 14th Street
Date Range Reported: 10/1/2003 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1137150	11/6/03	08:25	0	In Int.	Sideswipe	Non-Collision	East	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	0	0
1137103	11/14/03	17:15	0	In Int.	Broadside	Not Stated	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
1149370	11/26/03	14:50	0	In Int.	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Proceeding Straight	Unsafe Speed	0	0
1173841	12/17/03	20:10	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	1	0
1191593	12/20/03	09:30	0	In Int.	Rear-End	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1103175	12/31/03	20:25	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1248773	1/20/04	13:20	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
1291768	2/16/04	07:55	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	2	0
1735094	11/11/04	13:10	0	In Int.	Broadside	Other Motor Vehicle	East	Backing	South	Proceeding Straight	Unsafe Starting or Backing	0	0
1752910	11/18/04	08:55	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
1767078	12/2/04	17:23	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	1	0
1997489	4/20/05	09:00	10	Not Stated	Broadside	Parked Motor Vehicle	North	Proceeding Straight	Not Stated	Parked	Improper Turning	0	0

2059367	5/30/05	15:32	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	2	0
2195034	8/24/05	08:02	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Other	1	0
2329309	11/5/05	15:41	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2467605	2/3/06	09:55	0	In Int.	Head-On	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2467617	2/3/06	18:24	0	In Int.	Broadside	Other Motor Vehicle	East	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	1	0
2515604	3/6/06	14:20	10	East	Vehicle - Pedestrian	Pedestrian	East	Making Left Turn	South	Other	Ped R/W Violation	1	0
2591342	4/20/06	12:40	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2835884	10/11/06	00:32	0	In Int.	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Stopped in Road	Unsafe Speed	0	0
2891469	11/11/06	14:40	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	3	0
2946059	12/17/06	10:10	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	3	0
2968528	12/24/06	09:58	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
3302810	7/29/07	21:30	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
3298961	7/30/07	20:08	45	East	Sideswipe	Parked Motor Vehicle	West	Proceeding Straight	West	Parked	Improper Turning	0	0
3322565	8/1/07	20:55	30	South	Sideswipe	Other Motor Vehicle	North	Changing Lanes	North	Proceeding Straight	Unsafe Lane Change	0	0

Total Number of Collisions: 26

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Madison Street / 12th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2059421	5/27/05	11:40	0	In Int.	Broadside	Motor Vehicle on Other	South	Proceeding Straight	West	Making Left Turn	Traffic Signals and Signs	0	0
2057934	5/31/05	08:15	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	2	0
2870504	10/28/06	02:11	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Making Left Turn	Traffic Signals and Signs	1	0
3020396	1/24/07	13:48	20	South	Sideswipe	Parked Motor Vehicle	South	Making Left Turn	South	Parked	Improper Turning	0	0
3056498	2/23/07	12:43	0	In Int.	Vehicle - Pedestrian	Pedestrian	West	Making Left Turn	North	Not Stated	Ped R/W Violation	1	0
3330321	8/23/07	19:00	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Madison Street / 12th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 6

Settings Used For Query

Parameter	Setting
Street Name	Madison Street
Cross Street	12th Street
Starting Date	10/1/2004
Ending Date	9/30/2008
Intersection	Intersection Related

City of Oakland
Traffic Engineering Department
Traffic Collision History Report

Location: Oak St / 12th St
Date Range Reported: 1/1/2006 - 12/31/2008
Total Number of Collisions: 17

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2579363	4/12/06	11:27	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
2688917	6/15/06	12:11	0	In Int.	Vehicle - Pedestrian	Pedestrian	South	Traveling Wrong Way	East	Not Stated	Other Hazardous Movement	2	0
2693331	6/26/06	22:34	0	In Int.	Overturned	Motor Vehicle on Other	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
3042957	2/18/07	09:00	0	In Int.	Vehicle - Pedestrian	Pedestrian	North	Not Stated	North	Making Left Turn	Ped R/W Violation	1	0
3179786	4/20/07	09:20	6	West	Sideswipe	Other Motor Vehicle	West	Making Left Turn	West	Stopped in Road	Improper Turning	4	0
3467809	11/2/07	16:00	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
3446072	11/13/07	07:07	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
3488152	12/3/07	18:30	0	In Int.	Vehicle - Pedestrian	Pedestrian	North	Proceeding Straight	North	Making Left Turn	Ped R/W Violation	1	0
3518505	12/14/07	14:45	44	East	Rear-End	Other Motor Vehicle	West	Stopped in Road	West	Proceeding Straight	Unsafe Speed	0	0
3569495	1/6/08	13:58	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
3569455	1/15/08	11:20	0	In Int.	Broadside	Other Motor Vehicle	North	Stopped in Road	West	Stopped in Road	Traffic Signals and Signs	1	0
3603741	1/29/08	17:40	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
3610647	2/26/08	15:35	0	In Int.	Broadside	Other Motor Vehicle	North	Making Left Turn	West	Proceeding Straight	Traffic Signals and Signs	0	0
3657107	3/18/08	07:05	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0

City of Oakland
Traffic Engineering Department
Traffic Collision History Report

Location: Oak St / 12th St
Date Range Reported: 1/1/2006 - 12/31/2008
Total Number of Collisions: 17

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
3716578	4/16/08	08:23	0	In Int.	Broadside	Motor Vehicle on Other	North	Making Left Turn	West	Proceeding Straight	Traffic Signals and Signs	0	0
3737244	5/7/08	10:00	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
3744899	5/23/08	17:51	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0

Total Number of Collisions: 17

Settings Used For Query

Parameter	Setting
Street Name	OAK ST
Cross Street	12TH ST
Starting Date	1/1/2006
Ending Date	12/31/2008
Intersection	Intersection Related

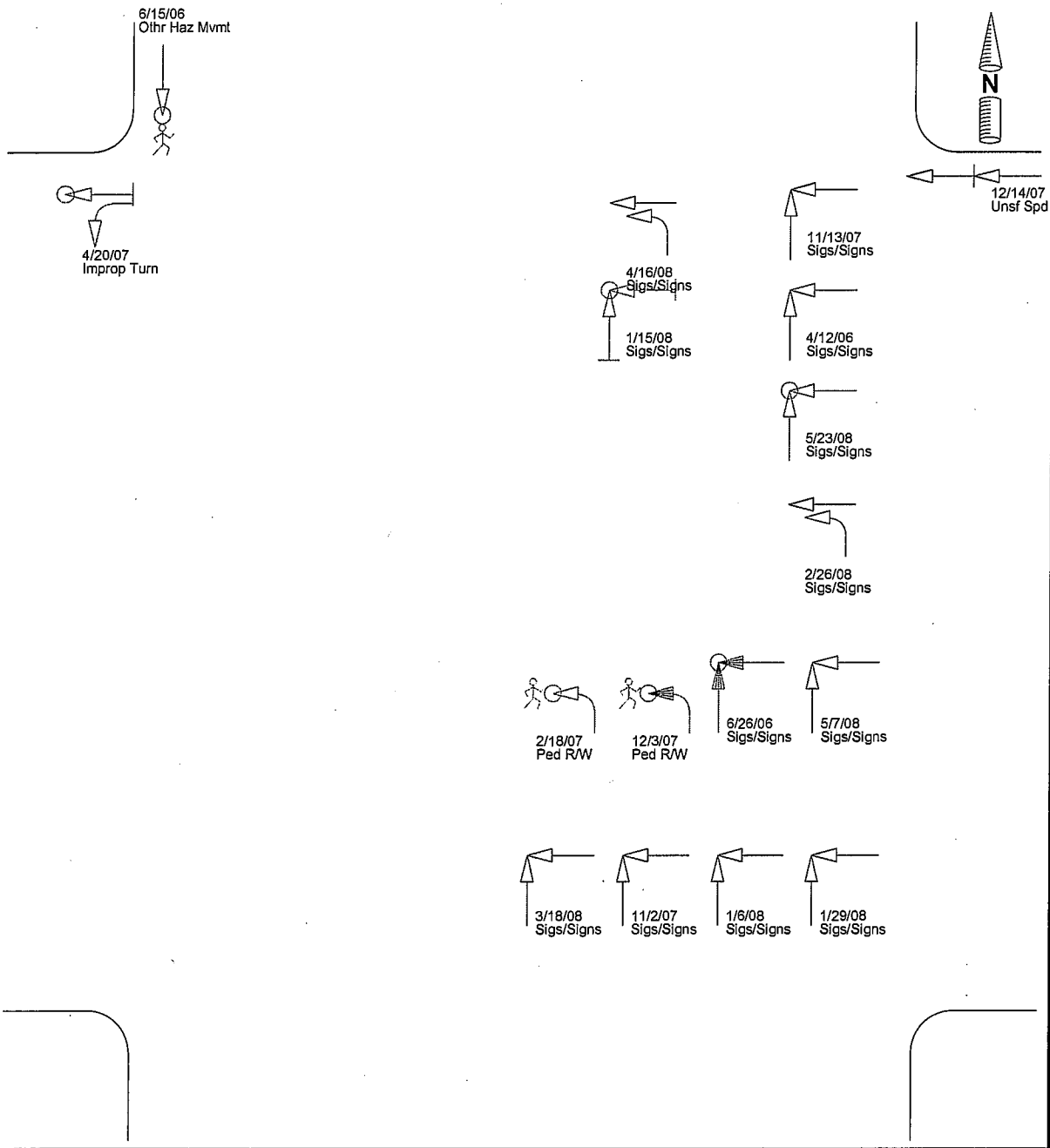
Collision Diagram

Horizontal Street: 12TH ST

Vertical Street: OAK ST

From: 1/1/2006 To: 12/31/2008

Date Prepared: 8/27/2009



Number of Collisions

10	Property Damage Only
7	Injury Collisions
0	Fatal Collisions
17	Total Collisions

Legend

- Moving Vehicle
- Stopped Vehicle
- Backing Vehicle
- Ran Off Road
- Movement Unknown
- Right Turn
- Left Turn
- Sideswipe
- Day
- Night
- Pedestrian
- Fixed Object
- Bicycle
- DUI
- Injury
- Fatal

Color Legend - Highest Degree of Injury

Maroon = Fatal

Purple = Severe Injury

Green = Other Visible Injury

Teal = Complaint of Pain

Dark Blue = Property Damage Only

Settings Used For Query

Parameter	Setting
Street Name	OAK ST
Cross Street	12TH ST
Starting Date	1/1/2006
Ending Date	12/31/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Oak Street / 11th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1735090	11/11/04	23:00	0	In Int.	Sideswipe	Fixed Object	East	Proceeding Straight			Improper Turning	0	0

Total Number of Collisions: 1

Settings Used For Query

Parameter	Setting
Street Name	Oak Street
Cross Street	11th Street
Starting Date	10/1/2004
Ending Date	9/30/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Madison Street / 11th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2515430	2/26/06	18:41	0	In Int.	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2817432	10/2/06	18:45	0	In Int.	Broadside	Other Motor Vehicle	East	Making Left Turn	South	Proceeding Straight	Improper Turning	0	0
2871787	10/30/06	19:53	0	In Int.	Broadside	Motor Vehicle on Other	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0

Total Number of Collisions: 3

Settings Used For Query

Parameter	Setting
Street Name	Madison Street
Cross Street	11th Street
Starting Date	10/1/2004
Ending Date	9/30/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division

Traffic Collision History Report

Location: Franklin Street / 11th Street
Date Range Reported: 10/1/2003 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1590952	8/18/04	16:35	0	In Int.	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Unsafe Speed	0	0
1649022	9/9/04	11:10	8	East	Vehicle - Pedestrian	Not Stated	North	Other	East	Proceeding Straight	Traffic Signals and Signs	1	0
1993603	4/14/05	16:55	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Other	0	0
2268629	10/10/05	08:30	20	East	Sideswipe	Other Motor Vehicle	East	Changing Lanes	East	Proceeding Straight	Improper Turning	0	0
2692800	6/27/06	13:45	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2942441	12/12/06	15:25	0	In Int.	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	0	0
3373628	9/18/07	03:35	36	North	Head-On	Fixed Object	North	Proceeding Straight			Unsafe Speed	0	0

Total Number of Collisions: 7

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Oak Street / 7th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1821655	12/29/04	15:55	0	In Int.	Not Stated	Not Stated	East	Making Left Turn	East	Proceeding Straight	Improper Turning	1	0
2122698	7/1/05	23:20	20	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	1	0
2225794	9/2/05	13:10	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2438546	10/15/05	14:45	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	1	0
2494133	2/22/06	10:42	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2660526	5/15/06	06:00	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2822896	10/3/06	04:50	0	In Int.	Broadside	Motor Vehicle on Other	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	1	0
3002151	1/20/07	10:05	0	In Int.	Sideswipe	Other Motor Vehicle	Not Stated	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Oak Street / 7th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 8

Settings Used For Query

Parameter	Setting
Street Name	Oak Street
Cross Street	7th Street
Starting Date	10/1/2004
Ending Date	9/30/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Madison Street / 7th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1703391	10/29/04	18:25	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2121534	6/23/05	18:09	45	West	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Unsafe Speed	1	0
2205406	8/28/05	04:03	15	South	Rear-End	Parked Motor Vehicle	South	Proceeding Straight	South	Parked	Improper Turning	0	0
2265787	10/9/05	11:40	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2359984	11/25/05	10:00	0	In Int.	Sideswipe	Other Motor Vehicle	East	Merging	East	Proceeding Straight	Unsafe Speed	0	0
2511822	2/18/06	20:13	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2511801	2/21/06	16:45	0	In Int.	Sideswipe	Other Motor Vehicle	South	Making Left Turn	South	Proceeding Straight	Improper Turning	0	0
2544572	3/22/06	01:14	0	In Int.	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Speed	0	0
2703719	6/25/06	11:29	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2985892	1/13/07	14:26	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
3042915	2/3/07	12:53	0	In Int.	Sideswipe	Other Motor Vehicle	East	Changing Lanes	East	Proceeding Straight	Unsafe Lane Change	0	0
3260257	7/7/07	07:40	30	South	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	South	Proceeding Straight	Improper Turning	0	0
3388414	9/22/07	15:49	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	4	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Madison Street / 7th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 13

Settings Used For Query

Parameter	Setting
Street Name	Madison Street
Cross Street	7th Street
Starting Date	10/1/2004
Ending Date	9/30/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division

Traffic Collision History Report

Location: Jackson Street / 6th Street
Date Range Reported: 10/1/2003 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1097681	10/30/03	14:00	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
1137117	11/15/03	11:29	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1160662	12/8/03	10:30	0	In Int.	Broadside	Other Motor Vehicle	South	Not Stated	West	Not Stated	Traffic Signals and Signs	0	0
1173814	12/14/03	17:10	0	In Int.	Head-On	Other Motor Vehicle	West	Making Left Turn	South	Proceeding Straight	Improper Turning	2	0
1103226	12/29/03	19:20	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	1	0
1214642	1/7/04	11:34	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	1	0
1291020	2/7/04	10:00	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1291799	2/15/04	08:30	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
1417460	5/7/04	11:53	0	In Int.	Head-On	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
1473896	6/15/04	12:30	75	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Speed	0	0
1485243	6/17/04	15:45	0	In Int.	Rear-End	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	1	0

1514259	6/25/04	16:45	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
1572137	7/27/04	08:40	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1652652	9/22/04	20:55	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
1659043	10/3/04	11:45	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1703379	10/28/04	17:00	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1764700	12/6/04	17:50	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	1	0
1987243	4/7/05	13:35	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
1997470	4/18/05	21:50	0	In Int.	Sideswipe	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	0	0
1998192	5/2/05	13:25	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
2031905	5/19/05	18:20	0	In Int.	Sideswipe	Other Motor Vehicle	West	Slowing/Stopping	North	Proceeding Straight	Traffic Signals and Signs	0	0
2186166	8/18/05	20:05	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2304430	10/2/05	15:42	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
2396867	12/26/05	19:00	0	In Int.	Broadside	Motor Vehicle on Other Roadway	West	Proceeding Straight	North	Proceeding Straight	Unknown	0	0
2563542	4/3/06	06:40	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	1	0
2687202	6/22/06	12:25	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
2845846	10/13/06	01:00	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0

2845916	10/15/06	14:00	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	1	0
3009851	1/3/07	22:55	60	East	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Stopped in Road	Unsafe Speed	0	0
3026970	1/30/07	13:49	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
3078715	3/10/07	11:25	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	1	0
3092653	3/16/07	18:45	0	In Int.	Sideswipe	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0

Total Number of Collisions: 32

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Oak Street / Route 880 Wb Offramp
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2409483	1/8/06	16:13	0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Right Turn	North	Making Right Turn	Improper Turning	0	0
2513696	3/8/06	15:55	0	In Int.	Sideswipe	Other Motor Vehicle	West	Making Right Turn	West	Making Right Turn	Other Hazardous Movement	0	0
2674224	5/27/06	23:25	0	In Int.	Rear-End	Other Motor Vehicle	North	Proceeding Straight	West	Entering Traffic	Traffic Signals and Signs	0	0
2871807	10/31/06	19:00	0	In Int.	Broadside	Not Stated	West	Proceeding Straight	North	Proceeding Straight	Unsafe Speed	0	0
3331298	8/17/07	10:45	0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Right Turn	North	Making Right Turn	Unknown	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Oak Street / Route 880 Wb Offramp
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 5

Settings Used For Query

Parameter	Setting
Street Name	Oak Street
Cross Street	Route 880 Wb Offramp
Starting Date	10/1/2004
Ending Date	9/30/2008
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Oak Street / 5th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1757723	11/25/04	00:09	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2074443	5/31/05	12:00	0	In Int.	Not Stated	Other Motor Vehicle	East	Making Left Turn	East	Proceeding Straight	Unknown	0	0
2086245	6/18/05	21:30	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2211417	9/3/05	14:00	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2241221	9/10/05	09:30	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2342208	10/18/05	09:00	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2348279	11/11/05	18:30	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2484635	1/30/06	14:02	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2660495	5/13/06	14:15	0	In Int.	Sideswipe	Other Motor Vehicle	East	Making Left Turn	East	Proceeding Straight	Improper Turning	1	0
2671937	6/10/06	15:28	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	1	0
2687233	6/21/06	13:18	0	In Int.	Broadside	Other Motor Vehicle	East	Making Left Turn	East	Proceeding Straight	Improper Turning	0	0
2871796	10/23/06	09:14	0	In Int.	Sideswipe	Other Motor Vehicle	East	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2942459	12/1/06	12:40	0	In Int.	Hit Object	Fixed Object	South	Proceeding Straight			Other Hazardous Movement	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Oak Street / 5th Street
Date Range Reported: 10/1/2004 - 9/30/2008

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 13

Settings Used For Query

Parameter	Setting
Street Name	Oak Street
Cross Street	5th Street
Starting Date	10/1/2004
Ending Date	9/30/2008
Intersection	Intersection Related

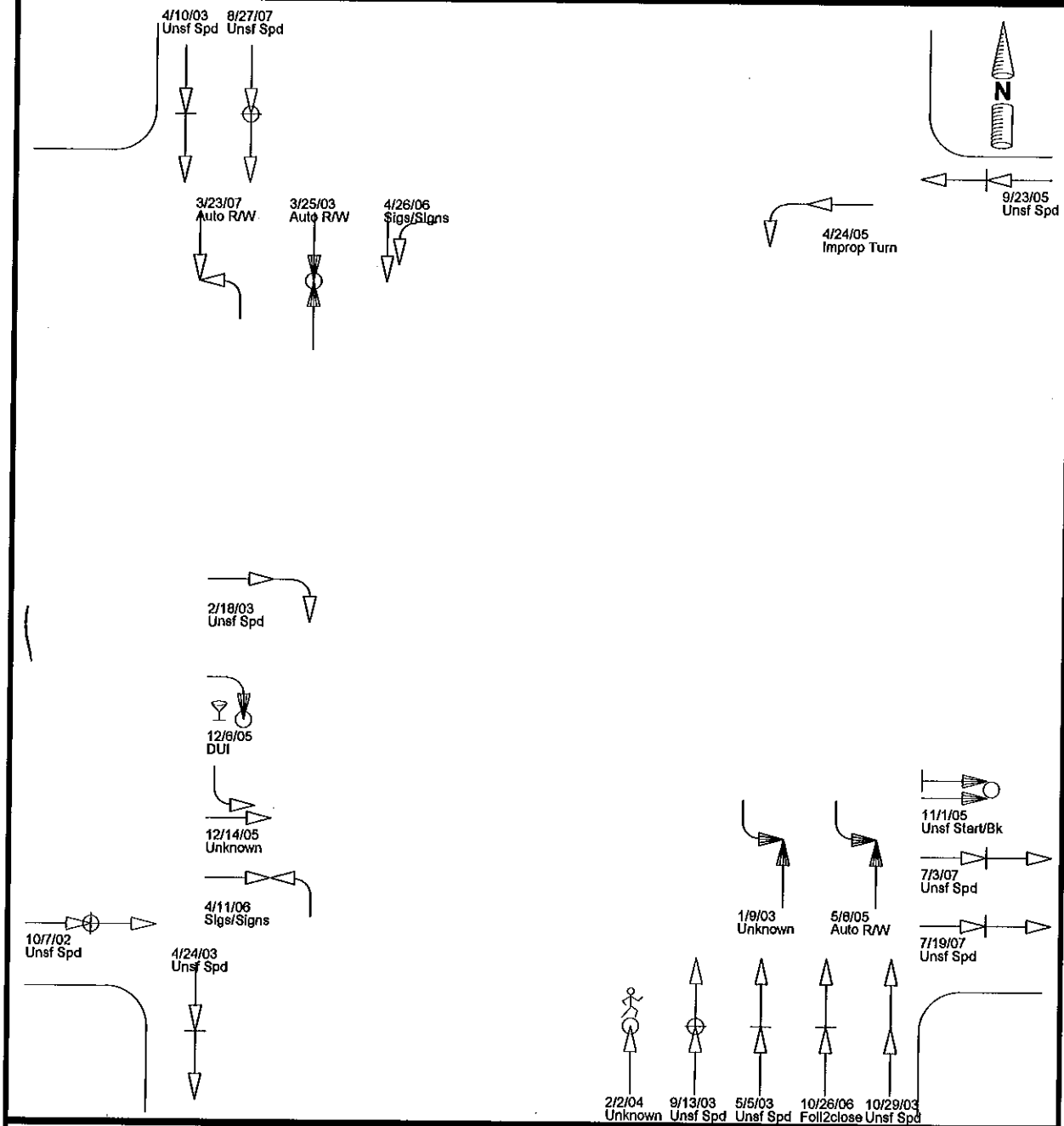
Collision Diagram

Horizontal Street: GRAND AVENUE

Vertical Street: EL EMBARCADERO

From: 10/1/2002 To: 9/30/2007

Date Prepared: 4/22/2009



Number of Collisions

18	Property Damage Only
7	Injury Collisions
0	Fatal Collisions
25	Total Collisions

Collisions Not Plotted: 2

Legend

- Moving Vehicle
- Stopped Vehicle
- Backing Vehicle
- Ran Off Road
- Movement Unknown
- Right Turn
- Left Turn
- Sideswipe
- Day
- Night
- Pedestrian
- Fixed Object
- Bicycle
- DUI
- Injury
- Fatal

Color Legend - Highest Degree of Injury

Medium Blue = Fatal

Purple = Severe Injury

Green = Other Visible Injury

Teal = Complaint of Pain

Dark Blue = Property Damage Only

Settings Used For Query

Parameter	Setting
Street Name	Grand Avenue
Cross Street	El Embarcadero
Starting Date	10/1/2002
Ending Date	9/30/2007
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Grand Avenue / El Embarcadero
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2308183	11/1/05	20:50	0	In Int.	Sideswipe	Parked Motor Vehicle	East	Proceeding Straight	East	Parked	Unsafe Starting or Backing	1	0
2563245	12/6/05	21:25	0	In Int.	Overturned	Not Stated	East	Making Right Turn			Driving Under Influence	1	0
2394212	12/14/05	10:05	0	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	East	Proceeding Straight	Unknown	0	0
2577957	4/11/06	13:40	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	North	Making Left Turn	Traffic Signals and Signs	0	0
2605346	4/26/06	14:37	0	In Int.	Rear-End	Other Motor Vehicle	South	Proceeding Straight	West	Making Left Turn	Traffic Signals and Signs	0	0
2864340	10/26/06	17:01	20	Not Stated	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Following Too Closely	0	0
3097379	3/23/07	08:45	0	In Int.	Broadside	Other Motor Vehicle	North	Making Left Turn	South	Proceeding Straight	Auto R/W Violation	0	0
3312631	7/3/07	15:14	40	East	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Unsafe Speed	0	0
3284029	7/19/07	11:10	20	East	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Unsafe Speed	0	0
3359587	8/27/07	11:15	0	In Int.	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Speed	1	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Grand Avenue / El Embarcadero
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 25

Settings Used For Query

Parameter	Setting
Street Name	Grand Avenue
Cross Street	El Embarcadero
Starting Date	10/1/2002
Ending Date	9/30/2007
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Lakeshore Avenue / El Embarcadero
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
0469031	10/16/02	20:02	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	North	Making Left Turn	Unknown	0	0
0953736	8/10/03	08:30	0	In Int.	Head-On	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1018428	9/15/03	18:15	30	West	Vehicle - Pedestrian	Pedestrian	West	Making Right Turn	North	Not Stated	Ped R/W Violation	1	0
1093222	10/23/03	08:25	15	North	Rear-End	Other Motor Vehicle	South	Slowing/Stopping	South	Stopped in Road	Traffic Signals and Signs	0	0
1191901	12/18/03	17:49	0	In Int.	Rear-End	Other Motor Vehicle	South	Stopped in Road	South	Merging	Unknown	0	0
1388316	4/13/04	17:07	0	In Int.	Broadside	Other Motor Vehicle	East	Making Right Turn	South	Proceeding Straight	Auto R/W Violation	0	0
1417473	5/8/04	19:09	0	In Int.	Sideswipe	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Unknown	0	0
1560835	6/30/04	22:10	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
1764704	12/4/04	16:00	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
1997461	4/18/05	18:51	0	In Int.	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Making Left Turn	Unsafe Speed	0	0
2205383	8/28/05	15:15	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
2361672	11/22/05	20:10	0	In Int.	Broadside	Motor Vehicle on Other	East	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	0	0
2422669	1/6/06	17:00	0	In Int.	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Unsafe Speed	0	0
2479248	1/19/06	07:58	10	West	Rear-End	Other Motor Vehicle	East	Merging	East	Stopped in Road	Unsafe Speed	0	0
2687205	6/21/06	13:45	0	In Int.	Rear-End	Bicycle	North	Making Left Turn	North	Proceeding Straight	Improper Turning	1	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Lakeshore Avenue / El Embarcadero
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
3002138	1/16/07	18:52	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	North	Making Left Turn	Traffic Signals and Signs	0	0
3042882	2/19/07	15:25	15	West	Rear-End	Other Motor Vehicle	East	Making Right Turn	East	Stopped in Road	Unsafe Speed	0	0

Total Number of Collisions: 17

Settings Used For Query

Parameter	Setting
Street Name	Lakeshore Avenue
Cross Street	El Embarcadero
Starting Date	10/1/2002
Ending Date	9/30/2007
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Grand Avenue / Macarthur Boulevard
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
0585056	12/13/02	16:40	120	West	Rear-End	Other Motor Vehicle	East	Slowing/Stopping	East	Stopped in Road	Unsafe Speed	0	0
0651140	2/6/03	14:28	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	1	0
0688549	3/9/03	16:05	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	2	0
0769874	4/22/03	22:23	0	In Int.	Not Stated	Other Motor Vehicle	West	Making U Turn	West	Parked	Improper Turning	0	0
0774406	4/30/03	16:15	20	West	Rear-End	Other Motor Vehicle	Not Stated	Proceeding Straight	East	Stopped in Road	Unsafe Speed	0	0
0857369	6/16/03	09:55	10	West	Vehicle - Pedestrian	Pedestrian	North	Proceeding Straight	East	Proceeding Straight	Pedestrian Violation	1	0
1031594	9/26/03	09:45	0	In Int.	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Unsafe Speed	0	0
1058359	10/4/03	15:32	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
1060880	10/9/03	15:00	0	In Int.	Sideswipe	Other Motor Vehicle	East	Making Left Turn	East	Proceeding Straight	Improper Turning	0	0
1137773	11/17/03	11:20	0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Left Turn	North	Making Left Turn	Improper Turning	0	0
1142114	11/18/03	10:00	24	West	Rear-End	Other Motor Vehicle	East	Slowing/Stopping	East	Stopped in Road	Unsafe Speed	1	0
1248198	1/22/04	11:20	20	West	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Unsafe Starting or Backing	0	0
1283715	2/17/04	16:30	0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Left Turn	East	Proceeding Straight	Improper Turning	0	0
2101185	6/18/05	09:50	50	East	Rear-End	Other Motor Vehicle	East	Proceeding Straight	West	Proceeding Straight	Following Too Closely	0	0
2154092	7/6/05	18:52	5	South	Rear-End	Other Motor Vehicle	North	Making Right Turn	North	Making Right Turn	Unsafe Speed	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Grand Avenue / Macarthur Boulevard
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2225782	9/2/05	11:30	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	1	0
2304317	10/4/05	09:00	100	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Following Too Closely	0	0
2389166	12/7/05	16:00	0	In Int.	Sideswipe	Other Motor Vehicle	East	Making Left Turn	East	Proceeding Straight	Improper Turning	0	0
2466005	1/25/06	22:10	10	South	Vehicle - Pedestrian	Pedestrian	South	Making Right Turn	East	Proceeding Straight	Ped R/W Violation	0	0
2515377	2/23/06	08:30	0	In Int.	Broadside	Other Motor Vehicle	West	Making Left Turn	East	Proceeding Straight	Auto R/W Violation	0	0
2623750	4/22/06	12:29	0	In Int.	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Proceeding Straight	Unsafe Speed	0	0
2914072	11/20/06	18:06	30	West	Sideswipe	Other Motor Vehicle	East	Proceeding Straight	East	Making Left Turn	Other	0	0
2917439	11/28/06	22:52	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
3039517	2/8/07	22:44	10	North	Hit Object	Fixed Object	Not Stated	Other Unsafe Turning			Unsafe Speed	0	0
3296983	7/26/07	14:40	20	West	Sideswipe	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Improper Turning	0	0
3370269	9/14/07	14:10	0	In Int.	Sideswipe	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Improper Turning	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Grand Avenue / Macarthur Boulevard
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 26

Settings Used For Query

Parameter	Setting
Street Name	Grand Avenue
Cross Street	Macarthur Boulevard
Starting Date	10/1/2002
Ending Date	9/30/2007
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Lakeshore Avenue / Macarthur Boulevard
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1262684	2/5/04	14:35	0	In Int.	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
1311623	3/6/04	13:45	0	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	0	0
1570183	4/9/04	19:59	25	East	Sideswipe	Other Motor Vehicle	East	Making Right Turn	North	Proceeding Straight	Auto R/W Violation	0	0
1389965	4/20/04	21:50	40	West	Sideswipe	Other Motor Vehicle	East	Proceeding Straight	East	Proceeding Straight	Improper Turning	0	0
1419707	4/29/04	08:05	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Making Left Turn	Traffic Signals and Signs	1	0
1421638	4/30/04	14:00	0	In Int.	Rear-End	Other Motor Vehicle	North	Making Left Turn	North	Stopped in Road	Other	2	0
1364225	5/5/04	07:50	0	In Int.	Broadside	Other Motor Vehicle	East	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	1	0
1472083	5/21/04	11:50	0	In Int.	Sideswipe	Other Motor Vehicle	North	Changing Lanes	North	Proceeding Straight	Unsafe Lane Change	0	0
1570210	8/12/04	16:55	0	In Int.	Sideswipe	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Unknown	0	0
1649217	8/23/04	08:30	0	In Int.	Sideswipe	Parked Motor Vehicle	North	Changing Lanes	Not Stated	Parked	Improper Turning	0	0
1648944	8/24/04	10:29	20	North	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	South	Proceeding Straight	Improper Turning	0	0
1831397	11/26/04	14:05	0	In Int.	Broadside	Other Motor Vehicle	North	Not Stated	East	Not Stated	Traffic Signals and Signs	0	0
1777509	12/14/04	20:53	0	In Int.	Head-On	Bicycle	North	Making Right Turn	South	Proceeding Straight	Ped R/W Violation	0	0
2012191	4/30/05	19:30	6	North	Sideswipe	Other Motor Vehicle	North	Making Left Turn	North	Making Left Turn	Unknown	0	0
2059427	5/28/05	07:45	0	In Int.	Sideswipe	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Lakeshore Avenue / Macarthur Boulevard
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2119696	7/8/05	21:30	10	South	Other	Other Motor Vehicle	Not Stated	Backing	North	Stopped in Road	Improper Turning	0	0
2213443	9/4/05	01:00	15	West	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Unsafe Speed	0	0
2265791	10/9/05	16:23	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	1	0
2304454	10/15/05	21:00	0	In Int.	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Unsafe Speed	0	0
2392505	12/21/05	14:20	0	In Int.	Broadside	Other Motor Vehicle	South	Making Left Turn	North	Proceeding Straight	Auto R/W Violation	0	0
2444804	1/23/06	19:24	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2532018	2/10/06	12:15	35	East	Sideswipe	Other Motor Vehicle	East	Other Unsafe Turning	East	Proceeding Straight	Improper Turning	0	0
2591325	4/23/06	10:10	45	South	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Slowing/Stopping	Unsafe Starting or Backing	0	0
2626405	5/3/06	07:57	0	In Int.	Head-On	Other Motor Vehicle	East	Making Left Turn	North	Proceeding Straight	Other Hazardous Movement	0	0
2687159	6/7/06	16:00	0	In Int.	Broadside	Other Motor Vehicle	South	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
2687229	6/21/06	17:23	0	In Int.	Vehicle - Pedestrian	Bicycle	North	Making Right Turn	Not Stated	Proceeding Straight	Unknown	0	0
2686689	6/28/06	10:44	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2822939	10/4/06	08:45	0	In Int.	Broadside	Other Motor Vehicle	East	Making U Turn	North	Proceeding Straight	Auto R/W Violation	0	0
2916365	11/19/06	04:29	0	In Int.	Other	Bicycle	Not Stated	Other	Not Stated	Other	Other	1	0
2903684	11/20/06	18:05	20	West	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Auto R/W Violation	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Lakeshore Avenue / Macarthur Boulevard
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2946035	12/15/06	09:32	0	In Int.	Sideswipe	Other Motor Vehicle	East	Proceeding Straight	East	Proceeding Straight	Improper Turning	0	0
2968626	12/27/06	11:48	0	In Int.	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Making Right Turn	Unsafe Speed	0	0
2985777	1/4/07	19:15	0	In Int.	Rear-End	Other Motor Vehicle	North	Making Right Turn	East	Stopped in Road	Unsafe Speed	0	0
3033651	2/10/07	21:41	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	East	Proceeding Straight	Traffic Signals and Signs	0	0
3104909	3/26/07	21:40	10	West	Rear-End	Other Motor Vehicle	East	Proceeding Straight	East	Stopped in Road	Following Too Closely	0	0
3250371	7/1/07	15:09	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
3325399	8/17/07	08:48	0	In Int.	Other	Other Object	West	Making Left Turn			Improper Turning	0	0
3360079	9/17/07	15:05	0	In Int.	Broadside	Other Motor Vehicle	East	Proceeding Straight	South	Making Left Turn	Traffic Signals and Signs	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Lakeshore Avenue / Macarthur Boulevard
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 53

Settings Used For Query

Parameter	Setting
Street Name	Lakeshore Avenue
Cross Street	Macarthur Boulevard
Starting Date	10/1/2002
Ending Date	9/30/2007
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Oakland Avenue / Macarthur Boulevard (W)
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
0507369	11/16/02	12:41	0	In Int.	Sideswipe	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
0518883	11/25/02	14:50	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	2	0
0599129	1/8/03	18:51	0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Left Turn	North	Proceeding Straight	Improper Turning	0	0
0657135	1/24/03	23:00	60	East	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Stopped in Road	Unsafe Speed	2	0
0665266	2/16/03	14:45	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
0739652	4/2/03	09:24	0	In Int.	Broadside	Non-Collision	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
0833299	5/4/03	15:11	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
0908748	7/13/03	14:27	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
0937465	8/4/03	16:48	0	In Int.	Broadside	Other Motor Vehicle	West	Making Left Turn	West	Making Left Turn	Improper Turning	0	0
1006758	9/14/03	17:23	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1103128	12/31/03	12:05	50	West	Broadside	Bicycle	East	Entering Traffic	West	Making Right Turn	Other Hazardous Movement	1	0
1393143	4/20/04	18:40	5	Not Stated	Broadside	Other Motor Vehicle	West	Making Left Turn	West	Proceeding Straight	Auto R/W Violation	0	0
1428133	5/13/04	18:50	20	West	Sideswipe	Other Motor Vehicle	West	Making Right Turn	West	Proceeding Straight	Improper Turning	0	0
1472115	5/14/04	07:59	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
1514397	6/28/04	11:11	0	In Int.	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Stopped in Road	Unsafe Speed	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Oakland Avenue / Macarthur Boulevard (W)
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1597194	8/30/04	17:10	0	In Int.	Sideswipe	Other Motor Vehicle	Not Stated	Proceeding Straight	West	Stopped in Road	Traffic Signals and Signs	0	0
1735059	11/9/04	14:39	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1738147	11/15/04	11:55	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1831460	12/18/04	20:15	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Unknown	1	0
1797638	12/22/04	08:50	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1993634	4/26/05	19:26	30	North	Rear-End	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Following Too Closely	0	0
2085053	6/10/05	18:40	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
2152423	7/9/05	17:00	0	In Int.	Not Stated	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2158693	7/31/05	18:30	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2179185	8/13/05	14:45	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
2186176	8/22/05	16:45	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
2304509	10/1/05	12:00	0	In Int.	Broadside	Other Motor Vehicle	West	Making Left Turn	West	Proceeding Straight	Traffic Signals and Signs	0	0
2474941	2/2/06	12:00	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	North	Proceeding Straight	Auto R/W Violation	0	0
2522320	3/10/06	17:35	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
2682949	5/22/06	09:20	21	West	Sideswipe	Other Motor Vehicle	West	Passing Other Vehicle	West	Stopped in Road	Unsafe Lane Change	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Oakland Avenue / Macarthur Boulevard (W)
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2965236	12/22/06	21:10	0	In Int.	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Stopped in Road	Unsafe Speed	0	0
3283038	7/18/07	12:24	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
3359259	9/7/07	11:04	0	In Int.	Broadside	Other Motor Vehicle	Not Stated	Proceeding Straight	Not Stated	Proceeding Straight	Traffic Signals and Signs	0	0

Total Number of Collisions: 33

Settings Used For Query

Parameter	Setting
Street Name	Oakland Avenue
Cross Street	Macarthur Boulevard (W)
Starting Date	10/1/2002
Ending Date	9/30/2007
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Oakland Avenue / Santa Clara Avenue
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
0947410	8/9/03	15:16	0	In Int.	Not Stated	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	0	0
1132371	11/9/03	15:00	20	East	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Proceeding Straight	Improper Turning	0	0
1114546	11/13/03	12:09	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
1262681	2/5/04	08:00	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	North	Proceeding Straight	Traffic Signals and Signs	0	0
1510674	6/22/04	18:30	0	In Int.	Broadside	Motor Vehicle on Other	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
2043889	5/11/05	17:35	20	East	Sideswipe	Other Motor Vehicle	West	Changing Lanes	West	Proceeding Straight	Unknown	0	0
2178667	8/4/05	13:30	8	East	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Proceeding Straight	Unsafe Speed	1	0
2225789	9/2/05	17:40	0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Left Turn	West	Proceeding Straight	Unknown	1	0
2268630	10/6/05	06:30	0	In Int.	Sideswipe	Other Motor Vehicle	North	Making Right Turn	West	Proceeding Straight	Improper Turning	0	0
2494109	2/9/06	00:30	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Driving Under Influence	0	0
2523435	3/10/06	14:30	8	East	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Proceeding Straight	Improper Turning	1	0
2660538	5/15/06	02:20	0	In Int.	Broadside	Other Motor Vehicle	North	Proceeding Straight	West	Proceeding Straight	Traffic Signals and Signs	1	0
2631289	5/21/06	20:30	50	East	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Proceeding Straight	Unsafe Speed	1	0
2926249	11/27/06	12:20	20	East	Sideswipe	Other Motor Vehicle	West	Making Right Turn	West	Proceeding Straight	Improper Turning	0	0
2926281	12/4/06	14:01	0	In Int.	Sideswipe	Other Motor Vehicle	West	Making Right Turn	West	Proceeding Straight	Improper Turning	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Oakland Avenue / Santa Clara Avenue
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 15

Settings Used For Query

Parameter	Setting
Street Name	Oakland Avenue
Cross Street	Santa Clara Avenue
Starting Date	10/1/2002
Ending Date	9/30/2007
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Harrison Street / Macarthur Boulevard
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
0490854	10/29/02	18:04	123	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Following Too Closely	0	0
0519694	11/25/02	12:30	50	West	Sideswipe	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Speed	0	0
0610619	1/7/03	09:05	20	East	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Slowing/Stopping	Unsafe Speed	0	0
0857425	6/16/03	07:40	0	In Int.	Sideswipe	Other Motor Vehicle	West	Changing Lanes	West	Proceeding Straight	Improper Turning	0	0
0989019	9/2/03	10:15	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
1424851	5/11/04	14:40	25	West	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Proceeding Straight	Following Too Closely	0	0
1735183	11/11/04	11:23	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
1831382	11/24/04	08:30	0	In Int.	Broadside	Non-Collision	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
1831389	11/24/04	09:32	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	1	0
1795651	12/19/04	02:50	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
1795719	12/26/04	18:30	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
1821663	12/30/04	09:11	15	West	Broadside	Other Motor Vehicle	West	Making Right Turn	West	Proceeding Straight	Other	1	0
2241143	9/23/05	20:15	15	East	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Stopped in Road	Unsafe Speed	0	0
2397429	12/14/05	23:15	0	In Int.	Sideswipe	Other Motor Vehicle	West	Making Right Turn	West	Proceeding Straight	Improper Turning	0	0
2409496	1/5/06	09:00	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Harrison Street / Macarthur Boulevard
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
2489893	2/7/06	09:50	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2586660	4/15/06	01:30	0	In Int.	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	West	Proceeding Straight	Improper Turning	0	0
2605519	4/25/06	09:26	0	In Int.	Sideswipe	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
2980878	12/24/06	10:33	15	East	Rear-End	Other Motor Vehicle	West	Proceeding Straight	West	Stopped in Road	Unsafe Speed	0	0
3009894	1/27/07	10:33	6	North	Rear-End	Other Motor Vehicle	South	Proceeding Straight	South	Stopped in Road	Unsafe Speed	0	0
3063617	2/26/07	13:17	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
3063607	2/28/07	09:31	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
3348936	7/14/07	18:15	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0
3308994	7/20/07	09:40	0	In Int.	Broadside	Other Motor Vehicle	West	Proceeding Straight	South	Proceeding Straight	Traffic Signals and Signs	0	0

Location: Harrison Street / Macarthur Boulevard
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 24

Settings Used For Query

Parameter	Setting
Street Name	Harrison Street
Cross Street	Macarthur Boulevard
Starting Date	10/1/2002
Ending Date	9/30/2007
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Harrison Street / Santa Clara Avenue
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil
1831362	11/23/04	21:30	0	In Int.	Hit Object	Fixed Object	West	Changing Lanes			Improper Turning	0	0

Total Number of Collisions: 1

Settings Used For Query

Parameter	Setting
Street Name	Harrison Street
Cross Street	Santa Clara Avenue
Starting Date	10/1/2002
Ending Date	9/30/2007
Intersection	Intersection Related

City of Oakland
Transportation Services Division
Traffic Collision History Report

Location: Oakland Avenue / Monte Vista Avenue
Date Range Reported: 10/1/2002 - 9/30/2007

Report No.	Date	Time	Dist.	Dir.	Type of Collision	Motor Veh. Involved With	Direct. of Travel 1	Movement Prec. Coll. 1	Direct. of Travel 2	Movement Prec. Coll. 2	PCF	Inj.	Kil

Total Number of Collisions: 0

Settings Used For Query

Parameter	Setting
Street Name	Oakland Avenue
Cross Street	Monte Vista Avenue
Starting Date	10/1/2002
Ending Date	9/30/2007
Intersection	Intersection Related

APPENDIX G.9
Roadway LOS Calculations

Type	Segment	Direction	Capacity (vphpl)	Lanes	Capacity (vph)	Existing					
						AM Peak Hour			PM Peak Hour		
						LOS	Volume	v/c	LOS	Volume	v/c
CMP	SR 260 (Posey/Webster Tubes) between Alameda city limits and I-880	NB	1,700	2	3,400	E	3,081	0.91	D	2,478	0.73
		SB	1,700	2	3,400	B	1,575	0.46	C	2,347	0.69
	I-880 West of I-980 / Market Street	EB	2,000	4	8,000	B	3,070	0.38	B	3,164	0.40
		WB	2,000	4	8,000	B	3,720	0.47	B	3,426	0.43
	I-880 East of Oak Street	EB	2,000	4	8,000	C	4,968	0.62	D	5,737	0.72
		WB	2,000	4	8,000	C	5,606	0.70	C	5,075	0.63
	I-980 North of 27th Street	NB	2,000	3	6,000	A	1,611	0.27	C	3,609	0.60
		SB	2,000	3	6,000	D	4,679	0.78	B	1,858	0.31
Other MTS	Broadway between 19th St. and Grand Ave.	NB	900	2	1,800	A	513	0.29	B	876	0.49
		SB	900	2	1,800	A	438	0.24	B	597	0.33
	Telegraph between 20th St. and 27th St.	NB	900	2	1,800	A	464	0.26	B	678	0.38
		SB	900	2	1,800	B	661	0.37	B	565	0.31
	Grand between San Pablo and Telegraph	EB	900	2	1,800	C	1,054	0.59	B	719	0.40
		WB	900	2	1,800	B	672	0.37	B	862	0.48
	Grand between Broadway and Harrison St.	EB	900	2	1,800	B	682	0.38	B	762	0.42
		WB	900	2	1,800	B	644	0.36	B	783	0.44
	Grand between Harrison St. and El Embarcadero	EB	900	2	1,800	B	751	0.42	E	1,700	0.94
		WB	900	2	1,800	E	1,531	0.85	C	968	0.54
	Harrison between I-580 and 27th St.	NB	900	2	1,800	C	1,189	0.66	E	1,536	0.85
		SB	900	2	1,800	C	1,041	0.58	B	686	0.38
	Harrison between 27th St. and Grand Ave.	NB	900	3	2,700	A	784	0.29	B	1,236	0.46
		SB	900	3	2,700	B	899	0.33	A	556	0.21
	Harrison between 20th St. and 14th St.	NB	900	2	1,800	A	475	0.26	B	745	0.41
		SB	900	2	1,800	A	444	0.25	A	286	0.16

Type	Segment	Direction	Capacity (vphpl)	Lanes	Capacity (vph)	Existing + Project					
						AM Peak Hour			PM Peak Hour		
						LOS	Volume	v/c	LOS	Volume	v/c
CMP	SR 260 (Posey/Webster Tubes) between Alameda city limits and I-880	NB	1,700	2	3,400	E	3,086	0.91	D	2,479	0.73
		SB	1,700	2	3,400	B	1,577	0.46	C	2,363	0.70
	I-880 West of I-980 / Market Street	EB	2,000	4	8,000	B	3,164	0.40	B	3,181	0.40
		WB	2,000	4	8,000	B	3,733	0.47	B	3,512	0.44
	I-880 East of Oak Street	EB	2,000	4	8,000	C	4,983	0.62	D	5,831	0.73
		WB	2,000	4	8,000	D	5,710	0.71	C	5,095	0.64
	I-980 North of 27th Street	NB	2,000	3	6,000	A	1,647	0.27	C	3,842	0.64
		SB	2,000	3	6,000	D	4,832	0.81	B	1,885	0.31
Other MTS	Broadway between 19th St. and Grand Ave.	NB	900	2	1,800	B	553	0.31	C	1,029	0.57
		SB	900	2	1,800	A	503	0.28	B	611	0.34
	Telegraph between 20th St. and 27th St.	NB	900	2	1,800	A	470	0.26	B	712	0.40
		SB	900	2	1,800	B	675	0.38	B	573	0.32
	Grand between San Pablo and Telegraph	EB	900	2	1,800	C	1,181	0.66	B	726	0.40
		WB	900	2	1,800	B	685	0.38	C	945	0.53
	Grand between Broadway and Harrison St.	EB	900	2	1,800	B	851	0.47	B	782	0.43
		WB	900	2	1,800	B	660	0.37	B	785	0.44
	Grand between Harrison St. and El Embarcadero	EB	900	2	1,800	B	755	0.42	F	1,841	1.02
		WB	900	2	1,800	E	1,759	0.98	C	1,015	0.56
	Harrison between I-580 and 27th St.	NB	900	2	1,800	C	1,247	0.69	F	1,808	1.00
		SB	900	2	1,800	D	1,278	0.71	B	726	0.40
	Harrison between 27th St. and Grand Ave.	NB	900	3	2,700	B	857	0.32	C	1,590	0.59
		SB	900	3	2,700	B	1,155	0.43	A	599	0.22
	Harrison between 20th St. and 14th St.	NB	900	2	1,800	A	497	0.28	B	755	0.42
		SB	900	2	1,800	A	459	0.26	A	286	0.16

Type	Segment	Direction	Capacity (vphpl)	Lanes	Capacity (vph)	2015					
						AM Peak Hour			PM Peak Hour		
						LOS	Volume	v/c	LOS	Volume	v/c
CMP	SR 260 (Posey/Webster Tubes) between Alameda city limits and I-880	NB	1,700	2	3,400	E	3,386	1.00	D	2,906	0.85
		SB	1,700	2	3,400	C	2,108	0.62	D	2,950	0.87
	I-880 West of I-980 / Market Street	EB	2,000	4	8,000	B	3,303	0.41	B	3,234	0.40
		WB	2,000	4	8,000	B	3,939	0.49	B	3,610	0.45
	I-880 East of Oak Street	EB	2,000	4	8,000	D	5,705	0.71	D	6,401	0.80
		WB	2,000	4	8,000	D	6,312	0.79	D	5,727	0.72
	I-980 North of 27th Street	NB	2,000	3	6,000	B	1,821	0.30	C	3,973	0.66
		SB	2,000	3	6,000	D	5,280	0.88	B	2,208	0.37
Other MTS	Broadway between 19th St. and Grand Ave.	NB	900	2	1,800	B	606	0.34	C	1,042	0.58
		SB	900	2	1,800	A	517	0.29	B	710	0.39
	Telegraph between 20th St. and 27th St.	NB	900	2	1,800	B	576	0.32	B	879	0.49
		SB	900	2	1,800	B	779	0.43	B	672	0.37
	Grand between Telegraph and San Pablo	EB	900	2	1,800	C	1,241	0.69	B	841	0.47
		WB	900	2	1,800	B	791	0.44	C	1,011	0.56
	Grand between Broadway and Harrison St.	EB	900	2	1,800	B	803	0.45	B	891	0.49
		WB	900	2	1,800	B	758	0.42	C	917	0.51
	Grand between Harrison St. and El Embarcadero	EB	900	2	1,800	B	807	0.45	F	1,998	1.11
		WB	900	2	1,800	D	1,455	0.81	C	1,014	0.56
	Harrison between I-580 and 27th St.	NB	900	2	1,800	D	1,453	0.81	F	1,939	1.08
		SB	900	2	1,800	C	1,225	0.68	B	821	0.46
	Harrison between 27th St. and Grand Ave.	NB	900	3	2,700	B	922	0.34	B	1,326	0.49
		SB	900	3	2,700	B	1,057	0.39	A	666	0.25
	Harrison between 20th St. and 14th St.	NB	900	2	1,800	B	559	0.31	C	947	0.53
		SB	900	2	1,800	B	570	0.32	A	342	0.19

Type	Segment	Direction	Capacity (vphpl)	Lanes	Capacity (vph)	2030					
						AM Peak Hour			PM Peak Hour		
						LOS	Volume	v/c	LOS	Volume	v/c
CMP	SR 260 (Posey/Webster Tubes) between Alameda city limits and I-880	NB	1,700	2	3,400	F	4,084	1.20	F	3,885	1.14
		SB	1,700	2	3,400	E	3,327	0.98	F	4,329	1.27
	I-880 West of I-980 / Market Street	EB	2,000	4	8,000	B	3,835	0.48	B	3,394	0.42
		WB	2,000	4	8,000	C	4,441	0.56	C	4,031	0.50
	I-880 East of Oak Street	EB	2,000	4	8,000	E	7,390	0.92	E	7,920	0.99
		WB	2,000	4	8,000	E	7,925	0.99	E	7,217	0.90
	I-980 North of 27th Street	NB	2,000	3	6,000	B	2,300	0.38	D	4,806	0.80
		SB	2,000	3	6,000	F	6,653	1.11	C	3,009	0.50
Other MTS	Broadway between 19th St. and Grand Ave.	NB	900	2	1,800	B	699	0.39	C	1,207	0.67
		SB	900	2	1,800	B	595	0.33	B	823	0.46
	Telegraph between 20th St. and 27th St.	NB	900	2	1,800	B	688	0.38	C	1,080	0.60
		SB	900	2	1,800	B	897	0.50	B	779	0.43
	Grand between Telegraph and San Pablo	EB	900	2	1,800	D	1,427	0.79	C	962	0.53
		WB	900	2	1,800	C	910	0.51	C	1,160	0.64
	Grand between Broadway and Harrison St.	EB	900	2	1,800	C	924	0.51	D	1,269	0.71
		WB	900	2	1,800	D	1,393	0.77	C	1,199	0.67
	Grand between Harrison St. and El Embarcadero	EB	900	2	1,800	C	936	0.52	F	2,284	1.27
		WB	900	2	1,800	E	1,782	0.99	D	1,326	0.74
	Harrison between I-580 and 27th St.	NB	900	2	1,800	E	1,718	0.95	F	2,342	1.30
		SB	900	2	1,800	E	1,571	0.87	C	987	0.55
	Harrison between 27th St. and Grand Ave.	NB	900	3	2,700	B	1,276	0.47	C	1,650	0.61
		SB	900	3	2,700	C	1,361	0.50	B	924	0.34
	Harrison between 20th St. and 14th St.	NB	900	2	1,800	B	643	0.36	D	1,362	0.76
		SB	900	2	1,800	B	720	0.40	A	399	0.22

Type	Segment	Direction	Capacity (vphpl)	Lanes	Capacity (vph)	2015 + Phase 1					
						AM Peak Hour			PM Peak Hour		
						LOS	Volume	v/c	LOS	Volume	v/c
CMP	SR 260 (Posey/Webster Tubes) between Alameda city limits and I-880	NB	1,700	2	3,400	E	3,389	1.00	D	2,907	0.86
		SB	1,700	2	3,400	C	2,109	0.62	D	2,958	0.87
	I-880 West of I-980 / Market Street	EB	2,000	4	8,000	B	3,344	0.42	B	3,241	0.41
		WB	2,000	4	8,000	B	3,944	0.49	B	3,646	0.46
	I-880 East of Oak Street	EB	2,000	4	8,000	D	5,711	0.71	D	6,441	0.81
		WB	2,000	4	8,000	D	6,357	0.79	D	5,735	0.72
	I-980 North of 27th Street	NB	2,000	3	6,000	B	1,836	0.31	C	4,070	0.68
		SB	2,000	3	6,000	D	5,333	0.89	B	2,218	0.37
Other MTS	Broadway between 19th St. and Grand Ave.	NB	900	2	1,800	B	617	0.34	C	1,114	0.62
		SB	900	2	1,800	B	551	0.31	B	717	0.40
	Telegraph between 20th St. and 27th St.	NB	900	2	1,800	B	578	0.32	B	890	0.49
		SB	900	2	1,800	B	779	0.43	B	674	0.37
	Grand between Telegraph and San Pablo	EB	900	2	1,800	D	1,300	0.72	B	844	0.47
		WB	900	2	1,800	B	796	0.44	C	1,046	0.58
	Grand between Broadway and Harrison St.	EB	900	2	1,800	B	877	0.49	B	891	0.49
		WB	900	2	1,800	B	758	0.42	C	917	0.51
	Grand between Harrison St. and El Embarcadero	EB	900	2	1,800	B	807	0.45	F	2,060	1.14
		WB	900	2	1,800	E	1,584	0.88	C	1,038	0.58
	Harrison between I-580 and 27th St.	NB	900	2	1,800	D	1,480	0.82	F	2,054	1.14
		SB	900	2	1,800	D	1,301	0.72	B	835	0.46
	Harrison between 27th St. and Grand Ave.	NB	900	3	2,700	B	957	0.35	C	1,490	0.55
		SB	900	3	2,700	B	1,144	0.42	A	682	0.25
	Harrison between 20th St. and 14th St.	NB	900	2	1,800	B	569	0.32	C	952	0.53
		SB	900	2	1,800	B	570	0.32	A	351	0.20

Type	Segment	Direction	Capacity (vphpl)	Lanes	Capacity (vph)	2015 + Project					
						AM Peak Hour			PM Peak Hour		
						LOS	Volume	v/c	LOS	Volume	v/c
CMP	SR 260 (Posey/Webster Tubes) between Alameda city limits and I-880	NB	1,700	2	3,400	E	3,391	1.00	D	2,909	0.86
		SB	1,700	2	3,400	C	2,110	0.62	D	2,951	0.87
	I-880 West of I-980 / Market Street	EB	2,000	4	8,000	B	3,397	0.42	B	3,251	0.41
		WB	2,000	4	8,000	B	3,952	0.49	B	3,696	0.46
	I-880 East of Oak Street	EB	2,000	4	8,000	D	5,720	0.72	D	6,495	0.81
		WB	2,000	4	8,000	D	6,416	0.80	D	5,747	0.72
	I-980 North of 27th Street	NB	2,000	3	6,000	B	1,857	0.31	C	4,206	0.70
		SB	2,000	3	6,000	E	5,433	0.91	B	2,235	0.37
Other MTS	Broadway between 19th St. and Grand Ave.	NB	900	2	1,800	B	646	0.36	C	1,195	0.66
		SB	900	2	1,800	B	582	0.32	B	724	0.40
	Telegraph between 20th St. and 27th St.	NB	900	2	1,800	B	582	0.32	C	913	0.51
		SB	900	2	1,800	B	793	0.44	B	680	0.38
	Grand between Telegraph and San Pablo	EB	900	2	1,800	D	1,368	0.76	B	848	0.47
		WB	900	2	1,800	B	804	0.45	C	1,094	0.61
	Grand between Broadway and Harrison St.	EB	900	2	1,800	C	972	0.54	C	911	0.51
		WB	900	2	1,800	B	774	0.43	C	919	0.51
	Grand between Harrison St. and El Embarcadero	EB	900	2	1,800	B	811	0.45	F	2,139	1.19
		WB	900	2	1,800	E	1,683	0.93	C	1,061	0.59
	Harrison between I-580 and 27th St.	NB	900	2	1,800	D	1,511	0.84	F	2,211	1.23
		SB	900	2	1,800	D	1,462	0.81	B	861	0.48
	Harrison between 27th St. and Grand Ave.	NB	900	3	2,700	B	995	0.37	C	1,680	0.62
		SB	900	3	2,700	B	1,313	0.49	A	709	0.26
	Harrison between 20th St. and 14th St.	NB	900	2	1,800	B	581	0.32	C	958	0.53
		SB	900	2	1,800	B	585	0.33	A	360	0.20

Type	Segment	Direction	Capacity (vphpl)	Lanes	Capacity (vph)	2030 + Project					
						AM Peak Hour			PM Peak Hour		
						LOS	Volume	v/c	LOS	Volume	v/c
CMP	SR 260 (Posey/Webster Tubes) between Alameda city limits and I-880	NB	1,700	2	3,400	F	4,089	1.20	F	3,888	1.14
		SB	1,700	2	3,400	E	3,329	0.98	F	4,330	1.27
	I-880 West of I-980 / Market Street	EB	2,000	4	8,000	B	3,929	0.49	B	3,411	0.43
		WB	2,000	4	8,000	C	4,454	0.56	C	4,117	0.51
	I-880 East of Oak Street	EB	2,000	4	8,000	E	7,405	0.93	F	8,014	1.00
		WB	2,000	4	8,000	F	8,029	1.00	E	7,237	0.90
	I-980 North of 27th Street	NB	2,000	3	6,000	B	2,336	0.39	D	5,039	0.84
		SB	2,000	3	6,000	F	6,806	1.13	C	3,036	0.51
Other MTS	Broadway between 19th St. and Grand Ave.	NB	900	2	1,800	B	739	0.41	D	1,360	0.76
		SB	900	2	1,800	B	660	0.37	B	837	0.46
	Telegraph between 20th St. and 27th St.	NB	900	2	1,800	B	694	0.39	C	1,114	0.62
		SB	900	2	1,800	C	911	0.51	B	787	0.44
	Grand between Telegraph and San Pablo	EB	900	2	1,800	E	1,554	0.86	C	969	0.54
		WB	900	2	1,800	C	923	0.51	C	1,243	0.69
	Grand between Broadway and Harrison St.	EB	900	2	1,800	C	1,093	0.61	D	1,289	0.72
		WB	900	2	1,800	D	1,409	0.78	C	1,201	0.67
	Grand between Harrison St. and El Embarcadero	EB	900	2	1,800	C	940	0.52	F	2,425	1.35
		WB	900	2	1,800	F	2,010	1.12	D	1,373	0.76
	Harrison between I-580 and 27th St.	NB	900	2	1,800	E	1,776	0.99	F	2,614	1.45
		SB	900	2	1,800	F	1,808	1.00	C	1,027	0.57
	Harrison between 27th St. and Grand Ave.	NB	900	3	2,700	B	1,349	0.50	D	2,004	0.74
		SB	900	3	2,700	C	1,617	0.60	B	967	0.36
	Harrison between 20th St. and 14th St.	NB	900	2	1,800	B	665	0.37	D	1,373	0.76
		SB	900	2	1,800	B	735	0.41	A	417	0.23

APPENDIX G.10

Supplemental Analysis of Planned Transportation Improvements

Supplementary Analyses of Planned Transportation Improvements

This section summarizes the supplementary analyses of future-year traffic operations at the study intersections and on the study roadway segments assuming the planned AC Transit Bus Rapid Transit (BRT) project and Franklin-Webster bike lanes are completed. The final sections briefly discuss other planned improvements which may affect transportation facilities analyzed as part of this EIR. No supplementary analyses have been conducted for these additional planned improvements, which include the Harrison Street / Oakland Avenue Community Transportation Plan, Broadway Retail Corridor Specific Plan, and I-880 Broadway / Jackson Street Interchange.

It should be noted that none of these improvements are fully funded and approved, and the analysis results presented here only to inform decision makers and the public.

AC Transit East Bay BRT Project

AC Transit has proposed converting the existing 1R-International Rapid into a full BRT service. The 1R currently operates with some BRT features, such as widely-spaced stops at key destinations and transfer points, vehicles designed for easy boarding and alighting, real-time schedules, and transit signal priority. However, AC Transit plans on implementing additional features for the service in the near future, including bus-only median and side-running transitways and stations along the line, completing BRT treatments for a corridor stretching from Berkeley through Downtown Oakland to San Leandro via Telegraph Avenue and International Boulevard.

In the vicinity of the Project, these improvements would generally require the removal of one through lane in each direction along Telegraph Avenue, narrowing the roadway to one vehicular lane in each direction. Buses would run in a protected median, with left turn pockets for autos provided at key intersections. Along Broadway, no travel lanes would be removed and buses would operate in mixed flow. Along 11th and 12th Streets in Downtown Oakland, the BRT service would operate in a side-running configuration, removing one lane of through traffic and eliminating some parking to allow for bulbouts at stations.

Although the BRT is expected to be in service in 2015, the project is only partially funded and not yet approved. As a result, implementation has not been assumed under Near-Term (2015) and Cumulative (2030) analysis scenarios as presented in this Environmental Impact Report (EIR). However, supplementary analysis is provided below for Near-Term (2015) and Cumulative (2030) analysis scenarios assuming the proposed BRT is in service, at study intersections located along the BRT corridor.

It should be noted that the supplementary analysis presented here conservatively assumes the following effects to be negligible:

- Reduction in traffic volumes along the BRT corridor as a result of drivers switching to other parallel corridors due to reduced roadway capacity;

- Reduction in traffic volumes along the BRT corridor and parallel corridors as a result of drivers opting to make trips to other destinations outside of the area or deciding not to make a trip at all; and,

- Reduction in traffic volumes along the BRT corridor as a result of drivers switching to other modes, primarily the new BRT service.

Although the BRT Draft Environmental Impact Statement / Environmental Impact Report (DEIS / DEIR) provide basic screenline volume changes for the BRT corridor and adjacent parallel arterials, the actual volume changes as a result of the BRT are dependent on a multitude of factors including but not limited to roadway and intersection configurations and BRT service characteristics. As a result, the BRT's net effect on trip-making characteristics and driver behavior along the corridor is difficult to estimate at the microscopic level of intersections. In addition, the BRT DEIS / DEIR did not analyze all intersections being analyzed in this EIR.

Given the above considerations, no changes to volumes were assumed after implementation of the BRT. This is a conservative assumption, as it is expected that the BRT would result in decreased volumes along Telegraph Avenue (and a corresponding increase in volumes along most parallel arterials in the corridor).

Intersection Operations

Table 1 summarizes intersection LOS results for Near-Term (2015) without Project Conditions and Near-Term (2015) plus Project (Phase I) Conditions. **Table 2** summarizes intersection LOS results for Near-Term (2015) plus Project (Phase I and II) Conditions. **Table 3** summarizes intersection LOS results for Cumulative (2030) without Project Conditions and Cumulative (2030) plus Project (Phase I and II) Conditions.

Based on the intersection analysis results, the Project would result in significant impacts at Intersection #5 (Telegraph Avenue / 27th Street) under all Project scenarios. Under Near-Term (2015) plus Project (Phase I) Conditions and Near-Term (2015) plus Project (Phase I and II) Conditions, the Project would cause an increase in intersection average delay above the two (2) second threshold. Under Cumulative (2030) plus Project (Phase I and II) Conditions, the Project would cause an increase an v/c ratio above the three (3) percent threshold.

Without the BRT, a Project impact was identified at this intersection for Cumulative (2030) plus Project (Phase I and II) Conditions only; no Project impact was identified under Near-Term (2015) plus Project (Phase I) Conditions or Near-Term (2015) plus Project (Phase I and II) Conditions. As a result, assuming construction and implementation of the BRT, the Project would result in two additional impacts.

Average delay at some intersections would decrease under Project scenarios due to the Project adding traffic to movements which are under capacity (non-critical movements) and underutilizing the green time allotted by the signal, thereby resulting in a higher vehicle throughput and reduced overall intersection average delay.

TABLE 1
NEAR-TERM (2015) PLUS PROJECT (PHASE I) INTERSECTION LEVELS OF SERVICE – WITH BRT

			Near-Term (2015) without Project Conditions				Near-Term (2015) plus Project (Phase I) Conditions			
			AM Pk. Hr.		PM Pk. Hr.		AM Pk. Hr.		PM Pk. Hr.	
No.	Intersection	Traffic Control	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]
Outside Downtown										
5	Telegraph Ave. / 27th St.	Signal	C	22.8	**F**	**100.3**	C	23.4	**F**	**110.4**
Within Downtown										
9	Telegraph Ave. / West Grand Ave.	Signal	C	31.3	D	39.5	C	32.2	D	45.9
20	Telegraph Ave. / 20th St.	Signal	B	14.7	B	18.6	B	15.5	B	19.0
21	Broadway / 20th St.	Signal	B	14.2	B	19.3	B	14.4	B	19.6
35	Madison St. / 12th St.	Signal	B	11.5	A	8.6	B	11.5	A	8.8
36	Oak St. / 12th St.	Signal	B	14.5	B	13.6	B	14.6	B	13.6
38	Madison St. / 11th St.	Signal	B	11.6	A	9.6	B	11.5	A	9.5
39	Franklin St. / 11th St.	Signal	B	14.4	B	14.5	B	14.3	B	14.5

[a] The LOS and delay for signalized intersections and all-way stop controlled intersections represent the average delay for all movements.

SOURCE: AECOM, 2009.

TABLE 2
NEAR-TERM (2015) PLUS PROJECT (PHASE I AND PHASE II) INTERSECTION LEVELS OF SERVICE – WITH BRT

			Near-Term (2015) without Project Conditions				Near-Term (2015) plus Project (Phase I and II) Conditions			
			AM Pk. Hr.		PM Pk. Hr.		AM Pk. Hr.		PM Pk. Hr.	
No.	Intersection	Traffic Control	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]
Outside Downtown										
5	Telegraph Ave. / 27th St.	Signal	C	22.8	**F**	**100.3**	C	24.2	**F**	**>120.0**
Within Downtown										
9	Telegraph Ave. / West Grand Ave.	Signal	C	31.3	D	39.5	C	34.1	E	55.7
20	Telegraph Ave. / 20th St.	Signal	B	14.7	B	18.6	B	16.0	B	19.9
21	Broadway / 20th St.	Signal	B	14.2	B	19.3	B	14.6	C	20.1
35	Madison St. / 12th St.	Signal	B	11.5	A	8.6	B	11.5	A	9.0
36	Oak St. / 12th St.	Signal	B	14.5	B	13.6	B	14.6	B	13.6
38	Madison St. / 11th St.	Signal	B	11.6	A	9.6	B	11.4	A	9.4
39	Franklin St. / 11th St.	Signal	B	14.4	B	14.5	B	14.0	B	14.5

[a] The LOS and delay for signalized intersections and all-way stop controlled intersections represent the average delay for all movements.

SOURCE: AECOM, 2009.

TABLE 3
CUMULATIVE (2030) PLUS PROJECT (PHASE I AND PHASE II) INTERSECTION LEVELS OF SERVICE – WITH BRT

			Cumulative (2030) without Project Conditions				Cumulative (2030) plus Project (Phase I and II) Conditions			
			AM Pk. Hr.		PM Pk. Hr.		AM Pk. Hr.		PM Pk. Hr.	
No.	Intersection	Traffic Control	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]
Outside Downtown										
5	Telegraph Ave. / 27th St.	Signal	C	29.0	**F**	**>120.0**	C	31.6	**F**	**>120.0**
Within Downtown										
9	Telegraph Ave. / West Grand Ave.	Signal	D	37.9	E	59.2	D	46.8	E	78.7
20	Telegraph Ave. / 20th St.	Signal	B	18.3	D	38.0	B	19.7	D	41.2
21	Broadway / 20th St.	Signal	B	15.1	C	34.0	B	15.5	D	35.9
35	Madison St. / 12th St.	Signal	C	25.3	B	10.9	C	25.6	B	11.2
36	Oak St. / 12th St.	Signal	B	16.1	B	16.3	B	16.2	B	16.3
38	Madison St. / 11th St.	Signal	B	10.8	B	11.2	B	10.8	B	11.1
39	Franklin St. / 11th St.	Signal	B	14.5	B	14.0	B	14.2	B	14.0

[a] The LOS and delay for signalized intersections and all-way stop controlled intersections represent the average delay for all movements.

SOURCE: AECOM, 2009.

Roadway Segment Operations

As the BRT would also result in the elimination of one travel lane in each direction along Telegraph Avenue, the roadway analysis results were recalculated for Telegraph Avenue between 20th Street and 27th Street. The results of that analysis are summarized in **Table 4** for Near-Term (2015) without Project Conditions and Near-Term (2015) plus Project (Phase I) Conditions, **Table 5** for Near-Term (2015) plus Project (Phase I and II) Conditions, and **Table 6** for Cumulative (2030) without Project Conditions and Cumulative (2030) plus Project (Phase I and II) Conditions.

Based on the roadway analysis results, the Project would result in a significant impact on Segment #6 (Telegraph Avenue from 20th Street to 27th Street) in the PM peak hour northbound direction under Near-Term (2015) plus Project (Phase I and II) Conditions and in the AM peak hour southbound and PM peak hour northbound directions under Cumulative (2030) plus Project (Phase I and II) Conditions. Under Near-Term (2015) plus Project (Phase I and II) Conditions, the Project causes the segment to degrade from LOS E to LOS F. Under Cumulative (2030) plus Project (Phase I and II) Conditions, the Project causes the segment to degrade from LOS E to LOS F in the AM peak hour causes an increase in v/c ratio above the three (3) percent threshold in the PM peak hour. These would represent new Project impacts, as no impacts were identified on this segment without the BRT.

TABLE 4
NEAR-TERM (2015) PLUS PROJECT (PHASE I) ROADWAY SEGMENT LEVELS OF SERVICE – WITH BRT

					Near-Term (2015) without Project Conditions						Near-Term (2015) plus Project (Phase I) Conditions					
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
No.	Roadway Segment	Dir.	Ln.	Cap. (veh/h)	LOS	Vol.	v/c	LOS	Vol.	v/c	LOS	Vol.	v/c	LOS	Vol.	v/c
6	**Telegraph Avenue** from 20th Street to 27th Street	NB	1	900	C	576	0.64	E	879	0.98	C	578	0.64	E	890	0.99
		SB	1	900	E	779	0.87	D	672	0.75	E	779	0.87	D	674	0.75

Bold indicates segments operating at LOS F.

SOURCE: AECOM, 2009.

TABLE 5
NEAR-TERM (2015) PLUS PROJECT (PHASE I AND II) ROADWAY SEGMENT LEVELS OF SERVICE – WITH BRT

					Near-Term (2015) without Project Conditions						Near-Term (2015) plus Project (Phase I and II) Conditions					
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
No.	Roadway Segment	Dir.	Ln.	Cap. (veh/h)	LOS	Vol.	v/c	LOS	Vol.	v/c	LOS	Vol.	v/c	LOS	Vol.	v/c
6	**Telegraph Avenue** from 20th Street to 27th Street	NB	1	900	C	576	0.64	E	879	0.98	C	582	0.65	**F**	**913**	**1.01**
		SB	1	900	E	779	0.87	D	672	0.75	E	793	0.88	D	680	0.76

Bold indicates segments operating at LOS F.

SOURCE: AECOM, 2009.

TABLE 6
CUMULATIVE (2030) PLUS PROJECT (PHASE I AND II) ROADWAY SEGMENT LEVELS OF SERVICE – WITH BRT

					Cumulative (2030) without Project Conditions						Cumulative (2030) plus Project (Phase I and II) Conditions					
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
No.	Roadway Segment	Dir.	Ln.	Cap. (veh/h)	LOS	Vol.	v/c	LOS	Vol.	v/c	LOS	Vol.	v/c	LOS	Vol.	v/c
6	**Telegraph Avenue** from 20th Street to 27th Street	NB	1	900	D	688	0.76	**F**	**1,080**	**1.20**	D	694	0.77	**F**	**1,114**	**1.24**
		SB	1	900	E	897	1.00	E	779	0.87	**F**	**911**	**1.01**	E	787	0.87

Bold indicates segments operating at LOS F.

SOURCE: AECOM, 2009.

Franklin / Webster Bikeway Project

Currently in the design stage, the Franklin / Webster Bikeway project would install bike lanes on Franklin Street and Webster Street between Broadway and 14th Street. Installation of the bike lanes would generally require removal of one through lane along both Franklin Street and Webster Street.

Table 7 summarizes intersection LOS results for Near-Term (2015) without Project Conditions and Near-Term (2015) plus Project (Phase I) Conditions. **Table 8** summarizes intersection LOS results for Near-Term (2015) plus Project (Phase I and II) Conditions. **Table 9** summarizes intersection LOS results for Cumulative (2030) without Project Conditions and Cumulative (2030) plus Project (Phase I and II) Conditions.

As shown in **Table 7**, **Table 8**, and **Table 9**, all intersections would operate at acceptable conditions, as there is sufficient capacity on these streets and the Project would not result in any significant impacts.

Average delay at some intersections would decrease under Project scenarios due to the Project adding traffic to movements which are under capacity (non-critical movements) and underutilizing the green time allotted by the signal, thereby resulting in a higher vehicle throughput and reduced overall intersection average delay.

TABLE 7
NEAR-TERM (2015) PLUS PROJECT (PHASE I) INTERSECTION LEVELS OF SERVICE – WITH BIKEWAY

			Near-Term (2015) without Project Conditions				Near-Term (2015) plus Project (Phase I) Conditions			
			AM Pk. Hr.		PM Pk. Hr.		AM Pk. Hr.		PM Pk. Hr.	
No.	Intersection	Traffic Control	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]
Within Downtown										
17	Webster St. / 21st St.	Signal	B	13.7	B	19.1	B	14.5	B	19.1
18	Franklin St. / 21st St.	Signal	B	10.4	B	11.8	B	10.1	B	11.6
22	Franklin St. / 20th St.	Signal	B	11.7	B	15.0	B	14.1	B	14.7
23	Webster St. / 20th St.	Signal	C	25.1	C	23.8	C	22.6	C	23.7

[a] The LOS and delay for signalized intersections and all-way stop controlled intersections represent the average delay for all movements.

SOURCE: AECOM, 2009.

TABLE 8
NEAR-TERM (2015) PLUS PROJECT (PHASE I AND PHASE II) INTERSECTION LEVELS OF SERVICE – WITH BIKEWAY

			Near-Term (2015) without Project Conditions				Near-Term (2015) plus Project (Phase I and II) Conditions			
			AM Pk. Hr.		PM Pk. Hr.		AM Pk. Hr.		PM Pk. Hr.	
No.	Intersection	Traffic Control	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]
Within Downtown										
17	Webster St. / 21st St.	Signal	B	13.7	B	19.1	B	15.3	B	19.1
18	Franklin St. / 21st St.	Signal	B	10.4	B	11.8	B	10.0	B	11.6
22	Franklin St. / 20th St.	Signal	B	11.7	B	15.0	B	14.8	B	14.8
23	Webster St. / 20th St.	Signal	C	25.1	C	23.8	C	21.8	C	24.1

[a] The LOS and delay for signalized intersections and all-way stop controlled intersections represent the average delay for all movements.

SOURCE: AECOM, 2009.

TABLE 9
CUMULATIVE (2030) PLUS PROJECT (PHASE I AND PHASE II) INTERSECTION LEVELS OF SERVICE – WITH BIKEWAY

			Cumulative (2030) without Project Conditions				Cumulative (2030) plus Project (Phase I and II) Conditions			
			AM Pk. Hr.		PM Pk. Hr.		AM Pk. Hr.		PM Pk. Hr.	
No.	Intersection	Traffic Control[a]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]
Within Downtown										
17	Webster St. / 21st St.	Signal	B	14.7	B	19.9	B	16.1	B	19.8
18	Franklin St. / 21st St.	Signal	B	10.4	B	12.0	B	10.3	B	11.9
22	Franklin St. / 20th St.	Signal	B	11.7	B	14.9	B	14.5	B	14.6
23	Webster St. / 20th St.	Signal	C	24.6	C	25.9	C	21.7	C	26.1

SOURCE: AECOM, 2009.

Other Planned Transportation Improvements

In addition to the above improvements for which a separate supplementary analysis was conducted, other transportation improvements in various stages of planning are discussed below.

Harrison Street / Oakland Avenue Community Transportation Plan (CTP)

This planning effort proposes a series of multi-modal improvements to the Harrison Street / Oakland Avenue Corridor. Included are pedestrian improvements (bulbouts, sidewalk, improved crossings), bicycle improvements, and transit improvements (bus bulbouts, bus stop relocations), as well as possible roadway closures and road diets. These improvements could affect study intersections in this EIR located along the corridor, including the following intersections:

- Intersection #1: Harrison Street / Stanley Place / I-580 EB Off-Ramp;
- Intersection #2: Oakland Avenue / Perry Place / I-580 EB Ramps;
- Intersection #3: Harrison Street / 27th Street / 24th Street; and,
- Intersection #12: Harrison Street / Grand Avenue.

Because a finalized design is not yet approved or funded and the Notice of Preparation (NOP) for the CTP was released after the NOP for this EIR, potential effects as a result of the Harrison-Oakland CTP were not assumed under Near-Term (2015) and Cumulative (2030) scenarios. As a result, any mitigation measures proposed at intersections where the CTP is proposing changes may ultimately be deemed in conflict with the goals of the CTP and therefore infeasible.

Broadway Retail Corridor Specific Plan

This planning effort will outline the details for rezoning and redevelopment of the Broadway Auto Row along Broadway between 23rd Street and 29th Street. Currently occupied primarily by car dealerships and surface parking, the plan proposes to transform this stretch of Broadway into a mixed-use corridor with residential units above ground-floor retail uses. The plan would likely result in substantial changes to traffic volumes and circulation, as well as intersection, roadway, pedestrian, and transit facilities in the area. Possible transportation-related improvements being considered are improved pedestrian and bicycle facilities to improve access to transit stops and stations and enhance circulation within the area by non-auto modes. Opportunities to redesign existing transit services or implement new services such as special shuttles will also be considered and the possibility of improvements to bus stops such as shelters, information, and signage will also be evaluated. These improvements could affect the following study intersections in this EIR:

- Intersection #4: Broadway / 27th Street; and,
- Intersection #10: Broadway / Grand Avenue.

Because a finalized plan has not yet approved or funded, potential effects as a result of the Broadway Retail Corridor Specific Plan were not assumed under Near-Term (2015) and Cumulative (2030) scenarios.

I-880 Broadway / Jackson Street Interchange

A Caltrans Project Study Report (PSR) is currently being prepared by the Alameda County Transportation Improvement Authority (ACTIA) and the City of Alameda, improving traffic operations and circulation in the area around the I-880 Broadway / Jackson Street Interchange. Although the project is not yet fully funded, it could include any of the following elements:

- Construction of a new I-880 southbound off-ramp at Martin Luther King, Jr. Way, relieving traffic using the southbound off-ramp at Broadway;
- Reconstruction of the I-880 northbound off-ramp at Broadway to allow vehicles to directly access the Webster Tube ;
- Improvements to the existing Traffic Operations System (TOS) at the Posey / Webster Tubes, I-880, and I-980; and,

- Improvements along 6th Street leading to a new I-880 northbound on-ramp at Market Street.

These elements would affect circulation patterns in the area and could affect the following study intersection in this EIR:

- Intersection #42: Jackson Street / 6th Street / I-880 NB Ramp.

Caltrans have submitted its comments on the Draft PSR to ACTIA, with the final PSR set for completion by late 2009. Since the project is not fully funded nor approved and it is currently unclear how the various improvements would affect operations at study intersections in this EIR located in the vicinity of the interchange, this improvement project was not assumed under Near-Term (2015) and Cumulative (2030) scenarios.

HCM Signalized Intersection Capacity Analysis — Near-Term AM
5: 27th Street & Telegraph Avenue — Kaiser Center Transportation Study

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	343	354	134	43	244	107	81	360	22	46	327	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.96	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	1863	1546	1762	1863	1520	1763	1842		1765	1770	
Flt Permitted	0.43	1.00	1.00	0.53	1.00	1.00	0.18	1.00		0.29	1.00	
Satd. Flow (perm)	809	1863	1546	976	1863	1520	336	1842		540	1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	373	385	146	47	265	116	84	391	24	50	355	145
RTOR Reduction (vph)	0	0	76	0	0	72	0	3	0	0	19	0
Lane Group Flow (vph)	373	385	70	47	265	44	84	412	0	50	481	0
Confl. Peds. (#/hr)	1		1	8		8	12		12	6		6
Confl. Bikes (#/hr)			2			5			27			6
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	49.0	40.7	40.7	36.4	32.6	32.6	27.0	27.0		27.0	27.0	
Effective Green, g (s)	49.0	40.7	40.7	36.4	32.6	32.6	27.0	27.0		27.0	27.0	
Actuated g/C Ratio	0.58	0.48	0.48	0.43	0.38	0.38	0.32	0.32		0.32	0.32	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	601	892	740	453	715	583	107	585		172	562	
v/s Ratio Prot	c0.09	0.21		0.00	0.14			0.22			c0.27	
v/s Ratio Perm	c0.27		0.05	0.04		0.03	0.25			0.09		
v/c Ratio	0.62	0.43	0.09	0.10	0.37	0.08	0.79	0.70		0.29	0.86	
Uniform Delay, d1	10.6	14.6	12.1	14.3	18.8	16.6	26.4	25.5		21.8	27.2	
Progression Factor	1.00	1.00	1.00	0.72	0.66	0.31	1.02	1.01		1.00	1.00	
Incremental Delay, d2	1.4	1.5	0.3	0.0	1.5	0.3	27.1	3.0		0.3	11.7	
Delay (s)	12.0	16.1	12.3	10.3	13.8	5.4	54.0	28.7		22.1	38.9	
Level of Service	B	B	B	B	B	A	D	C		C	D	
Approach Delay (s)		13.8			11.2			33.0			37.4	
Approach LOS		B			B			C			D	

Intersection Summary				
HCM Average Control Delay	22.8	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	83.1%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Near-Term AM
9: West Grand Avenue & Telegraph Avenue — Kaiser Center Transportation Study

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	108	776	357	68	419	65	201	256	31	86	354	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1764	3427	1553	1768	3341		1770	1826		1757	1805	
Flt Permitted	0.32	1.00	1.00	0.16	1.00		0.95	1.00		0.58	1.00	
Satd. Flow (perm)	599	3427	1553	304	3341		1770	1826		1064	1805	
Peak-hour factor, PHF	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	808	388	74	455	71	218	269	34	93	385	84
RTOR Reduction (vph)	0	0	276	0	14	0	0	5	0	0	9	0
Lane Group Flow (vph)	117	808	112	74	512	0	218	298	0	93	460	0
Confl. Peds. (#/hr)	4		4	4		4	4		4	11		11
Confl. Bikes (#/hr)			3			7			21			1
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4						6		
Actuated Green, G (s)	24.5	24.5	24.5	24.5	24.5		12.3	50.0		33.2	33.2	
Effective Green, g (s)	24.5	24.5	24.5	24.5	24.5		12.3	50.0		33.2	33.2	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29		0.14	0.59		0.39	0.39	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	173	988	448	88	963		256	1074		416	705	
v/s Ratio Prot		0.24			0.15		c0.12	0.16			c0.25	
v/s Ratio Perm	0.20		0.07	c0.24						0.09		
v/c Ratio	0.68	0.82	0.25	0.84	0.53		0.85	0.28		0.22	0.65	
Uniform Delay, d1	26.7	28.2	23.2	28.4	25.4		35.5	8.6		17.3	21.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.94	1.03	
Incremental Delay, d2	19.2	7.5	1.3	59.2	2.1		22.1	0.6		1.1	4.1	
Delay (s)	46.0	35.7	24.5	87.6	27.5		57.6	9.3		17.3	25.9	
Level of Service	D	D	C	F	C		E	A		B	C	
Approach Delay (s)		33.3			34.9			29.5			24.5	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM Average Control Delay	31.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	15.0	
Intersection Capacity Utilization	76.5%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Near-Term AM
20: 20th Street & Telegraph Avenue — Kaiser Center Transportation Study

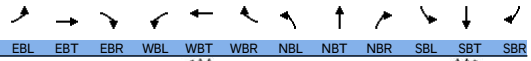
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	77	20	12	196	99	34	458	24	158	163	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.97			1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1759	1789			1855	1537	1758	1845		1769	1774	
Flt Permitted	0.51	1.00			0.98	1.00	0.61	1.00		0.30	1.00	
Satd. Flow (perm)	953	1789			1824	1537	1128	1845		553	1774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	84	22	13	209	108	37	467	26	172	177	63
RTOR Reduction (vph)	0	17	0	0	0	85	0	3	0	0	16	0
Lane Group Flow (vph)	21	89	0	0	222	23	37	490	0	172	224	0
Confl. Peds. (#/hr)	10		10	19		19	5		5	4		4
Confl. Bikes (#/hr)			4			1			3			9
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	12.7	12.7			12.7	12.7	27.4	27.4		38.3	38.3	
Effective Green, g (s)	12.7	12.7			12.7	12.7	27.4	27.4		38.3	38.3	
Actuated g/C Ratio	0.21	0.21			0.21	0.21	0.46	0.46		0.64	0.64	
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	202	379			386	325	515	843		483	1132	
v/s Ratio Prot		0.05						c0.27		c0.04	0.13	
v/s Ratio Perm	0.02				c0.12	0.01	0.03			0.19		
v/c Ratio	0.10	0.23			0.58	0.07	0.07	0.58		0.36	0.20	
Uniform Delay, d1	19.1	19.6			21.2	18.9	9.2	12.1		5.9	4.5	
Progression Factor	1.00	1.00			1.01	1.36	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.3			1.9	0.1	0.3	2.9		0.5	0.4	
Delay (s)	19.3	19.9			23.4	25.9	9.4	15.0		6.4	4.9	
Level of Service	B	B			C	C	A	B		A	A	
Approach Delay (s)		19.8			24.2			14.6			5.5	
Approach LOS		B			C			B			A	

Intersection Summary				
HCM Average Control Delay	14.7	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	63.2%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Near-Term AM
21: 20th Street & Broadway — Kaiser Center Transportation Study

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	152	61	48	154	111	60	478	68	63	413	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			0.91	
Frpb, ped/bikes		1.00	0.93	1.00	0.95			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.93	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.94			0.98			0.99	
Flt Protected		1.00	1.00	0.95	1.00			1.00			0.99	
Satd. Flow (prot)		1855	1473	1639	1657			3412			4981	
Flt Permitted		0.98	1.00	0.65	1.00			0.86			0.80	
Satd. Flow (perm)		1827	1473	1114	1657			2958			4009	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	165	66	52	167	121	65	514	74	68	449	28
RTOR Reduction (vph)	0	0	42	0	44	0	0	17	0	0	10	0
Lane Group Flow (vph)	0	174	24	52	244	0	0	636	0	0	535	0
Confl. Peds. (#/hr)	58		58	99		99	72		72	49		49
Confl. Bikes (#/hr)			7			33			10			6
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Effective Green, g (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Actuated g/C Ratio		0.37	0.37	0.37	0.37			0.48			0.30	
Clearance Time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Grp Cap (vph)		670	540	408	608			1483			1203	
v/s Ratio Prot					c0.15			c0.05				
v/s Ratio Perm		0.10	0.02	0.05				c0.16			0.13	
v/c Ratio		0.26	0.04	0.13	0.40			0.43			0.44	
Uniform Delay, d1		13.3	12.2	12.6	14.1			10.1			17.0	
Progression Factor		0.88	0.89	1.00	1.00			1.00			1.00	
Incremental Delay, d2		0.9	0.2	0.6	2.0			0.9			1.2	
Delay (s)		12.6	11.0	13.3	16.1			11.0			18.2	
Level of Service		B	B	B	B			B			B	
Approach Delay (s)		12.2			15.7			11.0			18.2	
Approach LOS		B			B			B			B	

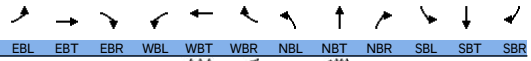
Intersection Summary				
HCM Average Control Delay	14.2	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.42			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	78.4%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	415	1502	0	0	0	0	0	372	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.91						0.91	
Frpb, ped/bikes					1.00						0.99	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					4993						4912	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					4993						4912	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.98	0.92
Adj. Flow (vph)	0	0	0	451	1548	0	0	0	0	0	380	83
RTOR Reduction (vph)	0	0	0	0	88	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	0	1911	0	0	0	0	0	460	0
Confl. Peds. (#/hr)	48		48	30		30	54		54	27		27
Confl. Bikes (#/hr)			9			5			4			1
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2164						2169	
v/s Ratio Prot											c0.09	
v/s Ratio Perm					0.38							
v/c Ratio					0.88						0.21	
Uniform Delay, d1					15.6						10.3	
Progression Factor					0.48						1.00	
Incremental Delay, d2					4.3						0.2	
Delay (s)					11.8						10.5	
Level of Service					B						B	
Approach Delay (s)		0.0			11.8			0.0			10.5	
Approach LOS		A			B			A			B	

Intersection Summary				
HCM Average Control Delay	11.5	HCM Level of Service		B
HCM Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		7.5
Intersection Capacity Utilization	60.0%	ICU Level of Service		B
Analysis Period (min)	15			

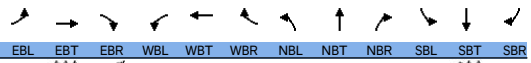
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1684	78	324	786	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5		4.0				
Lane Util. Factor					0.91	1.00		0.86				
Frpb, ped/bikes					1.00	0.93		1.00				
Flpb, ped/bikes					1.00	1.00		0.98				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1467		6163				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1467		6163				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.93	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1736	85	348	854	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	10	0	3	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1736	75	0	1199	0	0	0	0
Confl. Peds. (#/hr)	102		102	84		84	84		84	168		168
Confl. Bikes (#/hr)			1									1
Turn Type						Perm	Perm					
Protected Phases					6			4				
Permitted Phases						6	4					
Actuated Green, G (s)					29.9	29.9		20.6				
Effective Green, g (s)					29.9	29.9		20.6				
Actuated g/C Ratio					0.50	0.50		0.34				
Clearance Time (s)					5.5	5.5		4.0				
Lane Grp Cap (vph)					2534	731		2116				
v/s Ratio Prot					c0.34							
v/s Ratio Perm						0.05		0.19				
v/c Ratio					0.69	0.10		0.57				
Uniform Delay, d1					11.5	8.0		16.1				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					1.5	0.3		1.1				
Delay (s)					13.0	8.2		17.2				
Level of Service					B	A		B				
Approach Delay (s)		0.0			12.8			17.2			0.0	
Approach LOS		A			B			B			A	

Intersection Summary				
HCM Average Control Delay	14.5	HCM Level of Service		B
HCM Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		9.5
Intersection Capacity Utilization	65.1%	ICU Level of Service		C
Analysis Period (min)	15			

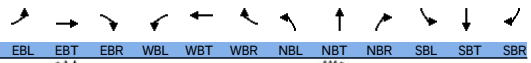
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	398	142	0	0	0	0	0	0	26	772	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5								5.5	
Lane Util. Factor		0.91	1.00								0.91	
Frpb, ped/bikes		1.00	0.95								1.00	
Flpb, ped/bikes		1.00	1.00								1.00	
Frt		1.00	0.85								1.00	
Flt Protected		1.00	1.00								1.00	
Satd. Flow (prot)		5085	1503								5074	
Flt Permitted		1.00	1.00								1.00	
Satd. Flow (perm)		5085	1503								5074	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	0	433	154	0	0	0	0	0	0	28	813	0
RTOR Reduction (vph)	0	0	50	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	433	104	0	0	0	0	0	0	0	835	0
Confl. Peds. (#/hr)	32		32	21		21	23		23	17		17
Confl. Bikes (#/hr)			10			10			2			3
Turn Type			Perm						Perm			
Protected Phases		2									4	
Permitted Phases			2							4		
Actuated Green, G (s)		23.0	23.0								26.0	
Effective Green, g (s)		23.0	23.0								26.0	
Actuated g/C Ratio		0.38	0.38								0.43	
Clearance Time (s)		5.5	5.5								5.5	
Lane Grp Cap (vph)		1949	576								2199	
v/s Ratio Prot		c0.09										
v/s Ratio Perm			0.07								0.16	
v/c Ratio		0.22	0.18								0.38	
Uniform Delay, d1		12.5	12.3								11.5	
Progression Factor		0.76	0.71								1.09	
Incremental Delay, d2		0.3	0.7								0.4	
Delay (s)		9.8	9.4								12.9	
Level of Service		A	A								B	
Approach Delay (s)		9.7			0.0			0.0			12.9	
Approach LOS		A			A			A			B	

Intersection Summary				
HCM Average Control Delay	11.6	HCM Level of Service		B
HCM Volume to Capacity ratio	0.31			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		11.0
Intersection Capacity Utilization	38.8%	ICU Level of Service		A
Analysis Period (min)	15			

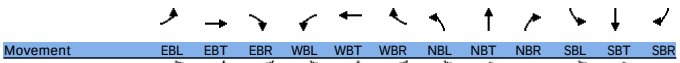
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	86	402	0	0	0	0	0	328	59	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.91						0.86				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		5004						6232				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		5004						6232				
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	432	0	0	0	0	0	357	64	0	0	0
RTOR Reduction (vph)	0	78	0	0	0	0	0	18	0	0	0	0
Lane Group Flow (vph)	0	448	0	0	0	0	0	403	0	0	0	0
Confl. Peds. (#/hr)	46		46	56		56	21		21	52		52
Confl. Bikes (#/hr)			2			2			5			
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		10.0						43.0				
Effective Green, g (s)		10.0						43.0				
Actuated g/C Ratio		0.17						0.72				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		834						4466				
v/s Ratio Prot								c0.06				
v/s Ratio Perm		0.09										
v/c Ratio		0.54						0.09				
Uniform Delay, d1		22.9						2.6				
Progression Factor		1.03						1.00				
Incremental Delay, d2		0.2						0.0				
Delay (s)		23.9						2.6				
Level of Service		C						A				
Approach Delay (s)		23.9			0.0			2.6			0.0	
Approach LOS		C			A			A			A	

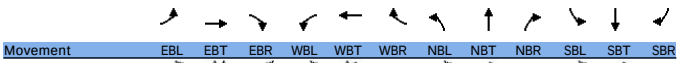
Intersection Summary				
HCM Average Control Delay	14.4	HCM Level of Service		B
HCM Volume to Capacity ratio	0.17			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		7.0
Intersection Capacity Utilization	39.8%	ICU Level of Service		A
Analysis Period (min)	15			

c Critical Lane Group



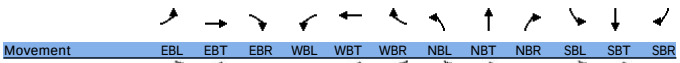
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	210	403	136	64	530	114	175	479	46	133	459	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1534	1769	1863	1531	1770	1832		1765	1714	
Flt Permitted	0.12	1.00	1.00	0.36	1.00	1.00	0.12	1.00		0.20	1.00	
Satd. Flow (perm)	226	1863	1534	664	1863	1531	226	1832		363	1714	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	228	438	148	70	576	124	190	521	50	145	499	380
RTOR Reduction (vph)	0	0	90	0	0	83	0	4	0	0	32	0
Lane Group Flow (vph)	228	438	58	70	576	41	190	567	0	145	847	0
Confl. Peds. (#/hr)	4		4	1		1	17		17	10		10
Confl. Bikes (#/hr)			4			10			17			28
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	43.0	33.1	33.1	33.8	28.4	28.4	33.0	33.0		33.0	33.0	
Effective Green, g (s)	43.0	33.1	33.1	33.8	28.4	28.4	33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.51	0.39	0.39	0.40	0.33	0.33	0.39	0.39		0.39	0.39	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	298	725	597	334	622	512	88	711		141	665	
v/s Ratio Prot	c0.09	0.24		0.01	c0.31			0.31			0.49	
v/s Ratio Perm	0.30		0.04	0.07		0.03	c0.84			0.40		
v/c Ratio	0.77	0.60	0.10	0.21	0.93	0.08	2.16	0.80		1.03	1.27	
Uniform Delay, d1	17.4	20.7	16.5	16.5	27.3	19.4	26.0	23.0		26.0	26.0	
Progression Factor	1.00	1.00	1.00	1.52	1.39	2.65	0.70	0.66		1.00	1.00	
Incremental Delay, d2	10.1	3.7	0.3	0.1	21.2	0.3	550.2	4.6		83.5	134.4	
Delay (s)	27.5	24.4	16.8	25.2	59.1	51.6	568.4	19.9		109.5	160.4	
Level of Service	C	C	B	C	E	D	F	B		F	F	
Approach Delay (s)		23.9			54.8			156.8			153.2	
Approach LOS		C			D			F			F	

Intersection Summary				
HCM Average Control Delay	100.3	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.48			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	111.5%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				



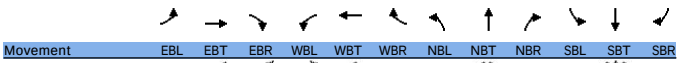
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	677	32	19	810	116	95	531	33	137	429	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3427	1532	1760	3336		1770	1844		1760	1792	
Flt Permitted	0.17	1.00	1.00	0.17	1.00		0.95	1.00		0.43	1.00	
Satd. Flow (perm)	308	3427	1532	315	3336		1770	1844		801	1792	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	29	736	35	21	880	126	103	577	36	149	452	115
RTOR Reduction (vph)	0	0	25	0	13	0	0	2	0	0	9	0
Lane Group Flow (vph)	29	736	10	21	993	0	103	611	0	149	558	0
Confl. Peds. (#/hr)	12		12	18		18	3		3	12		12
Confl. Bikes (#/hr)			8			6			10			28
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4						6		
Actuated Green, G (s)	24.2	24.2	24.2	24.2	24.2		8.2	50.3		37.6	37.6	
Effective Green, g (s)	24.2	24.2	24.2	24.2	24.2		8.2	50.3		37.6	37.6	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28		0.10	0.59		0.44	0.44	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	88	976	436	90	950		171	1091		354	793	
v/s Ratio Prot		0.21			c0.30		0.06	c0.33			c0.31	
v/s Ratio Perm	0.09		0.01	0.07						0.19		
v/c Ratio	0.33	0.75	0.02	0.23	1.05		0.60	0.56		0.42	0.70	
Uniform Delay, d1	24.0	27.7	21.9	23.3	30.4		36.8	10.6		16.2	19.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.18	1.22	
Incremental Delay, d2	9.7	5.4	0.1	6.0	41.8		4.1	2.1		1.3	1.9	
Delay (s)	33.7	33.1	22.0	29.3	72.2		40.9	12.7		20.5	25.3	
Level of Service	C	C	C	C	E		D	B		C	C	
Approach Delay (s)		32.6			71.3			16.7			24.3	
Approach LOS		C			E			B			C	

Intersection Summary				
HCM Average Control Delay	39.5	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.84			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	16.5	
Intersection Capacity Utilization	77.6%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	165	30	12	196	193	26	657	27	40	180	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.96	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.98	1.00			1.00	1.00	0.98	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1736	1798			1855	1526	1735	1847		1770	1764	
Flt Permitted	0.51	1.00			0.98	1.00	0.60	1.00		0.16	1.00	
Satd. Flow (perm)	936	1798			1814	1526	1087	1847		296	1764	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92	0.92
Adj. Flow (vph)	32	179	33	13	213	210	28	714	29	41	196	70
RTOR Reduction (vph)	0	13	0	0	0	164	0	2	0	0	16	0
Lane Group Flow (vph)	32	199	0	0	226	46	28	741	0	41	250	0
Confl. Peds. (#/hr)	32		32	24		24	16		16	19		19
Confl. Bikes (#/hr)			6			4			25			3
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	13.1	13.1			13.1	13.1	30.7	30.7		37.9	37.9	
Effective Green, g (s)	13.1	13.1			13.1	13.1	30.7	30.7		37.9	37.9	
Actuated g/C Ratio	0.22	0.22			0.22	0.22	0.51	0.51		0.63	0.63	
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	204	393			396	333	556	945		253	1114	
v/s Ratio Prot		0.11						c0.40		0.01	c0.14	
v/s Ratio Perm	0.03				c0.12	0.03	0.03			0.09		
v/c Ratio	0.16	0.51			0.57	0.14	0.05	0.78		0.16	0.22	
Uniform Delay, d1	19.0	20.6			20.9	18.9	7.3	11.9		7.9	4.7	
Progression Factor	1.00	1.00			1.05	1.67	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.0			1.4	0.1	0.2	6.5		0.3	0.5	
Delay (s)	19.3	21.6			23.4	31.6	7.5	18.4		8.2	5.2	
Level of Service	B	C			C	C	A	B		A	A	
Approach Delay (s)		21.3			27.4			18.0			5.6	
Approach LOS		C			C			B			A	

Intersection Summary				
HCM Average Control Delay	18.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	78.8%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	152	95	61	237	102	109	803	113	44	554	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			0.91	
Frpb, ped/bikes		1.00	0.90	1.00	0.96			0.99			0.99	
Flpb, ped/bikes		1.00	1.00	0.91	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.95			0.98			0.99	
Flt Protected		0.99	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1842	1430	1617	1709			3413			4988	
Flt Permitted		0.93	1.00	0.62	1.00			0.73			0.81	
Satd. Flow (perm)		1729	1430	1062	1709			2494			4033	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	25	165	103	66	258	111	118	873	119	48	602	42
RTOR Reduction (vph)	0	0	65	0	26	0	0	16	0	0	12	0
Lane Group Flow (vph)	0	190	38	66	343	0	0	1095	0	0	680	0
Confl. Peds. (#/hr)	74		74	120		120	85		85	65		65
Confl. Bikes (#/hr)			30			13			10			6
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Effective Green, g (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Actuated g/C Ratio		0.37	0.37	0.37	0.37			0.48			0.30	
Clearance Time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Grp Cap (vph)		634	524	389	627			1313			1210	
v/s Ratio Prot					c0.20			c0.10				
v/s Ratio Perm		0.11	0.03	0.06				c0.31			0.17	
v/c Ratio		0.30	0.07	0.17	0.55			0.83			0.56	
Uniform Delay, d1		13.5	12.4	12.8	15.1			13.4			17.7	
Progression Factor		1.15	1.96	1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.2	0.3	0.9	3.4			6.3			1.9	
Delay (s)		16.7	24.5	13.8	18.5			19.7			19.6	
Level of Service		B	C	B	B			B			B	
Approach Delay (s)		19.4			17.8			19.7			19.6	
Approach LOS		B			B			B			B	

Intersection Summary				
HCM Average Control Delay	19.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	93.8%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	249	941	0	0	0	0	0	697	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.91						0.91	
Frpb, ped/bikes					1.00						1.00	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.99	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					4976						5024	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					4976						5024	
Peak-hour factor, PHF	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25	0.25	0.25	0.92	0.92
Adj. Flow (vph)	0	0	0	271	970	0	0	0	0	0	758	50
RTOR Reduction (vph)	0	0	0	0	53	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	0	0	0	1188	0	0	0	0	0	796	0
Confl. Peds. (#/hr)	32		32	47		47	36		36	29		29
Confl. Bikes (#/hr)			3			13			9			2
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2156						2219	
v/s Ratio Prot											c0.16	
v/s Ratio Perm					0.24							
v/c Ratio					0.55						0.36	
Uniform Delay, d1					12.7						11.1	
Progression Factor					0.45						1.00	
Incremental Delay, d2					0.9						0.5	
Delay (s)					6.7						11.6	
Level of Service					A						B	
Approach Delay (s)		0.0			6.7			0.0			11.6	
Approach LOS		A			A			A			B	

Intersection Summary				
HCM Average Control Delay	8.6	HCM Level of Service		A
HCM Volume to Capacity ratio	0.45			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		7.5
Intersection Capacity Utilization	46.7%	ICU Level of Service		A
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1015	60	178	984	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5		4.0				
Lane Util. Factor					0.91	1.00		0.86				
Frpb, ped/bikes					1.00	0.94		1.00				
Flpb, ped/bikes					1.00	1.00		0.98				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1484		6239				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1484		6239				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.95	0.92	0.92	0.96	0.25	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	1068	65	193	1025	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	4	0	28	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1068	61	0	1190	0	0	0	0
Confl. Peds. (#/hr)	121		121	69		69	118		118	84		84
Confl. Bikes (#/hr)			3									15
Turn Type						Perm	Perm					
Protected Phases					6			4				
Permitted Phases						6	4					
Actuated Green, G (s)					29.9	29.9		20.6				
Effective Green, g (s)					29.9	29.9		20.6				
Actuated g/C Ratio					0.50	0.50		0.34				
Clearance Time (s)					5.5	5.5		4.0				
Lane Grp Cap (vph)					2534	740		2142				
v/s Ratio Prot					c0.21							
v/s Ratio Perm						0.04		0.19				
v/c Ratio					0.42	0.08		0.56				
Uniform Delay, d1					9.6	7.9		16.0				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					0.5	0.2		1.0				
Delay (s)					10.1	8.1		17.0				
Level of Service					B	A		B				
Approach Delay (s)		0.0			10.0			17.0			0.0	
Approach LOS		A			A			B			A	

Intersection Summary				
HCM Average Control Delay	13.6	HCM Level of Service		B
HCM Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		9.5
Intersection Capacity Utilization	46.5%	ICU Level of Service		A
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	910	194	0	0	0	0	0	0	51	873	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5								5.5	
Lane Util. Factor		0.91	1.00								0.91	
Frpb, ped/bikes		1.00	0.96								1.00	
Flpb, ped/bikes		1.00	1.00								1.00	
Frt		1.00	0.85								1.00	
Flt Protected		1.00	1.00								1.00	
Satd. Flow (prot)		5085	1527								5066	
Flt Permitted		1.00	1.00								1.00	
Satd. Flow (perm)		5085	1527								5066	
Peak-hour factor, PHF	0.25	0.96	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.93	0.25
Adj. Flow (vph)	0	948	211	0	0	0	0	0	0	55	939	0
RTOR Reduction (vph)	0	0	33	0	0	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	948	178	0	0	0	0	0	0	0	983	0
Confl. Peds. (#/hr)	20		20	30		30	12		12	17		17
Confl. Bikes (#/hr)			5			7			3			
Turn Type			Perm							Perm		
Protected Phases		2									4	
Permitted Phases			2							4		
Actuated Green, G (s)		23.0	23.0								26.0	
Effective Green, g (s)		23.0	23.0								26.0	
Actuated g/C Ratio		0.38	0.38								0.43	
Clearance Time (s)		5.5	5.5								5.5	
Lane Grp Cap (vph)		1949	585								2195	
v/s Ratio Prot		c0.19										
v/s Ratio Perm			0.12								0.19	
v/c Ratio		0.49	0.30								0.45	
Uniform Delay, d1		14.0	12.9								12.0	
Progression Factor		0.78	0.64								0.58	
Incremental Delay, d2		0.8	1.3								0.6	
Delay (s)		11.8	9.6								7.6	
Level of Service		B	A								A	
Approach Delay (s)		11.4			0.0			0.0			7.6	
Approach LOS		B			A			A			A	

Intersection Summary				
HCM Average Control Delay	9.6	HCM Level of Service		A
HCM Volume to Capacity ratio	0.47			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		11.0
Intersection Capacity Utilization	44.7%	ICU Level of Service		A
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	724	0	0	0	0	0	319	134	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.91						0.86				
Frpb, ped/bikes		1.00						0.98				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		5070						6032				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		5070						6032				
Peak-hour factor, PHF	0.92	0.92	0.25	0.25	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25
Adj. Flow (vph)	26	787	0	0	0	0	0	347	138	0	0	0
RTOR Reduction (vph)	0	7	0	0	0	0	0	22	0	0	0	0
Lane Group Flow (vph)	0	806	0	0	0	0	0	463	0	0	0	0
Confl. Peds. (#/hr)	46		46	17		17	53		53	68		68
Confl. Bikes (#/hr)			1			1			6			2
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		15.3						37.7				
Effective Green, g (s)		15.3						37.7				
Actuated g/C Ratio		0.26						0.63				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		1293						3790				
v/s Ratio Prot								c0.08				
v/s Ratio Perm		0.16										
v/c Ratio		0.62						0.12				
Uniform Delay, d1		19.8						4.5				
Progression Factor		1.00						1.00				
Incremental Delay, d2		0.7						0.1				
Delay (s)		20.5						4.6				
Level of Service		C						A				
Approach Delay (s)		20.5			0.0			4.6			0.0	
Approach LOS		C			A			A			A	

Intersection Summary				
HCM Average Control Delay	14.5	HCM Level of Service		B
HCM Volume to Capacity ratio	0.27			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		7.0
Intersection Capacity Utilization	40.9%	ICU Level of Service		A
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	394	406	153	50	280	122	94	415	26	53	377	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.96	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	1863	1546	1764	1863	1519	1764	1842		1766	1771	
Flt Permitted	0.36	1.00	1.00	0.45	1.00	1.00	0.14	1.00		0.25	1.00	
Satd. Flow (perm)	677	1863	1546	840	1863	1519	258	1842		467	1771	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	428	441	166	54	304	133	98	451	28	58	410	167
RTOR Reduction (vph)	0	0	92	0	0	87	0	3	0	0	18	0
Lane Group Flow (vph)	428	441	74	54	304	46	98	476	0	58	559	0
Confl. Peds. (#/hr)	1		1	8		8	12		12	6		6
Confl. Bikes (#/hr)			2			5			27			6
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	46.2	37.8	37.8	33.0	29.1	29.1	29.8	29.8		29.8	29.8	
Effective Green, g (s)	46.2	37.8	37.8	33.0	29.1	29.1	29.8	29.8		29.8	29.8	
Actuated g/C Ratio	0.54	0.44	0.44	0.39	0.34	0.34	0.35	0.35		0.35	0.35	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	530	828	688	369	638	520	90	646		164	621	
v/s Ratio Prot	c0.12	0.24		0.01	0.16			0.26			0.32	
v/s Ratio Perm	c0.32		0.05	0.05		0.03	c0.38			0.12		
v/c Ratio	0.81	0.53	0.11	0.15	0.48	0.09	1.09	0.74		0.35	0.90	
Uniform Delay, d1	13.2	17.2	13.8	16.5	22.0	18.9	27.6	24.2		20.5	26.2	
Progression Factor	1.00	1.00	1.00	0.71	0.64	0.26	1.02	1.01		1.00	1.00	
Incremental Delay, d2	8.3	2.4	0.3	0.1	2.5	0.3	115.7	3.4		0.5	15.5	
Delay (s)	21.5	19.6	14.1	11.7	16.5	5.3	143.8	27.9		20.9	41.7	
Level of Service	C	B	B	B	B	A	F	C		C	D	
Approach Delay (s)		19.5			13.0			47.6			39.8	
Approach LOS		B			B			D			D	

Intersection Summary				
HCM Average Control Delay	29.0	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.91			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	90.6%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	892	410	79	482	74	232	296	35	99	409	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1765	3427	1553	1768	3343		1770	1828		1757	1805	
Flt Permitted	0.27	1.00	1.00	0.16	1.00		0.95	1.00		0.55	1.00	
Satd. Flow (perm)	499	3427	1553	297	3343		1770	1828		1020	1805	
Peak-hour factor, PHF	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	929	446	86	524	80	252	312	38	108	445	97
RTOR Reduction (vph)	0	0	314	0	13	0	0	5	0	0	9	0
Lane Group Flow (vph)	136	929	132	86	591	0	252	345	0	108	533	0
Confl. Peds. (#/hr)	4		4	4		4	4		4	11		11
Confl. Bikes (#/hr)			3			7			21			1
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4						6		
Actuated Green, G (s)	25.1	25.1	25.1	25.1	25.1		12.9	49.4		32.0	32.0	
Effective Green, g (s)	25.1	25.1	25.1	25.1	25.1		12.9	49.4		32.0	32.0	
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30		0.15	0.58		0.38	0.38	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	147	1012	459	88	987		269	1062		384	680	
v/s Ratio Prot		0.27			0.18		c0.14	0.19			c0.30	
v/s Ratio Perm	0.27		0.08	c0.29						0.11		
v/c Ratio	0.93	0.92	0.29	0.98	0.60		0.94	0.32		0.28	0.78	
Uniform Delay, d1	29.0	29.0	23.1	29.7	25.6		35.6	9.2		18.5	23.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.91	1.01	
Incremental Delay, d2	56.5	14.3	1.6	89.9	2.7		37.4	0.8		1.5	7.3	
Delay (s)	85.6	43.3	24.6	119.5	28.3		73.1	10.0		18.3	30.9	
Level of Service	F	D	C	F	C		E	B		B	C	
Approach Delay (s)		41.6			39.7			36.4			28.8	
Approach LOS		D			D			D			C	

Intersection Summary				
HCM Average Control Delay	37.9	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.88			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	15.0	
Intersection Capacity Utilization	85.3%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	92	24	15	234	119	40	547	28	188	194	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.97			1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1760	1790			1855	1538	1759	1846		1770	1773	
Flt Permitted	0.45	1.00			0.98	1.00	0.58	1.00		0.18	1.00	
Satd. Flow (perm)	842	1790			1821	1538	1081	1846		329	1773	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	100	26	16	249	129	43	558	30	204	211	76
RTOR Reduction (vph)	0	18	0	0	0	98	0	3	0	0	17	0
Lane Group Flow (vph)	24	108	0	0	265	31	43	585	0	204	270	0
Confl. Peds. (#/hr)	10		10	19		19	5		5	4		4
Confl. Bikes (#/hr)			4			1			3			9
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	14.3	14.3			14.3	14.3	24.3	24.3		36.7	36.7	
Effective Green, g (s)	14.3	14.3			14.3	14.3	24.3	24.3		36.7	36.7	
Actuated g/C Ratio	0.24	0.24			0.24	0.24	0.40	0.40		0.61	0.61	
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	427			434	367	438	748		391	1084	
v/s Ratio Prot		0.06						c0.32		c0.07	0.15	
v/s Ratio Perm	0.03				c0.15	0.02	0.04			0.25		
v/c Ratio	0.12	0.25			0.61	0.08	0.10	0.78		0.52	0.25	
Uniform Delay, d1	17.9	18.5			20.4	17.8	11.1	15.5		8.4	5.3	
Progression Factor	1.00	1.00			1.03	1.53	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.3			2.3	0.1	0.4	8.0		1.3	0.6	
Delay (s)	18.2	18.8			23.3	27.2	11.5	23.5		9.7	5.9	
Level of Service	B	B			C	C	B	C		A	A	
Approach Delay (s)		18.7			24.6			22.7			7.5	
Approach LOS		B			C			C			A	

Intersection Summary				
HCM Average Control Delay	18.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.69			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	72.0%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	176	71	56	177	128	69	552	79	72	477	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			0.91	
Frpb, ped/bikes		1.00	0.93	1.00	0.95			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.93	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.94			0.98			0.99	
Flt Protected		1.00	1.00	0.95	1.00			1.00			0.99	
Satd. Flow (prot)		1855	1473	1647	1657			3413			4982	
Flt Permitted		0.98	1.00	0.61	1.00			0.84			0.78	
Satd. Flow (perm)		1820	1473	1054	1657			2888			3896	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	191	77	61	192	139	75	594	86	78	518	33
RTOR Reduction (vph)	0	0	49	0	44	0	0	17	0	0	10	0
Lane Group Flow (vph)	0	202	28	61	287	0	0	738	0	0	619	0
Confl. Peds. (#/hr)	58		58	99		99	72		72	49		49
Confl. Bikes (#/hr)			7			33			10			6
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Effective Green, g (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Actuated g/C Ratio		0.37	0.37	0.37	0.37			0.48			0.30	
Clearance Time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Grp Cap (vph)		667	540	386	608			1457			1169	
v/s Ratio Prot					c0.17			c0.06				
v/s Ratio Perm		0.11	0.02	0.06				c0.19			0.16	
v/c Ratio		0.30	0.05	0.16	0.47			0.51			0.53	
Uniform Delay, d1		13.5	12.3	12.8	14.6			10.6			17.5	
Progression Factor		0.90	0.90	1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.1	0.2	0.9	2.6			1.3			1.7	
Delay (s)		13.2	11.3	13.6	17.2			11.9			19.2	
Level of Service		B	B	B	B			B			B	
Approach Delay (s)		12.7			16.6			11.9			19.2	
Approach LOS		B			B			B			B	

Intersection Summary				
HCM Average Control Delay	15.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.49			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	83.3%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	478	1728	0	0	0	0	0	591	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.91						0.91	
Frpb, ped/bikes					1.00						0.99	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.98	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					4992						4933	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					4992						4933	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.98	0.92
Adj. Flow (vph)	0	0	0	520	1781	0	0	0	0	0	603	113
RTOR Reduction (vph)	0	0	0	0	87	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	0	0	2214	0	0	0	0	0	714	0
Confl. Peds. (#/hr)	48		48	30		30	54		54	27		27
Confl. Bikes (#/hr)			9			5			4			1
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2163						2179	
v/s Ratio Prot											c0.14	
v/s Ratio Perm					0.44							
v/c Ratio					1.02						0.33	
Uniform Delay, d1					17.0						10.9	
Progression Factor					0.48						1.00	
Incremental Delay, d2					21.6						0.4	
Delay (s)					29.7						11.3	
Level of Service					C						B	
Approach Delay (s)		0.0			29.7			0.0			11.3	
Approach LOS		A			C			A			B	

Intersection Summary				
HCM Average Control Delay	25.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.67			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5	
Intersection Capacity Utilization	66.0%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1936	89	372	904	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5		4.0				
Lane Util. Factor					0.91	1.00		0.86				
Frpb, ped/bikes					1.00	0.93		1.00				
Flpb, ped/bikes					1.00	1.00		0.98				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1467		6163				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1467		6163				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.93	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1996	97	400	983	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	6	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1996	91	0	1382	0	0	0	0
Confl. Peds. (#/hr)	102		102	84		84	84		84	168		168
Confl. Bikes (#/hr)			1									1
Turn Type						Perm	Perm					
Protected Phases					6			4				
Permitted Phases						6	4					
Actuated Green, G (s)					29.9	29.9		20.6				
Effective Green, g (s)					29.9	29.9		20.6				
Actuated g/C Ratio					0.50	0.50		0.34				
Clearance Time (s)					5.5	5.5		4.0				
Lane Grp Cap (vph)					2534	731		2116				
v/s Ratio Prot					c0.39							
v/s Ratio Perm						0.06		0.22				
v/c Ratio					0.79	0.13		0.65				
Uniform Delay, d1					12.4	8.1		16.7				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					2.6	0.4		1.6				
Delay (s)					15.0	8.4		18.3				
Level of Service					B	A		B				
Approach Delay (s)		0.0			14.7			18.3			0.0	
Approach LOS		A			B			B			A	

Intersection Summary				
HCM Average Control Delay	16.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5	
Intersection Capacity Utilization	72.6%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	457	174	0	0	0	0	0	0	64	949	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5								5.5	
Lane Util. Factor		0.91	1.00								0.91	
Frpb, ped/bikes		1.00	0.95								1.00	
Flpb, ped/bikes		1.00	1.00								1.00	
Frt		1.00	0.85								1.00	
Flt Protected		1.00	1.00								1.00	
Satd. Flow (prot)		5085	1503								5063	
Flt Permitted		1.00	1.00								1.00	
Satd. Flow (perm)		5085	1503								5063	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	0	497	189	0	0	0	0	0	0	70	999	0
RTOR Reduction (vph)	0	0	27	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	497	162	0	0	0	0	0	0	0	1056	0
Confl. Peds. (#/hr)	32		32	21		21	23		23	17		17
Confl. Bikes (#/hr)			10			10			2			3
Turn Type			Perm							Perm		
Protected Phases		2									4	
Permitted Phases			2							4		
Actuated Green, G (s)		23.0	23.0								26.0	
Effective Green, g (s)		23.0	23.0								26.0	
Actuated g/C Ratio		0.38	0.38								0.43	
Clearance Time (s)		5.5	5.5								5.5	
Lane Grp Cap (vph)		1949	576								2194	
v/s Ratio Prot		0.10										
v/s Ratio Perm			c0.11								0.21	
v/c Ratio		0.26	0.28								0.48	
Uniform Delay, d1		12.6	12.8								12.2	
Progression Factor		0.73	0.66								0.91	
Incremental Delay, d2		0.3	1.2								0.6	
Delay (s)		9.5	9.6								11.6	
Level of Service		A	A								B	
Approach Delay (s)		9.6			0.0			0.0			11.6	
Approach LOS		A			A			A			B	

Intersection Summary				
HCM Average Control Delay	10.8	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.39			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0	
Intersection Capacity Utilization	43.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	463	0	0	0	0	0	377	68	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.91						0.86				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		5003						6231				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		5003						6231				
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	498	0	0	0	0	0	410	74	0	0	0
RTOR Reduction (vph)	0	77	0	0	0	0	0	23	0	0	0	0
Lane Group Flow (vph)	0	529	0	0	0	0	0	461	0	0	0	0
Confl. Peds. (#/hr)	46		46	56		56	21		21	52		52
Confl. Bikes (#/hr)			2			2			5			
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		11.4						41.6				
Effective Green, g (s)		11.4						41.6				
Actuated g/C Ratio		0.19						0.69				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		951						4320				
v/s Ratio Prot								c0.07				
v/s Ratio Perm		0.11										
v/c Ratio		0.56						0.11				
Uniform Delay, d1		22.0						3.0				
Progression Factor		1.06						1.00				
Incremental Delay, d2		0.2						0.0				
Delay (s)		23.6						3.1				
Level of Service		C						A				
Approach Delay (s)		23.6			0.0			3.1			0.0	
Approach LOS		C			A			A			A	

Intersection Summary				
HCM Average Control Delay	14.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.20			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	40.1%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	239	459	155	73	604	130	203	555	54	154	532	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1534	1769	1863	1531	1770	1832		1766	1714	
Flt Permitted	0.12	1.00	1.00	0.28	1.00	1.00	0.12	1.00		0.12	1.00	
Satd. Flow (perm)	230	1863	1534	527	1863	1531	226	1832		225	1714	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	260	499	168	79	657	141	221	603	59	167	578	440
RTOR Reduction (vph)	0	0	103	0	0	87	0	4	0	0	32	0
Lane Group Flow (vph)	260	499	65	79	657	54	221	658	0	167	986	0
Confl. Peds. (#/hr)	4		4	1		1	17		17	10		10
Confl. Bikes (#/hr)			4			10			17			28
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	43.0	32.9	32.9	33.5	27.9	27.9	33.0	33.0		33.0	33.0	
Effective Green, g (s)	43.0	32.9	32.9	33.5	27.9	27.9	33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.51	0.39	0.39	0.39	0.33	0.33	0.39	0.39		0.39	0.39	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	308	721	594	290	612	503	88	711		87	665	
v/s Ratio Prot	c0.11	0.27		0.02	c0.35			0.36			0.57	
v/s Ratio Perm	0.32		0.04	0.09		0.04	c0.98			0.74		
v/c Ratio	0.84	0.69	0.11	0.27	1.07	0.11	2.51	0.93		1.92	1.48	
Uniform Delay, d1	19.8	21.8	16.7	17.2	28.6	19.9	26.0	24.8		26.0	26.0	
Progression Factor	1.00	1.00	1.00	1.49	1.35	2.32	0.72	0.70		1.00	1.00	
Incremental Delay, d2	17.9	5.4	0.4	0.2	56.2	0.4	703.0	13.4		453.2	225.0	
Delay (s)	37.8	27.2	17.0	25.7	94.8	46.5	721.7	30.6		479.2	251.0	
Level of Service	D	C	B	C	F	D	F	C		F	F	
Approach Delay (s)		28.3			80.9			203.6			283.1	
Approach LOS		C			F			F			F	

Intersection Summary			
HCM Average Control Delay	158.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.71		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	125.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	775	36	21	927	132	110	616	39	158	497	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3427	1532	1762	3337		1770	1844		1762	1792	
Flt Permitted	0.17	1.00	1.00	0.17	1.00		0.95	1.00		0.36	1.00	
Satd. Flow (perm)	308	3427	1532	307	3337		1770	1844		661	1792	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	34	842	39	23	1008	143	120	670	42	172	523	134
RTOR Reduction (vph)	0	0	28	0	13	0	0	2	0	0	10	0
Lane Group Flow (vph)	34	842	11	23	1138	0	120	710	0	172	647	0
Confl. Peds. (#/hr)	12		12	18		18	3		3	12		12
Confl. Bikes (#/hr)			8			6			10			28
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4						6		
Actuated Green, G (s)	24.2	24.2	24.2	24.2	24.2		8.6	50.3		37.2	37.2	
Effective Green, g (s)	24.2	24.2	24.2	24.2	24.2		8.6	50.3		37.2	37.2	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28		0.10	0.59		0.44	0.44	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	88	976	436	87	950		179	1091		289	784	
v/s Ratio Prot		0.25			c0.34		0.07	c0.38			c0.36	
v/s Ratio Perm	0.11		0.01	0.08						0.26		
v/c Ratio	0.39	0.86	0.03	0.26	1.20		0.67	0.65		0.60	0.83	
Uniform Delay, d1	24.4	28.8	21.9	23.5	30.4		36.8	11.5		18.2	21.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.19	1.21	
Incremental Delay, d2	12.3	10.0	0.1	7.3	99.4		7.5	3.0		0.8	1.0	
Delay (s)	36.8	38.8	22.0	30.8	129.8		44.3	14.5		22.5	26.5	
Level of Service	D	D	C	C	F		D	B		C	C	
Approach Delay (s)		38.0			127.8			18.8			25.7	
Approach LOS		D			F			B			C	

Intersection Summary			
HCM Average Control Delay	59.2	HCM Level of Service	E
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	202	37	14	240	237	32	807	33	49	221	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.96	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.98	1.00			1.00	1.00	0.98	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1739	1799			1855	1527	1738	1847		1770	1764	
Flt Permitted	0.45	1.00			0.97	1.00	0.56	1.00		0.12	1.00	
Satd. Flow (perm)	820	1799			1814	1527	1032	1847		231	1764	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92	0.92
Adj. Flow (vph)	38	220	40	15	261	258	35	877	36	51	240	85
RTOR Reduction (vph)	0	13	0	0	0	181	0	2	0	0	17	0
Lane Group Flow (vph)	38	247	0	0	276	77	35	911	0	51	308	0
Confl. Peds. (#/hr)	32		32	24		24	16		16	19		19
Confl. Bikes (#/hr)			6			4			25			3
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	15.1	15.1			15.1	15.1	27.8	27.8		35.9	35.9	
Effective Green, g (s)	15.1	15.1			15.1	15.1	27.8	27.8		35.9	35.9	
Actuated g/C Ratio	0.25	0.25			0.25	0.25	0.46	0.46		0.60	0.60	
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	206	453			457	384	478	856		231	1055	
v/s Ratio Prot		0.14						c0.49		0.01	c0.17	
v/s Ratio Perm	0.05				c0.15	0.05	0.03			0.12		
v/c Ratio	0.18	0.55			0.60	0.20	0.07	1.06		0.22	0.29	
Uniform Delay, d1	17.6	19.5			19.8	17.7	8.9	16.1		11.8	5.9	
Progression Factor	1.00	1.00			1.05	1.52	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.3			1.4	0.2	0.3	49.3		0.5	0.7	
Delay (s)	18.1	20.8			22.1	27.0	9.2	65.4		12.3	6.6	
Level of Service	B	C			C	C	A	E		B	A	
Approach Delay (s)		20.5			24.5			63.3			7.3	
Approach LOS		C			C			E			A	

Intersection Summary			
HCM Average Control Delay	38.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	176	110	70	274	119	127	930	131	51	642	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			0.91	
Frpb, ped/bikes		1.00	0.90	1.00	0.96			0.99			0.99	
Flpb, ped/bikes		1.00	1.00	0.92	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.95			0.98			0.99	
Flt Protected		0.99	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1844	1430	1626	1709			3415			4989	
Flt Permitted		0.92	1.00	0.59	1.00			0.66			0.78	
Satd. Flow (perm)		1715	1430	1002	1709			2260			3904	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	28	191	120	76	298	129	138	1011	138	55	698	49
RTOR Reduction (vph)	0	0	76	0	26	0	0	16	0	0	12	0
Lane Group Flow (vph)	0	219	44	76	401	0	0	1272	0	0	790	0
Confl. Peds. (#/hr)	74		74	120		120	85		85	65		65
Confl. Bikes (#/hr)			30			13			10			6
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Effective Green, g (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Actuated g/C Ratio		0.37	0.37	0.37	0.37			0.48			0.30	
Clearance Time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Grp Cap (vph)		629	524	367	627			1227			1171	
v/s Ratio Prot					c0.23			c0.12				
v/s Ratio Perm		0.13	0.03	0.08				c0.38			0.20	
v/c Ratio		0.35	0.08	0.21	0.64			1.04			0.67	
Uniform Delay, d1		13.8	12.4	13.0	15.7			15.5			18.4	
Progression Factor		1.14	2.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.4	0.3	1.3	4.9			35.6			3.1	
Delay (s)		17.1	25.2	14.3	20.7			51.1			21.6	
Level of Service		B	C	B	C			D			C	
Approach Delay (s)		19.9			19.7			51.1			21.6	
Approach LOS		B			B			D			C	

Intersection Summary			
HCM Average Control Delay	34.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	103.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	290	1096	0	0	0	0	0	812	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.91						0.91	
Frpb, ped/bikes					1.00						1.00	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.99	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					4976						5021	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					4976						5021	
Peak-hour factor, PHF	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25	0.25	0.25	0.92	0.92
Adj. Flow (vph)	0	0	0	315	1130	0	0	0	0	0	883	62
RTOR Reduction (vph)	0	0	0	0	36	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	0	0	0	1409	0	0	0	0	0	932	0
Confl. Peds. (#/hr)	32		32	47		47	36		36	29		29
Confl. Bikes (#/hr)			3			13			9			2
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2156						2218	
v/s Ratio Prot											c0.19	
v/s Ratio Perm					0.28							
v/c Ratio					0.65						0.42	
Uniform Delay, d1					13.4						11.5	
Progression Factor					0.66						1.00	
Incremental Delay, d2					1.3						0.6	
Delay (s)					10.1						12.1	
Level of Service					B						B	
Approach Delay (s)		0.0			10.1			0.0			12.1	
Approach LOS		A			B			A			B	

Intersection Summary				
HCM Average Control Delay	10.9	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5	
Intersection Capacity Utilization	53.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1183	70	436	1147	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5		4.0				
Lane Util. Factor					0.91	1.00		0.86				
Frpb, ped/bikes					1.00	0.94		1.00				
Flpb, ped/bikes					1.00	1.00		0.97				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1484		6106				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1484		6106				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.95	0.92	0.92	0.96	0.25	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	1245	76	474	1195	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	2	0	16	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1245	74	0	1653	0	0	0	0
Confl. Peds. (#/hr)	121		121	69		69	118		118	84		84
Confl. Bikes (#/hr)			3									15
Turn Type						Perm	Perm					
Protected Phases					6			4				
Permitted Phases						6	4					
Actuated Green, G (s)					29.9	29.9		20.6				
Effective Green, g (s)					29.9	29.9		20.6				
Actuated g/C Ratio					0.50	0.50		0.34				
Clearance Time (s)					5.5	5.5		4.0				
Lane Grp Cap (vph)					2534	740		2096				
v/s Ratio Prot					c0.24							
v/s Ratio Perm						0.05		0.27				
v/c Ratio					0.49	0.10		0.79				
Uniform Delay, d1					10.0	7.9		17.7				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					0.7	0.3		3.1				
Delay (s)					10.7	8.2		20.8				
Level of Service					B	A		C				
Approach Delay (s)		0.0			10.5			20.8			0.0	
Approach LOS		A			B			C			A	

Intersection Summary				
HCM Average Control Delay	16.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5	
Intersection Capacity Utilization	61.6%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1295	226	0	0	0	0	0	0	60	1017	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5								5.5	
Lane Util. Factor		0.91	1.00								0.91	
Frpb, ped/bikes		1.00	0.96								1.00	
Flpb, ped/bikes		1.00	1.00								1.00	
Frt		1.00	0.85								1.00	
Flt Protected		1.00	1.00								1.00	
Satd. Flow (prot)		5085	1527								5066	
Flt Permitted		1.00	1.00								1.00	
Satd. Flow (perm)		5085	1527								5066	
Peak-hour factor, PHF	0.25	0.96	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.93	0.25
Adj. Flow (vph)	0	1349	246	0	0	0	0	0	0	65	1094	0
RTOR Reduction (vph)	0	0	20	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	1349	226	0	0	0	0	0	0	0	1155	0
Confl. Peds. (#/hr)	20		20	30		30	12		12	17		17
Confl. Bikes (#/hr)			5			7			3			
Turn Type			Perm							Perm		
Protected Phases		2									4	
Permitted Phases			2							4		
Actuated Green, G (s)		23.0	23.0								26.0	
Effective Green, g (s)		23.0	23.0								26.0	
Actuated g/C Ratio		0.38	0.38								0.43	
Clearance Time (s)		5.5	5.5								5.5	
Lane Grp Cap (vph)		1949	585								2195	
v/s Ratio Prot		c0.27										
v/s Ratio Perm			0.15								0.23	
v/c Ratio		0.69	0.39								0.53	
Uniform Delay, d1		15.5	13.4								12.5	
Progression Factor		0.79	0.66								0.56	
Incremental Delay, d2		2.0	1.9								0.8	
Delay (s)		14.3	10.8								7.7	
Level of Service		B	B								A	
Approach Delay (s)		13.8			0.0			0.0			7.7	
Approach LOS		B			A			A			A	

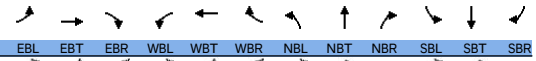
Intersection Summary				
HCM Average Control Delay	11.2	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0	
Intersection Capacity Utilization	55.1%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	28	844	0	0	0	0	0	371	156	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.91						0.86				
Frpb, ped/bikes		1.00						0.98				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		5071						6031				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		5071						6031				
Peak-hour factor, PHF	0.92	0.92	0.25	0.25	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25
Adj. Flow (vph)	30	917	0	0	0	0	0	403	161	0	0	0
RTOR Reduction (vph)	0	6	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	941	0	0	0	0	0	549	0	0	0	0
Confl. Peds. (#/hr)	46		46	17		17	53		53	68		68
Confl. Bikes (#/hr)			1			1			6			2
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		17.6						35.4				
Effective Green, g (s)		17.6						35.4				
Actuated g/C Ratio		0.29						0.59				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		1487						3558				
v/s Ratio Prot								c0.09				
v/s Ratio Perm		0.19										
v/c Ratio		0.63						0.15				
Uniform Delay, d1		18.4						5.5				
Progression Factor		1.00						1.00				
Incremental Delay, d2		0.7						0.1				
Delay (s)		19.0						5.6				
Level of Service		B						A				
Approach Delay (s)		19.0			0.0			5.6			0.0	
Approach LOS		B			A			A			A	

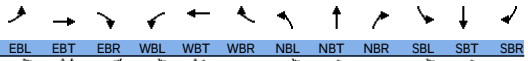
Intersection Summary				
HCM Average Control Delay	14.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.31			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	43.3%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



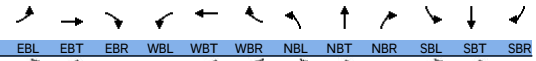
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	343	365	134	43	253	107	83	362	22	46	341	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.96	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	1863	1546	1762	1863	1520	1763	1842		1765	1773	
Flt Permitted	0.42	1.00	1.00	0.51	1.00	1.00	0.17	1.00		0.30	1.00	
Satd. Flow (perm)	780	1863	1546	948	1863	1520	319	1842		551	1773	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	373	397	146	47	275	116	86	393	24	50	371	145
RTOR Reduction (vph)	0	0	77	0	0	72	0	3	0	0	18	0
Lane Group Flow (vph)	373	397	69	47	275	44	86	414	0	50	498	0
Confl. Peds. (#/hr)	1		1	8		8	12		12	6		6
Confl. Bikes (#/hr)			2			5			27			6
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	48.4	40.1	40.1	35.7	31.9	31.9	27.6	27.6		27.6	27.6	
Effective Green, g (s)	48.4	40.1	40.1	35.7	31.9	31.9	27.6	27.6		27.6	27.6	
Actuated g/C Ratio	0.57	0.47	0.47	0.42	0.38	0.38	0.32	0.32		0.32	0.32	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	584	879	729	435	699	570	104	598		179	576	
v/s Ratio Prot	c0.09	0.21		0.00	0.15			0.22			c0.28	
v/s Ratio Perm	c0.27		0.04	0.04		0.03	0.27			0.09		
v/c Ratio	0.64	0.45	0.09	0.11	0.39	0.08	0.83	0.69		0.28	0.86	
Uniform Delay, d1	11.0	15.1	12.4	14.7	19.5	17.1	26.5	25.0		21.3	26.9	
Progression Factor	1.00	1.00	1.00	0.72	0.65	0.30	1.02	1.01		1.00	1.00	
Incremental Delay, d2	1.7	1.7	0.3	0.0	1.6	0.3	35.9	2.6		0.3	12.4	
Delay (s)	12.7	16.7	12.7	10.6	14.3	5.3	63.0	28.0		21.6	39.3	
Level of Service	B	B	B	B	B	A	E	C		C	D	
Approach Delay (s)		14.4			11.5			34.0			37.7	
Approach LOS		B			B			C			D	

Intersection Summary				
HCM Average Control Delay	23.4	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.72			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	84.2%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				



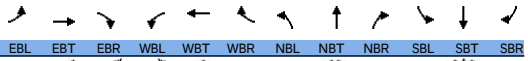
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	108	835	357	68	424	67	201	258	31	100	354	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1764	3427	1553	1768	3340		1770	1827		1757	1805	
Flt Permitted	0.32	1.00	1.00	0.16	1.00		0.95	1.00		0.57	1.00	
Satd. Flow (perm)	592	3427	1553	300	3340		1770	1827		1061	1805	
Peak-hour factor, PHF	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	870	388	74	461	73	218	272	34	109	385	84
RTOR Reduction (vph)	0	0	275	0	14	0	0	5	0	0	9	0
Lane Group Flow (vph)	117	870	113	74	520	0	218	301	0	109	460	0
Confl. Peds. (#/hr)	4		4	4		4	4		4	11		11
Confl. Bikes (#/hr)			3			7			21			1
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4						6		
Actuated Green, G (s)	24.8	24.8	24.8	24.8	24.8		12.3	49.7		32.9	32.9	
Effective Green, g (s)	24.8	24.8	24.8	24.8	24.8		12.3	49.7		32.9	32.9	
Actuated g/C Ratio	0.29	0.29	0.29	0.29	0.29		0.14	0.58		0.39	0.39	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	173	1000	453	88	974		256	1068		411	699	
v/s Ratio Prot		c0.25			0.16		c0.12	0.16			c0.25	
v/s Ratio Perm	0.20		0.07	0.25						0.10		
v/c Ratio	0.68	0.87	0.25	0.84	0.53		0.85	0.28		0.27	0.66	
Uniform Delay, d1	26.6	28.6	23.0	28.2	25.2		35.5	8.8		17.8	21.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.94	1.02	
Incremental Delay, d2	19.2	10.3	1.3	59.2	2.1		22.1	0.7		1.4	4.2	
Delay (s)	45.8	38.8	24.3	87.4	27.3		57.6	9.4		18.0	26.0	
Level of Service	D	D	C	F	C		E	A		B	C	
Approach Delay (s)		35.3			34.7			29.5			24.5	
Approach LOS		D			C			C			C	

Intersection Summary				
HCM Average Control Delay	32.2	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	15.0	
Intersection Capacity Utilization	78.1%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				



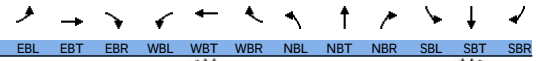
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	90	20	12	198	101	34	458	37	158	163	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.97			1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1759	1798			1855	1537	1758	1836		1769	1774	
Flt Permitted	0.51	1.00			0.98	1.00	0.61	1.00		0.27	1.00	
Satd. Flow (perm)	945	1798			1823	1537	1128	1836		505	1774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	98	22	13	211	110	37	467	40	172	177	63
RTOR Reduction (vph)	0	17	0	0	0	87	0	5	0	0	16	0
Lane Group Flow (vph)	21	103	0	0	224	23	37	502	0	172	224	0
Confl. Peds. (#/hr)	10		10	19		19	5		5	4		4
Confl. Bikes (#/hr)			4			1			3			9
Turn Type	Perm			Perm		Perm	Perm		pm+pt			
Protected Phases		4			8			2	1	6		
Permitted Phases	4			8		8	2		6			
Actuated Green, G (s)	12.7	12.7			12.7	12.7	26.2	26.2		38.3	38.3	
Effective Green, g (s)	12.7	12.7			12.7	12.7	26.2	26.2		38.3	38.3	
Actuated g/C Ratio	0.21	0.21			0.21	0.21	0.44	0.44		0.64	0.64	
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	200	381			386	325	493	802		482	1132	
v/s Ratio Prot		0.06						c0.27		c0.05	0.13	
v/s Ratio Perm	0.02				c0.12	0.02	0.03			0.18		
v/c Ratio	0.10	0.27			0.58	0.07	0.08	0.63		0.36	0.20	
Uniform Delay, d1	19.1	19.8			21.3	18.9	9.8	13.1		6.2	4.5	
Progression Factor	1.00	1.00			1.02	1.40	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.4			2.1	0.1	0.3	3.7		0.5	0.4	
Delay (s)	19.3	20.2			23.7	26.6	10.1	16.8		6.6	4.9	
Level of Service	B	C			C	C	B	B		A	A	
Approach Delay (s)		20.0			24.6			16.3			5.6	
Approach LOS		C			C			B			A	

Intersection Summary				
HCM Average Control Delay	15.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	64.1%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	177	61	48	157	112	60	478	78	63	414	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			0.91	
Frpb, ped/bikes		1.00	0.93	1.00	0.95			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.93	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.94			0.98			0.99	
Flt Protected		1.00	1.00	0.95	1.00			1.00			0.99	
Satd. Flow (prot)		1856	1473	1647	1659			3400			4981	
Flt Permitted		0.98	1.00	0.61	1.00			0.86			0.80	
Satd. Flow (perm)		1831	1473	1056	1659			2950			4002	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	192	66	52	171	122	65	514	85	68	450	28
RTOR Reduction (vph)	0	0	42	0	43	0	0	19	0	0	10	0
Lane Group Flow (vph)	0	201	24	52	250	0	0	645	0	0	536	0
Confl. Peds. (#/hr)	58		58	99		99	72		72	49		49
Confl. Bikes (#/hr)			7			33			10			6
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Effective Green, g (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Actuated g/C Ratio		0.37	0.37	0.37	0.37			0.48			0.30	
Clearance Time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Grp Cap (vph)		671	540	387	608			1478			1201	
v/s Ratio Prot					c0.15			c0.05				
v/s Ratio Perm		0.11	0.02	0.05				c0.16			0.13	
v/c Ratio		0.30	0.04	0.13	0.41			0.44			0.45	
Uniform Delay, d1		13.5	12.2	12.7	14.2			10.1			17.0	
Progression Factor		0.92	1.00	1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.1	0.1	0.7	2.1			0.9			1.2	
Delay (s)		13.5	12.4	13.4	16.2			11.1			18.2	
Level of Service		B	B	B	B			B			B	
Approach Delay (s)		13.2			15.8			11.1			18.2	
Approach LOS		B			B			B			B	

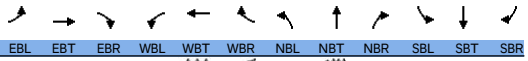
Intersection Summary				
HCM Average Control Delay	14.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.42			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	79.0%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	415	1502	0	0	0	0	0	378	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.91						0.91	
Frpb, ped/bikes					1.00						0.99	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					4993						4914	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					4993						4914	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.98	0.92
Adj. Flow (vph)	0	0	0	451	1548	0	0	0	0	0	386	83
RTOR Reduction (vph)	0	0	0	0	88	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	0	1911	0	0	0	0	0	466	0
Confl. Peds. (#/hr)	48		48	30		30	54		54	27		27
Confl. Bikes (#/hr)			9			5			4			1
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2164						2170	
v/s Ratio Prot											c0.09	
v/s Ratio Perm					0.38							
v/c Ratio					0.88						0.21	
Uniform Delay, d1					15.6						10.3	
Progression Factor					0.48						1.00	
Incremental Delay, d2					4.3						0.2	
Delay (s)					11.8						10.6	
Level of Service					B						B	
Approach Delay (s)		0.0			11.8			0.0			10.6	
Approach LOS		A			B			A			B	

Intersection Summary				
HCM Average Control Delay	11.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5	
Intersection Capacity Utilization	60.0%	ICU Level of Service	B	
Analysis Period (min)	15			

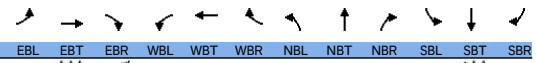
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1684	78	324	797	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5		4.0				
Lane Util. Factor					0.91	1.00		0.86				
Frpb, ped/bikes					1.00	0.93		1.00				
Flpb, ped/bikes					1.00	1.00		0.98				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1467		6165				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1467		6165				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.93	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1736	85	348	866	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	9	0	3	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1736	76	0	1211	0	0	0	0
Confl. Peds. (#/hr)	102		102	84		84	84		84	168		168
Confl. Bikes (#/hr)			1									1
Turn Type						Perm	Perm					
Protected Phases					6			4				
Permitted Phases						6	4					
Actuated Green, G (s)					29.9	29.9		20.6				
Effective Green, g (s)					29.9	29.9		20.6				
Actuated g/C Ratio					0.50	0.50		0.34				
Clearance Time (s)					5.5	5.5		4.0				
Lane Grp Cap (vph)					2534	731		2117				
v/s Ratio Prot					c0.34							
v/s Ratio Perm						0.05		0.20				
v/c Ratio					0.69	0.10		0.57				
Uniform Delay, d1					11.5	8.0		16.1				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					1.5	0.3		1.1				
Delay (s)					13.0	8.2		17.2				
Level of Service					B	A		B				
Approach Delay (s)		0.0			12.8			17.2			0.0	
Approach LOS		A			B			B			A	

Intersection Summary				
HCM Average Control Delay	14.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5	
Intersection Capacity Utilization	65.1%	ICU Level of Service	C	
Analysis Period (min)	15			

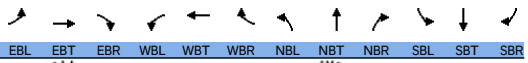
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	398	142	0	0	0	0	0	0	26	778	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5								5.5	
Lane Util. Factor		0.91	1.00								0.91	
Frpb, ped/bikes		1.00	0.95								1.00	
Flpb, ped/bikes		1.00	1.00								1.00	
Frt		1.00	0.85								1.00	
Flt Protected		1.00	1.00								1.00	
Satd. Flow (prot)		5085	1503								5074	
Flt Permitted		1.00	1.00								1.00	
Satd. Flow (perm)		5085	1503								5074	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	0	433	154	0	0	0	0	0	0	28	819	0
RTOR Reduction (vph)	0	0	49	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	433	105	0	0	0	0	0	0	0	841	0
Confl. Peds. (#/hr)	32		32	21		21	23		23	17		17
Confl. Bikes (#/hr)			10			10			2			3
Turn Type			Perm						Perm			
Protected Phases		2									4	
Permitted Phases			2							4		
Actuated Green, G (s)		23.0	23.0								26.0	
Effective Green, g (s)		23.0	23.0								26.0	
Actuated g/C Ratio		0.38	0.38								0.43	
Clearance Time (s)		5.5	5.5								5.5	
Lane Grp Cap (vph)		1949	576								2199	
v/s Ratio Prot		c0.09										
v/s Ratio Perm			0.07								0.17	
v/c Ratio		0.22	0.18								0.38	
Uniform Delay, d1		12.5	12.3								11.5	
Progression Factor		0.76	0.67								1.08	
Incremental Delay, d2		0.3	0.7								0.4	
Delay (s)		9.7	8.9								12.9	
Level of Service		A	A								B	
Approach Delay (s)		9.5			0.0			0.0			12.9	
Approach LOS		A			A			A			B	

Intersection Summary				
HCM Average Control Delay	11.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.31			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0	
Intersection Capacity Utilization	38.9%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	402	0	0	0	0	0	364	59	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.91						0.86				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		4990						6247				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		4990						6247				
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	432	0	0	0	0	0	396	64	0	0	0
RTOR Reduction (vph)	0	94	0	0	0	0	0	18	0	0	0	0
Lane Group Flow (vph)	0	451	0	0	0	0	0	442	0	0	0	0
Confl. Peds. (#/hr)	46		46	56		56	21		21	52		52
Confl. Bikes (#/hr)			2			2			5			
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		10.1						42.9				
Effective Green, g (s)		10.1						42.9				
Actuated g/C Ratio		0.17						0.72				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		840						4467				
v/s Ratio Prot								c0.07				
v/s Ratio Perm		0.09										
v/c Ratio		0.54						0.10				
Uniform Delay, d1		22.8						2.6				
Progression Factor		1.04						1.00				
Incremental Delay, d2		0.2						0.0				
Delay (s)		24.1						2.7				
Level of Service		C						A				
Approach Delay (s)		24.1			0.0			2.7			0.0	
Approach LOS		C			A			A			A	

Intersection Summary				
HCM Average Control Delay	14.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.18			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	39.9%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	210	405	136	64	588	114	186	491	46	133	461	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1534	1769	1863	1531	1770	1833		1765	1714	
Flt Permitted	0.12	1.00	1.00	0.35	1.00	1.00	0.12	1.00		0.18	1.00	
Satd. Flow (perm)	226	1863	1534	659	1863	1531	226	1833		338	1714	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	228	440	148	70	639	124	202	534	50	145	501	380
RTOR Reduction (vph)	0	0	90	0	0	83	0	4	0	0	32	0
Lane Group Flow (vph)	228	440	58	70	639	41	202	580	0	145	849	0
Confl. Peds. (#/hr)	4		4	1		1	17		17	10		10
Confl. Bikes (#/hr)			4			10			17			28
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	43.0	33.1	33.1	33.8	28.4	28.4	33.0	33.0		33.0	33.0	
Effective Green, g (s)	43.0	33.1	33.1	33.8	28.4	28.4	33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.51	0.39	0.39	0.40	0.33	0.33	0.39	0.39		0.39	0.39	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	298	725	597	333	622	512	88	712		131	665	
v/s Ratio Prot	c0.09	0.24		0.01	c0.34			0.32			0.49	
v/s Ratio Perm	0.30		0.04	0.07		0.03	c0.89			0.43		
v/c Ratio	0.77	0.61	0.10	0.21	1.03	0.08	2.30	0.82		1.11	1.28	
Uniform Delay, d1	17.6	20.7	16.5	16.5	28.3	19.4	26.0	23.3		26.0	26.0	
Progression Factor	1.00	1.00	1.00	1.57	1.42	2.79	0.71	0.67		1.00	1.00	
Incremental Delay, d2	10.1	3.8	0.3	0.1	42.2	0.3	609.6	5.3		110.2	135.7	
Delay (s)	27.7	24.5	16.8	26.0	82.3	54.2	628.1	20.9		136.2	161.7	
Level of Service	C	C	B	C	F	D	F	C		F	F	
Approach Delay (s)		24.0			73.4			177.0			158.1	
Approach LOS		C			E			F			F	

Intersection Summary				
HCM Average Control Delay	110.4	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.58			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	115.2%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	688	32	19	845	128	95	542	33	139	429	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3427	1532	1760	3332		1770	1845		1761	1792	
Flt Permitted	0.17	1.00	1.00	0.17	1.00		0.95	1.00		0.43	1.00	
Satd. Flow (perm)	308	3427	1532	306	3332		1770	1845		793	1792	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	29	748	35	21	918	139	103	589	36	151	452	115
RTOR Reduction (vph)	0	0	25	0	14	0	0	2	0	0	9	0
Lane Group Flow (vph)	29	748	10	21	1043	0	103	623	0	151	558	0
Confl. Peds. (#/hr)	12		12	18		18	3		3	12		12
Confl. Bikes (#/hr)			8			6			10			28
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4						6		
Actuated Green, G (s)	24.2	24.2	24.2	24.2	24.2		8.2	50.3		37.6	37.6	
Effective Green, g (s)	24.2	24.2	24.2	24.2	24.2		8.2	50.3		37.6	37.6	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28		0.10	0.59		0.44	0.44	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	88	976	436	87	949		171	1092		351	793	
v/s Ratio Prot		0.22			c0.31		0.06	c0.34			c0.31	
v/s Ratio Perm	0.09		0.01	0.07						0.19		
v/c Ratio	0.33	0.77	0.02	0.24	1.10		0.60	0.57		0.43	0.70	
Uniform Delay, d1	24.0	27.8	21.9	23.3	30.4		36.8	10.7		16.3	19.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.18	1.22	
Incremental Delay, d2	9.7	5.7	0.1	6.5	60.3		4.1	2.2		1.3	1.8	
Delay (s)	33.7	33.6	22.0	29.8	90.7		40.9	12.9		20.7	25.3	
Level of Service	C	C	C	C	F		D	B		C	C	
Approach Delay (s)		33.1			89.5			16.8			24.3	
Approach LOS		C			F			B			C	

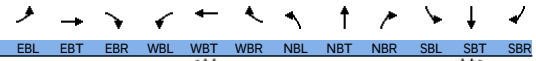
Intersection Summary				
HCM Average Control Delay	45.9	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	16.5	
Intersection Capacity Utilization	79.7%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	167	30	12	207	204	26	657	29	40	180	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.96	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.98	1.00			1.00	1.00	0.98	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1737	1799			1855	1526	1735	1846		1770	1764	
Flt Permitted	0.49	1.00			0.98	1.00	0.60	1.00		0.15	1.00	
Satd. Flow (perm)	903	1799			1817	1526	1087	1846		285	1764	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92	0.92
Adj. Flow (vph)	32	182	33	13	225	222	28	714	32	41	196	70
RTOR Reduction (vph)	0	13	0	0	0	172	0	2	0	0	16	0
Lane Group Flow (vph)	32	202	0	0	238	50	28	744	0	41	250	0
Confl. Peds. (#/hr)	32		32	24		24	16		16	19		19
Confl. Bikes (#/hr)			6			4			25			3
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	13.5	13.5			13.5	13.5	30.4	30.4		37.5	37.5	
Effective Green, g (s)	13.5	13.5			13.5	13.5	30.4	30.4		37.5	37.5	
Actuated g/C Ratio	0.22	0.22			0.22	0.22	0.51	0.51		0.62	0.62	
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	203	405			409	343	551	935		242	1103	
v/s Ratio Prot		0.11						c0.40		0.01	c0.14	
v/s Ratio Perm	0.04				c0.13	0.03	0.03			0.10		
v/c Ratio	0.16	0.50			0.58	0.15	0.05	0.80		0.17	0.23	
Uniform Delay, d1	18.7	20.3			20.7	18.6	7.5	12.2		8.2	4.9	
Progression Factor	1.00	1.00			1.03	1.71	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	1.0			1.4	0.1	0.2	7.0		0.3	0.5	
Delay (s)	19.0	21.3			22.9	32.0	7.7	19.2		8.5	5.4	
Level of Service	B	C			C	C	A	B		A	A	
Approach Delay (s)		21.0			27.3			18.8			5.8	
Approach LOS		C			C			B			A	

Intersection Summary				
HCM Average Control Delay	19.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.71			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	79.3%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	157	95	61	260	112	109	803	115	44	561	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			0.91	
Frpb, ped/bikes		1.00	0.90	1.00	0.96			0.99			0.99	
Flpb, ped/bikes		1.00	1.00	0.91	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.95			0.98			0.99	
Flt Protected		0.99	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1843	1430	1619	1709			3411			4989	
Flt Permitted		0.93	1.00	0.62	1.00			0.72			0.81	
Satd. Flow (perm)		1725	1430	1050	1709			2484			4036	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	25	171	103	66	283	122	118	873	121	48	610	42
RTOR Reduction (vph)	0	0	65	0	26	0	0	16	0	0	12	0
Lane Group Flow (vph)	0	196	38	66	379	0	0	1097	0	0	688	0
Confl. Peds. (#/hr)	74		74	120		120	85		85	65		65
Confl. Bikes (#/hr)			30			13			10			6
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Effective Green, g (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Actuated g/C Ratio		0.37	0.37	0.37	0.37			0.48			0.30	
Clearance Time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Grp Cap (vph)		633	524	385	627			1309			1211	
v/s Ratio Prot					c0.22			c0.10				
v/s Ratio Perm		0.11	0.03	0.06				c0.31			0.17	
v/c Ratio		0.31	0.07	0.17	0.60			0.84			0.57	
Uniform Delay, d1		13.6	12.4	12.8	15.5			13.5			17.7	
Progression Factor		1.15	1.94	1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.2	0.3	1.0	4.3			6.5			1.9	
Delay (s)		16.8	24.3	13.8	19.7			20.0			19.7	
Level of Service		B	C	B	B			B			B	
Approach Delay (s)		19.4			18.9			20.0			19.7	
Approach LOS		B			B			B			B	

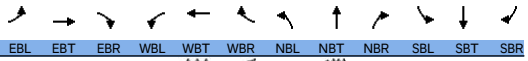
Intersection Summary				
HCM Average Control Delay	19.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	95.8%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	249	941	0	0	0	0	0	735	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.91						0.91	
Frpb, ped/bikes					1.00						1.00	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.99	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					4976						5027	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					4976						5027	
Peak-hour factor, PHF	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25	0.25	0.25	0.92	0.92
Adj. Flow (vph)	0	0	0	271	970	0	0	0	0	0	799	50
RTOR Reduction (vph)	0	0	0	0	47	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	0	0	0	1194	0	0	0	0	0	837	0
Confl. Peds. (#/hr)	32		32	47		47	36		36	29		29
Confl. Bikes (#/hr)			3			13			9			2
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2156						2220	
v/s Ratio Prot											c0.17	
v/s Ratio Perm					0.24							
v/c Ratio					0.55						0.38	
Uniform Delay, d1					12.7						11.2	
Progression Factor					0.46						1.00	
Incremental Delay, d2					0.9						0.5	
Delay (s)					6.8						11.7	
Level of Service					A						B	
Approach Delay (s)		0.0			6.8			0.0			11.7	
Approach LOS		A			A			A			B	

Intersection Summary				
HCM Average Control Delay	8.8	HCM Level of Service		A
HCM Volume to Capacity ratio	0.46			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		7.5
Intersection Capacity Utilization	47.5%	ICU Level of Service		A
Analysis Period (min)	15			

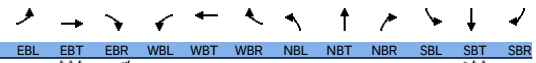
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1015	60	178	986	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5		4.0				
Lane Util. Factor					0.91	1.00		0.86				
Frpb, ped/bikes					1.00	0.94		1.00				
Flpb, ped/bikes					1.00	1.00		0.98				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1484		6239				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1484		6239				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.95	0.92	0.92	0.96	0.25	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	1068	65	193	1027	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	4	0	28	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1068	61	0	1192	0	0	0	0
Confl. Peds. (#/hr)	121		121	69		69	118		118	84		84
Confl. Bikes (#/hr)			3									15
Turn Type						Perm	Perm					
Protected Phases					6			4				
Permitted Phases						6	4					
Actuated Green, G (s)					29.9	29.9		20.6				
Effective Green, g (s)					29.9	29.9		20.6				
Actuated g/C Ratio					0.50	0.50		0.34				
Clearance Time (s)					5.5	5.5		4.0				
Lane Grp Cap (vph)					2534	740		2142				
v/s Ratio Prot					c0.21							
v/s Ratio Perm						0.04		0.19				
v/c Ratio					0.42	0.08		0.56				
Uniform Delay, d1					9.6	7.9		16.0				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					0.5	0.2		1.0				
Delay (s)					10.1	8.1		17.0				
Level of Service					B	A		B				
Approach Delay (s)		0.0			10.0			17.0			0.0	
Approach LOS		A			A			B			A	

Intersection Summary				
HCM Average Control Delay	13.6	HCM Level of Service		B
HCM Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		9.5
Intersection Capacity Utilization	46.5%	ICU Level of Service		A
Analysis Period (min)	15			

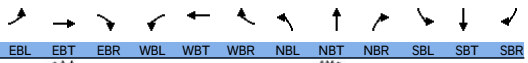
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	910	194	0	0	0	0	0	0	51	911	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5								5.5	
Lane Util. Factor		0.91	1.00								0.91	
Frpb, ped/bikes		1.00	0.96								1.00	
Flpb, ped/bikes		1.00	1.00								1.00	
Frt		1.00	0.85								1.00	
Flt Protected		1.00	1.00								1.00	
Satd. Flow (prot)		5085	1527								5067	
Flt Permitted		1.00	1.00								1.00	
Satd. Flow (perm)		5085	1527								5067	
Peak-hour factor, PHF	0.25	0.96	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.93	0.25
Adj. Flow (vph)	0	948	211	0	0	0	0	0	0	55	980	0
RTOR Reduction (vph)	0	0	29	0	0	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	948	182	0	0	0	0	0	0	0	1025	0
Confl. Peds. (#/hr)	20		20	30		30	12		12	17		17
Confl. Bikes (#/hr)			5			7			3			
Turn Type			Perm							Perm		
Protected Phases		2									4	
Permitted Phases			2							4		
Actuated Green, G (s)		23.0	23.0								26.0	
Effective Green, g (s)		23.0	23.0								26.0	
Actuated g/C Ratio		0.38	0.38								0.43	
Clearance Time (s)		5.5	5.5								5.5	
Lane Grp Cap (vph)		1949	585								2196	
v/s Ratio Prot		c0.19										
v/s Ratio Perm			0.12								0.20	
v/c Ratio		0.49	0.31								0.47	
Uniform Delay, d1		14.0	13.0								12.1	
Progression Factor		0.78	0.65								0.56	
Incremental Delay, d2		0.8	1.3								0.7	
Delay (s)		11.7	9.8								7.5	
Level of Service		B	A								A	
Approach Delay (s)		11.4			0.0			0.0			7.5	
Approach LOS		B			A			A			A	

Intersection Summary				
HCM Average Control Delay	9.5	HCM Level of Service		A
HCM Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		11.0
Intersection Capacity Utilization	45.4%	ICU Level of Service		A
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	724	0	0	0	0	0	326	134	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.91						0.86				
Frpb, ped/bikes		1.00						0.98				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		5069						6038				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		5069						6038				
Peak-hour factor, PHF	0.92	0.92	0.25	0.25	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25
Adj. Flow (vph)	29	787	0	0	0	0	0	354	138	0	0	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	22	0	0	0	0
Lane Group Flow (vph)	0	808	0	0	0	0	0	470	0	0	0	0
Confl. Peds. (#/hr)	46		46	17		17	53		53	68		68
Confl. Bikes (#/hr)			1			1			6			2
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		15.3						37.7				
Effective Green, g (s)		15.3						37.7				
Actuated g/C Ratio		0.26						0.63				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		1293						3794				
v/s Ratio Prot								c0.08				
v/s Ratio Perm		0.16										
v/c Ratio		0.62						0.12				
Uniform Delay, d1		19.8						4.5				
Progression Factor		1.00						1.00				
Incremental Delay, d2		0.7						0.1				
Delay (s)		20.5						4.6				
Level of Service		C						A				
Approach Delay (s)		20.5			0.0			4.6			0.0	
Approach LOS		C			A			A			A	

Intersection Summary				
HCM Average Control Delay	14.5	HCM Level of Service		B
HCM Volume to Capacity ratio	0.27			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		7.0
Intersection Capacity Utilization	40.9%	ICU Level of Service		A
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	343	392	145	43	263	107	87	364	22	48	356	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.96	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	1863	1546	1763	1863	1520	1763	1842		1765	1776	
Flt Permitted	0.40	1.00	1.00	0.47	1.00	1.00	0.17	1.00		0.30	1.00	
Satd. Flow (perm)	753	1863	1546	867	1863	1520	309	1842		564	1776	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	373	426	158	47	286	116	91	396	24	52	387	145
RTOR Reduction (vph)	0	0	85	0	0	73	0	3	0	0	17	0
Lane Group Flow (vph)	373	426	73	47	286	43	91	417	0	52	515	0
Confl. Peds. (#/hr)	1		1	8		8	12		12	6		6
Confl. Bikes (#/hr)			2			5			27			6
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	47.6	39.3	39.3	35.3	31.5	31.5	28.4	28.4		28.4	28.4	
Effective Green, g (s)	47.6	39.3	39.3	35.3	31.5	31.5	28.4	28.4		28.4	28.4	
Actuated g/C Ratio	0.56	0.46	0.46	0.42	0.37	0.37	0.33	0.33		0.33	0.33	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	560	861	715	400	690	563	103	615		188	593	
v/s Ratio Prot	c0.09	0.23		0.01	0.15			0.23			0.29	
v/s Ratio Perm	c0.28		0.05	0.04		0.03	c0.29			0.09		
v/c Ratio	0.67	0.49	0.10	0.12	0.41	0.08	0.88	0.68		0.28	0.87	
Uniform Delay, d1	11.5	15.9	12.9	15.0	19.9	17.3	26.7	24.4		20.8	26.5	
Progression Factor	1.00	1.00	1.00	0.72	0.65	0.30	1.03	1.02		1.00	1.00	
Incremental Delay, d2	2.3	2.0	0.3	0.0	1.8	0.3	49.9	2.2		0.3	12.4	
Delay (s)	13.9	18.0	13.2	10.8	14.7	5.5	77.4	27.0		21.1	38.9	
Level of Service	B	B	B	B	B	A	E	C		C	D	
Approach Delay (s)		15.6			11.9			36.0			37.3	
Approach LOS		B			B			D			D	

Intersection Summary				
HCM Average Control Delay	24.2	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	85.4%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	108	903	357	68	431	69	201	262	31	119	368	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1764	3427	1553	1768	3339		1770	1827		1757	1807	
Flt Permitted	0.31	1.00	1.00	0.16	1.00		0.95	1.00		0.57	1.00	
Satd. Flow (perm)	583	3427	1553	297	3339		1770	1827		1057	1807	
Peak-hour factor, PHF	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	941	388	74	468	75	218	276	34	129	400	84
RTOR Reduction (vph)	0	0	273	0	14	0	0	5	0	0	9	0
Lane Group Flow (vph)	117	941	115	74	529	0	218	305	0	129	475	0
Confl. Peds. (#/hr)	4		4	4		4	4		4	11		11
Confl. Bikes (#/hr)			3			7			21			1
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4						6		
Actuated Green, G (s)	25.1	25.1	25.1	25.1	25.1		12.3	49.4		32.6	32.6	
Effective Green, g (s)	25.1	25.1	25.1	25.1	25.1		12.3	49.4		32.6	32.6	
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30		0.14	0.58		0.38	0.38	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	172	1012	459	88	986		256	1062		405	693	
v/s Ratio Prot		c0.27			0.16		c0.12	0.17			c0.26	
v/s Ratio Perm	0.20		0.07	0.25						0.12		
v/c Ratio	0.68	0.93	0.25	0.84	0.54		0.85	0.29		0.32	0.69	
Uniform Delay, d1	26.4	29.1	22.8	28.1	25.1		35.5	8.9		18.4	21.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.94	1.01	
Incremental Delay, d2	19.6	15.7	1.3	59.2	2.1		22.1	0.7		1.8	4.7	
Delay (s)	46.0	44.8	24.1	87.3	27.2		57.6	9.6		19.1	26.9	
Level of Service	D	D	C	F	C		E	A		B	C	
Approach Delay (s)		39.4			34.4			29.4			25.2	
Approach LOS		D			C			C			C	

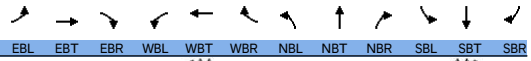
Intersection Summary				
HCM Average Control Delay	34.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	15.0	
Intersection Capacity Utilization	80.8%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	101	20	12	199	105	34	458	47	163	163	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1759	1804			1855	1537	1758	1830		1769	1774	
Flt Permitted	0.51	1.00			0.98	1.00	0.61	1.00		0.26	1.00	
Satd. Flow (perm)	944	1804			1822	1537	1128	1830		481	1774	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	110	22	13	212	114	37	467	51	177	177	63
RTOR Reduction (vph)	0	15	0	0	0	90	0	6	0	0	16	0
Lane Group Flow (vph)	21	117	0	0	225	24	37	512	0	177	224	0
Confl. Peds. (#/hr)	10		10	19		19	5		5	4		4
Confl. Bikes (#/hr)			4			1			3			9
Turn Type	Perm			Perm		Perm	Perm		pm+pt			
Protected Phases		4			8			2	1	6		
Permitted Phases	4			8		8	2		6			
Actuated Green, G (s)	12.8	12.8			12.8	12.8	25.9	25.9		38.2	38.2	
Effective Green, g (s)	12.8	12.8			12.8	12.8	25.9	25.9		38.2	38.2	
Actuated g/C Ratio	0.21	0.21			0.21	0.21	0.43	0.43		0.64	0.64	
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	201	385			389	328	487	790		474	1129	
v/s Ratio Prot		0.06						c0.28		c0.05	0.13	
v/s Ratio Perm	0.02				c0.12	0.02	0.03			0.19		
v/c Ratio	0.10	0.30			0.58	0.07	0.08	0.65		0.37	0.20	
Uniform Delay, d1	19.0	19.9			21.2	18.9	10.0	13.5		6.4	4.5	
Progression Factor	1.00	1.00			1.02	1.45	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.4			1.9	0.1	0.3	4.1		0.5	0.4	
Delay (s)	19.2	20.3			23.6	27.4	10.3	17.6		6.9	4.9	
Level of Service	B	C			C	C	B	B		A	A	
Approach Delay (s)		20.2			24.9			17.1			5.8	
Approach LOS		C			C			B			A	

Intersection Summary				
HCM Average Control Delay	16.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.59			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	67.6%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	202	61	48	162	114	60	487	86	67	415	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			0.91	
Frpb, ped/bikes		1.00	0.93	1.00	0.95			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.93	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.94			0.98			0.99	
Flt Protected		1.00	1.00	0.95	1.00			1.00			0.99	
Satd. Flow (prot)		1857	1473	1654	1660			3393			4980	
Flt Permitted		0.99	1.00	0.57	1.00			0.86			0.79	
Satd. Flow (perm)		1835	1473	997	1660			2948			3945	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	220	66	52	176	124	65	524	93	73	451	28
RTOR Reduction (vph)	0	0	42	0	42	0	0	21	0	0	10	0
Lane Group Flow (vph)	0	229	24	52	258	0	0	661	0	0	542	0
Confl. Peds. (#/hr)	58		58	99		99	72		72	49		49
Confl. Bikes (#/hr)			7			33			10			6
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Effective Green, g (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Actuated g/C Ratio		0.37	0.37	0.37	0.37			0.48			0.30	
Clearance Time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Grp Cap (vph)		673	540	366	609			1477			1184	
v/s Ratio Prot					c0.16			c0.05				
v/s Ratio Perm		0.12	0.02	0.05				c0.16			0.14	
v/c Ratio		0.34	0.04	0.14	0.42			0.45			0.46	
Uniform Delay, d1		13.7	12.2	12.7	14.2			10.2			17.0	
Progression Factor		0.94	1.07	1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.3	0.1	0.8	2.1			1.0			1.3	
Delay (s)		14.2	13.2	13.5	16.4			11.2			18.3	
Level of Service		B	B	B	B			B			B	
Approach Delay (s)		14.0			16.0			11.2			18.3	
Approach LOS		B			B			B			B	

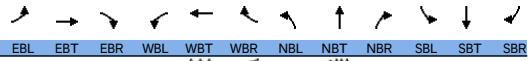
Intersection Summary				
HCM Average Control Delay	14.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.44			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	79.9%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	415	1502	0	0	0	0	0	384	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.91						0.91	
Frpb, ped/bikes					1.00						0.99	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.97	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					4993						4916	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					4993						4916	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.98	0.92
Adj. Flow (vph)	0	0	0	451	1548	0	0	0	0	0	392	83
RTOR Reduction (vph)	0	0	0	0	88	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	0	1911	0	0	0	0	0	472	0
Confl. Peds. (#/hr)	48		48	30		30	54		54	27		27
Confl. Bikes (#/hr)			9			5			4			1
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2164						2171	
v/s Ratio Prot											c0.10	
v/s Ratio Perm					0.38							
v/c Ratio					0.88						0.22	
Uniform Delay, d1					15.6						10.3	
Progression Factor					0.48						1.00	
Incremental Delay, d2					4.3						0.2	
Delay (s)					11.8						10.6	
Level of Service					B						B	
Approach Delay (s)		0.0			11.8			0.0			10.6	
Approach LOS		A			B			A			B	

Intersection Summary				
HCM Average Control Delay	11.5	HCM Level of Service		B
HCM Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		7.5
Intersection Capacity Utilization	60.0%	ICU Level of Service		B
Analysis Period (min)	15			

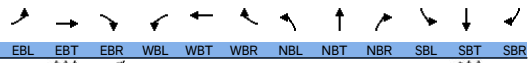
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1684	78	326	814	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5		4.0				
Lane Util. Factor					0.91	1.00		0.86				
Frpb, ped/bikes					1.00	0.93		1.00				
Flpb, ped/bikes					1.00	1.00		0.98				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1467		6167				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1467		6167				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.93	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1736	85	351	885	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	9	0	3	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1736	76	0	1233	0	0	0	0
Confl. Peds. (#/hr)	102		102	84		84	84		84	168		168
Confl. Bikes (#/hr)			1									1
Turn Type						Perm	Perm					
Protected Phases					6			4				
Permitted Phases						6	4					
Actuated Green, G (s)					29.9	29.9		20.6				
Effective Green, g (s)					29.9	29.9		20.6				
Actuated g/C Ratio					0.50	0.50		0.34				
Clearance Time (s)					5.5	5.5		4.0				
Lane Grp Cap (vph)					2534	731		2117				
v/s Ratio Prot					c0.34							
v/s Ratio Perm						0.05		0.20				
v/c Ratio					0.69	0.10		0.58				
Uniform Delay, d1					11.5	8.0		16.2				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					1.5	0.3		1.2				
Delay (s)					13.0	8.3		17.3				
Level of Service					B	A		B				
Approach Delay (s)		0.0			12.8			17.3			0.0	
Approach LOS		A			B			B			A	

Intersection Summary				
HCM Average Control Delay	14.6	HCM Level of Service		B
HCM Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		9.5
Intersection Capacity Utilization	65.2%	ICU Level of Service		C
Analysis Period (min)	15			

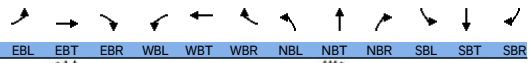
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	398	142	0	0	0	0	0	0	26	784	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5								5.5	
Lane Util. Factor		0.91	1.00								0.91	
Frpb, ped/bikes		1.00	0.95								1.00	
Flpb, ped/bikes		1.00	1.00								1.00	
Frt		1.00	0.85								1.00	
Flt Protected		1.00	1.00								1.00	
Satd. Flow (prot)		5085	1503								5074	
Flt Permitted		1.00	1.00								1.00	
Satd. Flow (perm)		5085	1503								5074	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	0	433	154	0	0	0	0	0	0	28	825	0
RTOR Reduction (vph)	0	0	48	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	433	106	0	0	0	0	0	0	0	847	0
Confl. Peds. (#/hr)	32		32	21		21	23		23	17		17
Confl. Bikes (#/hr)			10			10			2			3
Turn Type			Perm							Perm		
Protected Phases		2									4	
Permitted Phases			2							4		
Actuated Green, G (s)		23.0	23.0								26.0	
Effective Green, g (s)		23.0	23.0								26.0	
Actuated g/C Ratio		0.38	0.38								0.43	
Clearance Time (s)		5.5	5.5								5.5	
Lane Grp Cap (vph)		1949	576								2199	
v/s Ratio Prot		c0.09										
v/s Ratio Perm			0.07								0.17	
v/c Ratio		0.22	0.18								0.39	
Uniform Delay, d1		12.5	12.3								11.6	
Progression Factor		0.75	0.63								1.07	
Incremental Delay, d2		0.3	0.7								0.4	
Delay (s)		9.7	8.4								12.8	
Level of Service		A	A								B	
Approach Delay (s)		9.3			0.0			0.0			12.8	
Approach LOS		A			A			A			B	

Intersection Summary				
HCM Average Control Delay	11.4	HCM Level of Service		B
HCM Volume to Capacity ratio	0.31			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		11.0
Intersection Capacity Utilization	39.0%	ICU Level of Service		A
Analysis Period (min)	15			

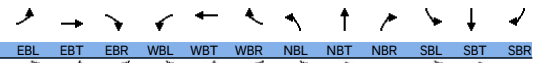
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	120	402	0	0	0	0	0	411	59	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.91						0.86				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		4979						6263				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		4979						6263				
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	432	0	0	0	0	0	447	64	0	0	0
RTOR Reduction (vph)	0	108	0	0	0	0	0	18	0	0	0	0
Lane Group Flow (vph)	0	454	0	0	0	0	0	493	0	0	0	0
Confl. Peds. (#/hr)	46		46	56		56	21		21	52		52
Confl. Bikes (#/hr)			2			2			5			
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		10.3						42.7				
Effective Green, g (s)		10.3						42.7				
Actuated g/C Ratio		0.17						0.71				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		855						4457				
v/s Ratio Prot								c0.08				
v/s Ratio Perm		0.09										
v/c Ratio		0.53						0.11				
Uniform Delay, d1		22.7						2.7				
Progression Factor		1.06						1.00				
Incremental Delay, d2		0.2						0.1				
Delay (s)		24.2						2.8				
Level of Service		C						A				
Approach Delay (s)		24.2			0.0			2.8			0.0	
Approach LOS		C			A			A			A	

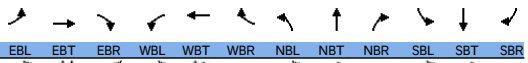
Intersection Summary				
HCM Average Control Delay	14.0	HCM Level of Service		B
HCM Volume to Capacity ratio	0.19			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		7.0
Intersection Capacity Utilization	40.1%	ICU Level of Service		A
Analysis Period (min)	15			

c Critical Lane Group



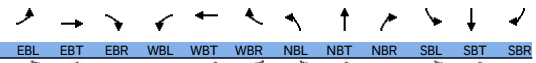
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	210	409	137	64	660	115	210	506	46	133	464	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1534	1769	1863	1531	1770	1834		1765	1715	
Flt Permitted	0.12	1.00	1.00	0.35	1.00	1.00	0.12	1.00		0.17	1.00	
Satd. Flow (perm)	226	1863	1534	648	1863	1531	226	1834		308	1715	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	228	445	149	70	717	125	228	550	50	145	504	380
RTOR Reduction (vph)	0	0	91	0	0	80	0	4	0	0	32	0
Lane Group Flow (vph)	228	445	58	70	717	45	228	596	0	145	852	0
Confl. Peds. (#/hr)	4		4	1		1	17		17	10		10
Confl. Bikes (#/hr)			4			10			17			28
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	43.0	33.1	33.1	33.8	28.4	28.4	33.0	33.0		33.0	33.0	
Effective Green, g (s)	43.0	33.1	33.1	33.8	28.4	28.4	33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.51	0.39	0.39	0.40	0.33	0.33	0.39	0.39		0.39	0.39	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	298	725	597	329	622	512	88	712		120	666	
v/s Ratio Prot	c0.09	0.24		0.01	c0.38			0.33			0.50	
v/s Ratio Perm	0.30		0.04	0.07		0.03	c1.01			0.47		
v/c Ratio	0.77	0.61	0.10	0.21	1.15	0.09	2.59	0.84		1.21	1.28	
Uniform Delay, d1	17.6	20.8	16.5	16.6	28.3	19.4	26.0	23.6		26.0	26.0	
Progression Factor	1.00	1.00	1.00	1.56	1.41	2.63	0.72	0.68		1.00	1.00	
Incremental Delay, d2	10.1	3.9	0.3	0.1	85.0	0.3	739.6	6.1		148.6	137.1	
Delay (s)	27.7	24.7	16.8	26.0	125.0	51.3	758.4	22.3		174.6	163.1	
Level of Service	C	C	B	C	F	D	F	C		F	F	
Approach Delay (s)		24.1			107.3			225.0			164.8	
Approach LOS		C			F			F			F	

Intersection Summary				
HCM Average Control Delay	131.8	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.77			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	120.5%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				



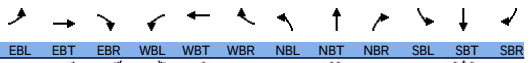
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	702	32	19	893	141	95	566	33	143	431	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	0.99	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3427	1532	1761	3329		1770	1845		1761	1792	
Flt Permitted	0.17	1.00	1.00	0.17	1.00		0.95	1.00		0.41	1.00	
Satd. Flow (perm)	308	3427	1532	306	3329		1770	1845		754	1792	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	29	763	35	21	971	153	103	615	36	155	454	115
RTOR Reduction (vph)	0	0	25	0	14	0	0	2	0	0	9	0
Lane Group Flow (vph)	29	763	10	21	1110	0	103	649	0	155	560	0
Confl. Peds. (#/hr)	12		12	18		18	3		3	12		12
Confl. Bikes (#/hr)			8			6			10			28
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4						6		
Actuated Green, G (s)	24.2	24.2	24.2	24.2	24.2		8.2	50.3		37.6	37.6	
Effective Green, g (s)	24.2	24.2	24.2	24.2	24.2		8.2	50.3		37.6	37.6	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28		0.10	0.59		0.44	0.44	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	88	976	436	87	948		171	1092		334	793	
v/s Ratio Prot		0.22			c0.33		0.06	c0.35			c0.31	
v/s Ratio Perm	0.09		0.01	0.07						0.21		
v/c Ratio	0.33	0.78	0.02	0.24	1.17		0.60	0.59		0.46	0.71	
Uniform Delay, d1	24.0	28.0	21.9	23.3	30.4		36.8	10.9		16.6	19.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.19	1.23	
Incremental Delay, d2	9.7	6.2	0.1	6.5	88.1		4.1	2.4		1.6	1.8	
Delay (s)	33.7	34.2	22.0	29.8	118.5		40.9	13.3		21.4	25.4	
Level of Service	C	C	C	C	F		D	B		C	C	
Approach Delay (s)		33.7			116.9			17.1			24.5	
Approach LOS		C			F			B			C	

Intersection Summary				
HCM Average Control Delay	55.7	HCM Level of Service	E	
HCM Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	16.5	
Intersection Capacity Utilization	82.9%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	169	30	12	218	227	26	657	31	41	180	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.96	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.98	1.00			1.00	1.00	0.98	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1738	1800			1856	1527	1735	1845		1770	1764	
Flt Permitted	0.48	1.00			0.98	1.00	0.60	1.00		0.14	1.00	
Satd. Flow (perm)	880	1800			1820	1527	1087	1845		268	1764	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92	0.92
Adj. Flow (vph)	32	184	33	13	237	247	28	714	34	42	196	70
RTOR Reduction (vph)	0	13	0	0	0	189	0	2	0	0	17	0
Lane Group Flow (vph)	32	204	0	0	250	58	28	746	0	42	249	0
Confl. Peds. (#/hr)	32		32	24		24	16		16	19		19
Confl. Bikes (#/hr)			6			4			25			3
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	14.2	14.2			14.2	14.2	29.9	29.9		36.8	36.8	
Effective Green, g (s)	14.2	14.2			14.2	14.2	29.9	29.9		36.8	36.8	
Actuated g/C Ratio	0.24	0.24			0.24	0.24	0.50	0.50		0.61	0.61	
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	208	426			431	361	542	919		224	1082	
v/s Ratio Prot		0.11						c0.40		0.01	c0.14	
v/s Ratio Perm	0.04				c0.14	0.04	0.03			0.11		
v/c Ratio	0.15	0.48			0.58	0.16	0.05	0.81		0.19	0.23	
Uniform Delay, d1	18.1	19.7			20.3	18.2	7.7	12.7		8.7	5.2	
Progression Factor	1.00	1.00			1.02	1.88	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.9			1.2	0.1	0.2	7.7		0.4	0.5	
Delay (s)	18.5	20.6			21.9	34.3	7.9	20.4		9.1	5.7	
Level of Service	B	C			C	C	A	C		A	A	
Approach Delay (s)		20.3			28.1			20.0			6.2	
Approach LOS		C			C			B			A	

Intersection Summary				
HCM Average Control Delay	19.9	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.72			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	80.1%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	162	95	61	294	124	109	804	117	45	568	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			0.91	
Frpb, ped/bikes		1.00	0.90	1.00	0.96			0.99			0.99	
Flpb, ped/bikes		1.00	1.00	0.92	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.96			0.98			0.99	
Flt Protected		0.99	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1845	1430	1621	1711			3410			4989	
Flt Permitted		0.93	1.00	0.61	1.00			0.72			0.80	
Satd. Flow (perm)		1718	1430	1039	1711			2474			4026	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92
Adj. Flow (vph)	25	176	103	66	320	135	118	874	123	49	617	42
RTOR Reduction (vph)	0	0	65	0	25	0	0	16	0	0	12	0
Lane Group Flow (vph)	0	201	38	66	430	0	0	1099	0	0	696	0
Confl. Peds. (#/hr)	74		74	120		120	85		85	65		65
Confl. Bikes (#/hr)			30			13			10			6
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Effective Green, g (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Actuated g/C Ratio		0.37	0.37	0.37	0.37			0.48			0.30	
Clearance Time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Grp Cap (vph)		630	524	381	627			1305			1208	
v/s Ratio Prot					c0.25			c0.10				
v/s Ratio Perm		0.12	0.03	0.06				c0.31			0.17	
v/c Ratio		0.32	0.07	0.17	0.69			0.84			0.58	
Uniform Delay, d1		13.6	12.4	12.8	16.1			13.5			17.8	
Progression Factor		1.14	1.90	1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.3	0.3	1.0	6.0			6.7			2.0	
Delay (s)		16.8	23.8	13.8	22.1			20.2			19.8	
Level of Service		B	C	B	C			C			B	
Approach Delay (s)		19.2			21.0			20.2			19.8	
Approach LOS		B			C			C			B	

Intersection Summary				
HCM Average Control Delay	20.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	98.6%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	249	941	0	0	0	0	0	780	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.91						0.91	
Frpb, ped/bikes					1.00						1.00	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.99	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					4976						5030	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					4976						5030	
Peak-hour factor, PHF	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25	0.25	0.25	0.92	0.92
Adj. Flow (vph)	0	0	0	271	970	0	0	0	0	0	848	50
RTOR Reduction (vph)	0	0	0	0	40	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	0	1201	0	0	0	0	0	887	0
Confl. Peds. (#/hr)	32		32	47		47	36		36	29		29
Confl. Bikes (#/hr)			3			13			9			2
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2156						2222	
v/s Ratio Prot											c0.18	
v/s Ratio Perm					0.24							
v/c Ratio					0.56						0.40	
Uniform Delay, d1					12.7						11.4	
Progression Factor					0.47						1.00	
Incremental Delay, d2					1.0						0.5	
Delay (s)					6.9						11.9	
Level of Service					A						B	
Approach Delay (s)		0.0			6.9			0.0			11.9	
Approach LOS		A			A			A			B	

Intersection Summary				
HCM Average Control Delay	9.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5	
Intersection Capacity Utilization	48.3%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1015	60	178	989	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5		4.0				
Lane Util. Factor					0.91	1.00		0.86				
Frpb, ped/bikes					1.00	0.94		1.00				
Flpb, ped/bikes					1.00	1.00		0.98				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1484		6239				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1484		6239				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.95	0.92	0.92	0.96	0.25	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	1068	65	193	1030	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	4	0	28	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1068	61	0	1195	0	0	0	0
Confl. Peds. (#/hr)	121		121	69		69	118		118	84		84
Confl. Bikes (#/hr)			3									15
Turn Type						Perm	Perm					
Protected Phases					6			4				
Permitted Phases						6	4					
Actuated Green, G (s)					29.9	29.9		20.6				
Effective Green, g (s)					29.9	29.9		20.6				
Actuated g/C Ratio					0.50	0.50		0.34				
Clearance Time (s)					5.5	5.5		4.0				
Lane Grp Cap (vph)					2534	740		2142				
v/s Ratio Prot					c0.21							
v/s Ratio Perm						0.04		0.19				
v/c Ratio					0.42	0.08		0.56				
Uniform Delay, d1					9.6	7.9		16.0				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					0.5	0.2		1.1				
Delay (s)					10.1	8.1		17.1				
Level of Service					B	A		B				
Approach Delay (s)		0.0			10.0			17.1			0.0	
Approach LOS		A			A			B			A	

Intersection Summary				
HCM Average Control Delay	13.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5	
Intersection Capacity Utilization	46.6%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	910	194	0	0	0	0	0	0	51	956	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5								5.5	
Lane Util. Factor		0.91	1.00								0.91	
Frpb, ped/bikes		1.00	0.96								1.00	
Flpb, ped/bikes		1.00	1.00								1.00	
Frt		1.00	0.85								1.00	
Flt Protected		1.00	1.00								1.00	
Satd. Flow (prot)		5085	1527								5068	
Flt Permitted		1.00	1.00								1.00	
Satd. Flow (perm)		5085	1527								5068	
Peak-hour factor, PHF	0.25	0.96	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.93	0.25
Adj. Flow (vph)	0	948	211	0	0	0	0	0	0	55	1028	0
RTOR Reduction (vph)	0	0	25	0	0	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	948	186	0	0	0	0	0	0	0	1073	0
Confl. Peds. (#/hr)	20		20	30		30	12		12	17		17
Confl. Bikes (#/hr)			5			7			3			
Turn Type			Perm							Perm		
Protected Phases		2									4	
Permitted Phases			2							4		
Actuated Green, G (s)		23.0	23.0								26.0	
Effective Green, g (s)		23.0	23.0								26.0	
Actuated g/C Ratio		0.38	0.38								0.43	
Clearance Time (s)		5.5	5.5								5.5	
Lane Grp Cap (vph)		1949	585								2196	
v/s Ratio Prot		c0.19										
v/s Ratio Perm			0.12								0.21	
v/c Ratio		0.49	0.32								0.49	
Uniform Delay, d1		14.0	13.0								12.2	
Progression Factor		0.77	0.66								0.55	
Incremental Delay, d2		0.8	1.4								0.7	
Delay (s)		11.7	9.9								7.4	
Level of Service		B	A								A	
Approach Delay (s)		11.4			0.0			0.0			7.4	
Approach LOS		B			A			A			A	

Intersection Summary				
HCM Average Control Delay	9.4	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.49			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0	
Intersection Capacity Utilization	46.3%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	724	0	0	0	0	0	335	134	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.91						0.86				
Frpb, ped/bikes		1.00						0.98				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		5066						6045				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		5066						6045				
Peak-hour factor, PHF	0.92	0.92	0.25	0.25	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25
Adj. Flow (vph)	34	787	0	0	0	0	0	364	138	0	0	0
RTOR Reduction (vph)	0	10	0	0	0	0	0	22	0	0	0	0
Lane Group Flow (vph)	0	811	0	0	0	0	0	480	0	0	0	0
Confl. Peds. (#/hr)	46		46	17		17	53		53	68		68
Confl. Bikes (#/hr)			1			1			6			2
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		15.3						37.7				
Effective Green, g (s)		15.3						37.7				
Actuated g/C Ratio		0.26						0.63				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		1292						3798				
v/s Ratio Prot								c0.08				
v/s Ratio Perm		0.16										
v/c Ratio		0.63						0.13				
Uniform Delay, d1		19.8						4.5				
Progression Factor		1.00						1.00				
Incremental Delay, d2		0.7						0.1				
Delay (s)		20.5						4.6				
Level of Service		C						A				
Approach Delay (s)		20.5			0.0			4.6			0.0	
Approach LOS		C			A			A			A	

Intersection Summary				
HCM Average Control Delay	14.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.27			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	41.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	394	444	164	50	299	122	100	419	26	55	406	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.96	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1769	1863	1546	1765	1863	1519	1764	1842		1766	1776	
Flt Permitted	0.33	1.00	1.00	0.38	1.00	1.00	0.13	1.00		0.27	1.00	
Satd. Flow (perm)	618	1863	1546	703	1863	1519	243	1842		495	1776	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	428	483	178	54	325	133	104	455	28	60	441	167
RTOR Reduction (vph)	0	0	102	0	0	89	0	3	0	0	16	0
Lane Group Flow (vph)	428	483	76	54	325	44	104	480	0	60	592	0
Confl. Peds. (#/hr)	1		1	8		8	12		12	6		6
Confl. Bikes (#/hr)			2			5			27			6
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	44.7	36.3	36.3	32.2	28.3	28.3	31.3	31.3		31.3	31.3	
Effective Green, g (s)	44.7	36.3	36.3	32.2	28.3	28.3	31.3	31.3		31.3	31.3	
Actuated g/C Ratio	0.53	0.43	0.43	0.38	0.33	0.33	0.37	0.37		0.37	0.37	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	486	796	660	315	620	506	89	678		182	654	
v/s Ratio Prot	c0.12	0.26		0.01	0.17			0.26			0.33	
v/s Ratio Perm	c0.34		0.05	0.06		0.03	c0.43			0.12		
v/c Ratio	0.88	0.61	0.12	0.17	0.52	0.09	1.17	0.71		0.33	0.90	
Uniform Delay, d1	15.2	18.8	14.7	17.2	22.9	19.5	26.8	23.0		19.3	25.4	
Progression Factor	1.00	1.00	1.00	0.70	0.63	0.24	1.03	1.02		1.00	1.00	
Incremental Delay, d2	16.4	3.4	0.4	0.1	3.1	0.3	141.9	2.5		0.4	15.7	
Delay (s)	31.6	22.3	15.0	12.2	17.5	5.0	169.6	25.9		19.7	41.1	
Level of Service	C	C	B	B	B	A	F	C		B	D	
Approach Delay (s)		24.8			13.7			51.4			39.2	
Approach LOS		C			B			D			D	

Intersection Summary				
HCM Average Control Delay	31.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.99			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	92.9%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	1019	410	79	494	78	232	302	35	132	423	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	0.99		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.99	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1765	3427	1553	1770	3340		1770	1828		1757	1807	
Flt Permitted	0.26	1.00	1.00	0.16	1.00		0.95	1.00		0.55	1.00	
Satd. Flow (perm)	475	3427	1553	297	3340		1770	1828		1014	1807	
Peak-hour factor, PHF	0.92	0.96	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	1061	446	86	537	85	252	318	38	143	460	97
RTOR Reduction (vph)	0	0	314	0	14	0	0	3	0	0	9	0
Lane Group Flow (vph)	136	1061	132	86	608	0	252	353	0	143	548	0
Confl. Peds. (#/hr)	4		4	4		4	4		4	11		11
Confl. Bikes (#/hr)			3			7			21			1
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4						6		
Actuated Green, G (s)	25.1	25.1	25.1	25.1	25.1		12.9	49.4		32.0	32.0	
Effective Green, g (s)	25.1	25.1	25.1	25.1	25.1		12.9	49.4		32.0	32.0	
Actuated g/C Ratio	0.30	0.30	0.30	0.30	0.30		0.15	0.58		0.38	0.38	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	140	1012	459	88	986		269	1062		382	680	
v/s Ratio Prot		c0.31			0.18		c0.14	0.19			c0.30	
v/s Ratio Perm	0.29		0.08	0.29						0.14		
v/c Ratio	0.97	1.05	0.29	0.98	0.62		0.94	0.33		0.37	0.81	
Uniform Delay, d1	29.6	30.0	23.1	29.7	25.8		35.6	9.2		19.2	23.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		0.92	0.99	
Incremental Delay, d2	68.8	41.8	1.6	89.9	2.9		37.4	0.8		2.2	8.0	
Delay (s)	98.4	71.8	24.6	119.5	28.7		73.1	10.1		19.9	31.5	
Level of Service	F	E	C	F	C		E	B		B	C	
Approach Delay (s)		61.2			39.7			36.2			29.1	
Approach LOS		E			D			D			C	

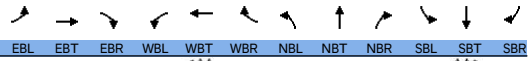
Intersection Summary				
HCM Average Control Delay	46.8	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.92			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	15.0	
Intersection Capacity Utilization	89.5%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	116	24	15	237	125	40	547	51	193	194	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.97	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.99	1.00			1.00	1.00	0.99	1.00		1.00	1.00	
Frt	1.00	0.97			1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1760	1803			1855	1538	1759	1833		1770	1773	
Flt Permitted	0.45	1.00			0.98	1.00	0.58	1.00		0.15	1.00	
Satd. Flow (perm)	835	1803			1819	1538	1081	1833		283	1773	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	126	26	16	252	136	43	558	55	210	211	76
RTOR Reduction (vph)	0	14	0	0	0	103	0	5	0	0	17	0
Lane Group Flow (vph)	24	138	0	0	268	33	43	608	0	210	270	0
Confl. Peds. (#/hr)	10		10	19		19	5		5	4		4
Confl. Bikes (#/hr)			4			1			3			9
Turn Type	Perm			Perm		Perm	Perm		pm+pt			
Protected Phases		4			8			2	1	6		
Permitted Phases	4			8		8	2		6			
Actuated Green, G (s)	14.4	14.4			14.4	14.4	24.1	24.1		36.6	36.6	
Effective Green, g (s)	14.4	14.4			14.4	14.4	24.1	24.1		36.6	36.6	
Actuated g/C Ratio	0.24	0.24			0.24	0.24	0.40	0.40		0.61	0.61	
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	200	433			437	369	434	736		371	1082	
v/s Ratio Prot		0.08						c0.33		c0.08	0.15	
v/s Ratio Perm	0.03				c0.15	0.02	0.04			0.27		
v/c Ratio	0.12	0.32			0.61	0.09	0.10	0.83		0.57	0.25	
Uniform Delay, d1	17.8	18.8			20.3	17.7	11.2	16.1		9.1	5.4	
Progression Factor	1.00	1.00			1.04	1.60	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.4			2.3	0.1	0.5	10.2		2.0	0.6	
Delay (s)	18.1	19.2			23.4	28.5	11.6	26.3		11.0	5.9	
Level of Service	B	B			C	C	B	C		B	A	
Approach Delay (s)		19.0			25.1			25.3			8.1	
Approach LOS		B			C			C			A	

Intersection Summary				
HCM Average Control Delay	19.7	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.72			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	78.6%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	226	71	56	185	131	69	561	97	76	479	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			0.91	
Frpb, ped/bikes		1.00	0.93	1.00	0.95			0.99			1.00	
Flpb, ped/bikes		1.00	1.00	0.94	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.94			0.98			0.99	
Flt Protected		1.00	1.00	0.95	1.00			1.00			0.99	
Satd. Flow (prot)		1856	1473	1661	1660			3397			4981	
Flt Permitted		0.98	1.00	0.54	1.00			0.84			0.77	
Satd. Flow (perm)		1828	1473	938	1660			2879			3836	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	246	77	61	201	142	75	603	105	83	521	33
RTOR Reduction (vph)	0	0	49	0	42	0	0	21	0	0	10	0
Lane Group Flow (vph)	0	257	28	61	301	0	0	762	0	0	627	0
Confl. Peds. (#/hr)	58		58	99		99	72		72	49		49
Confl. Bikes (#/hr)			7			33			10			6
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Effective Green, g (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Actuated g/C Ratio		0.37	0.37	0.37	0.37			0.48			0.30	
Clearance Time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Grp Cap (vph)		670	540	344	609			1452			1151	
v/s Ratio Prot					c0.18			c0.06				
v/s Ratio Perm		0.14	0.02	0.07				c0.19			0.16	
v/c Ratio		0.38	0.05	0.18	0.49			0.53			0.54	
Uniform Delay, d1		14.0	12.3	12.9	14.7			10.7			17.6	
Progression Factor		0.94	1.02	1.00	1.00			1.00			1.00	
Incremental Delay, d2		1.5	0.2	1.1	2.8			1.4			1.9	
Delay (s)		14.6	12.7	14.0	17.5			12.1			19.4	
Level of Service		B	B	B	B			B			B	
Approach Delay (s)		14.1			17.0			12.1			19.4	
Approach LOS		B			B			B			B	

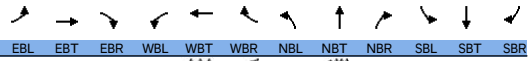
Intersection Summary				
HCM Average Control Delay	15.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.51			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	84.8%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	478	1728	0	0	0	0	0	603	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.91						0.91	
Frpb, ped/bikes					1.00						0.99	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.98	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					4992						4935	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					4992						4935	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.98	0.92
Adj. Flow (vph)	0	0	0	520	1781	0	0	0	0	0	615	113
RTOR Reduction (vph)	0	0	0	0	84	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	0	0	0	2217	0	0	0	0	0	726	0
Confl. Peds. (#/hr)	48		48	30		30	54		54	27		27
Confl. Bikes (#/hr)			9			5			4			1
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2163						2180	
v/s Ratio Prot											c0.15	
v/s Ratio Perm					0.44							
v/c Ratio					1.02						0.33	
Uniform Delay, d1					17.0						11.0	
Progression Factor					0.48						1.00	
Incremental Delay, d2					21.9						0.4	
Delay (s)					30.1						11.4	
Level of Service					C						B	
Approach Delay (s)		0.0			30.1			0.0			11.4	
Approach LOS		A			C			A			B	

Intersection Summary				
HCM Average Control Delay	25.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.68			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.5	
Intersection Capacity Utilization	66.3%	ICU Level of Service	C	
Analysis Period (min)	15			

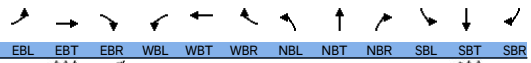
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1936	89	374	932	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5		4.0				
Lane Util. Factor					0.91	1.00		0.86				
Frpb, ped/bikes					1.00	0.93		1.00				
Flpb, ped/bikes					1.00	1.00		0.98				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1467		6167				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1467		6167				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.97	0.92	0.93	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1996	97	402	1013	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	5	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1996	92	0	1414	0	0	0	0
Confl. Peds. (#/hr)	102		102	84		84	84		84	168		168
Confl. Bikes (#/hr)			1									1
Turn Type						Perm	Perm					
Protected Phases					6			4				
Permitted Phases						6	4					
Actuated Green, G (s)					29.9	29.9		20.6				
Effective Green, g (s)					29.9	29.9		20.6				
Actuated g/C Ratio					0.50	0.50		0.34				
Clearance Time (s)					5.5	5.5		4.0				
Lane Grp Cap (vph)					2534	731		2117				
v/s Ratio Prot					c0.39							
v/s Ratio Perm						0.06		0.23				
v/c Ratio					0.79	0.13		0.67				
Uniform Delay, d1					12.4	8.1		16.8				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					2.6	0.4		1.7				
Delay (s)					15.0	8.4		18.5				
Level of Service					B	A		B				
Approach Delay (s)		0.0			14.7			18.5			0.0	
Approach LOS		A			B			B			A	

Intersection Summary				
HCM Average Control Delay	16.2	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.5	
Intersection Capacity Utilization	72.7%	ICU Level of Service	C	
Analysis Period (min)	15			

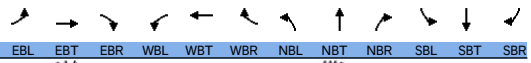
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	457	174	0	0	0	0	0	0	64	961	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5								5.5	
Lane Util. Factor		0.91	1.00								0.91	
Frpb, ped/bikes		1.00	0.95								1.00	
Flpb, ped/bikes		1.00	1.00								1.00	
Frt		1.00	0.85								1.00	
Flt Protected		1.00	1.00								1.00	
Satd. Flow (prot)		5085	1503								5063	
Flt Permitted		1.00	1.00								1.00	
Satd. Flow (perm)		5085	1503								5063	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	0	497	189	0	0	0	0	0	0	70	1012	0
RTOR Reduction (vph)	0	0	26	0	0	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	497	163	0	0	0	0	0	0	0	1069	0
Confl. Peds. (#/hr)	32		32	21		21	23		23	17		17
Confl. Bikes (#/hr)			10			10			2			3
Turn Type			Perm							Perm		
Protected Phases		2									4	
Permitted Phases			2							4		
Actuated Green, G (s)		23.0	23.0								26.0	
Effective Green, g (s)		23.0	23.0								26.0	
Actuated g/C Ratio		0.38	0.38								0.43	
Clearance Time (s)		5.5	5.5								5.5	
Lane Grp Cap (vph)		1949	576								2194	
v/s Ratio Prot		0.10										
v/s Ratio Perm			c0.11								0.21	
v/c Ratio		0.26	0.28								0.49	
Uniform Delay, d1		12.6	12.8								12.2	
Progression Factor		0.72	0.64								0.90	
Incremental Delay, d2		0.3	1.2								0.6	
Delay (s)		9.4	9.5								11.6	
Level of Service		A	A								B	
Approach Delay (s)		9.4			0.0			0.0			11.6	
Approach LOS		A			A			A			B	

Intersection Summary				
HCM Average Control Delay	10.8	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.39			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0	
Intersection Capacity Utilization	43.2%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	133	463	0	0	0	0	0	460	68	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.91						0.86				
Frpb, ped/bikes		1.00						1.00				
Flpb, ped/bikes		0.99						1.00				
Frt		1.00						0.98				
Flt Protected		0.99						1.00				
Satd. Flow (prot)		4982						6259				
Flt Permitted		0.99						1.00				
Satd. Flow (perm)		4982						6259				
Peak-hour factor, PHF	0.92	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	145	498	0	0	0	0	0	500	74	0	0	0
RTOR Reduction (vph)	0	118	0	0	0	0	0	23	0	0	0	0
Lane Group Flow (vph)	0	525	0	0	0	0	0	551	0	0	0	0
Confl. Peds. (#/hr)	46		46	56		56	21		21	52		52
Confl. Bikes (#/hr)			2			2			5			
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		11.3						41.7				
Effective Green, g (s)		11.3						41.7				
Actuated g/C Ratio		0.19						0.70				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		938						4350				
v/s Ratio Prot								c0.09				
v/s Ratio Perm		0.11										
v/c Ratio		0.56						0.13				
Uniform Delay, d1		22.1						3.1				
Progression Factor		1.08						1.00				
Incremental Delay, d2		0.3						0.1				
Delay (s)		24.1						3.1				
Level of Service		C						A				
Approach Delay (s)		24.1			0.0			3.1			0.0	
Approach LOS		C			A			A			A	

Intersection Summary				
HCM Average Control Delay	14.2	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.22			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	40.3%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	239	465	156	73	734	131	238	582	54	154	537	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00		1.00	0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1534	1769	1863	1531	1770	1833		1766	1715	
Flt Permitted	0.12	1.00	1.00	0.28	1.00	1.00	0.12	1.00		0.12	1.00	
Satd. Flow (perm)	230	1863	1534	513	1863	1531	226	1833		225	1715	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	260	505	170	79	798	142	259	633	59	167	584	440
RTOR Reduction (vph)	0	0	104	0	0	81	0	4	0	0	32	0
Lane Group Flow (vph)	260	505	66	79	798	61	259	688	0	167	992	0
Confl. Peds. (#/hr)	4		4	1		1	17		17	10		10
Confl. Bikes (#/hr)			4			10			17			28
Turn Type	pm+pt		Perm	pm+pt		Perm	Perm			Perm		
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	43.0	32.9	32.9	33.5	27.9	27.9	33.0	33.0		33.0	33.0	
Effective Green, g (s)	43.0	32.9	32.9	33.5	27.9	27.9	33.0	33.0		33.0	33.0	
Actuated g/C Ratio	0.51	0.39	0.39	0.39	0.33	0.33	0.39	0.39		0.39	0.39	
Clearance Time (s)	4.5	3.5	3.5	4.5	3.5	3.5	5.5	5.5		5.5	5.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	308	721	594	285	612	503	88	712		87	666	
v/s Ratio Prot	c0.11	0.27		0.02	c0.43			0.38			0.58	
v/s Ratio Perm	0.32		0.04	0.09		0.04	c1.15			0.74		
v/c Ratio	0.84	0.70	0.11	0.28	1.30	0.12	2.94	0.97		1.92	1.49	
Uniform Delay, d1	19.8	21.9	16.7	17.2	28.6	20.0	26.0	25.5		26.0	26.0	
Progression Factor	1.00	1.00	1.00	1.53	1.38	2.24	0.74	0.73		1.00	1.00	
Incremental Delay, d2	17.9	5.6	0.4	0.2	146.8	0.4	893.4	18.9		453.2	228.3	
Delay (s)	37.8	27.5	17.1	26.5	186.1	45.2	912.7	37.4		479.2	254.3	
Level of Service	D	C	B	C	F	D	F	D		F	F	
Approach Delay (s)		28.5			154.1			275.8			285.9	
Approach LOS		C			F			F			F	

Intersection Summary				
HCM Average Control Delay	192.0	HCM Level of Service	F	
HCM Volume to Capacity ratio	2.00			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	134.7%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	800	36	21	1010	157	110	651	39	164	499	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Lane Util. Factor	1.00	*0.92	1.00	1.00	*0.92		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.97	1.00	0.99		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3427	1532	1763	3330		1770	1845		1763	1792	
Flt Permitted	0.17	1.00	1.00	0.17	1.00		0.95	1.00		0.32	1.00	
Satd. Flow (perm)	308	3427	1532	307	3330		1770	1845		599	1792	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92
Adj. Flow (vph)	34	870	39	23	1098	171	120	708	42	178	525	134
RTOR Reduction (vph)	0	0	28	0	14	0	0	2	0	0	10	0
Lane Group Flow (vph)	34	870	11	23	1255	0	120	748	0	178	649	0
Confl. Peds. (#/hr)	12		12	18		18	3		3	12		12
Confl. Bikes (#/hr)			8			6			10			28
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			4		5	2			6	
Permitted Phases	4		4	4						6		
Actuated Green, G (s)	24.2	24.2	24.2	24.2	24.2		8.6	50.3		37.2	37.2	
Effective Green, g (s)	24.2	24.2	24.2	24.2	24.2		8.6	50.3		37.2	37.2	
Actuated g/C Ratio	0.28	0.28	0.28	0.28	0.28		0.10	0.59		0.44	0.44	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	6.0		6.0	6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	88	976	436	87	948		179	1092		262	784	
v/s Ratio Prot		0.25			c0.38		0.07	c0.41			c0.36	
v/s Ratio Perm	0.11		0.01	0.07						0.30		
v/c Ratio	0.39	0.89	0.03	0.26	1.32		0.67	0.68		0.68	0.83	
Uniform Delay, d1	24.4	29.1	21.9	23.5	30.4		36.8	11.9		19.1	21.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.20	1.22	
Incremental Delay, d2	12.3	12.1	0.1	7.3	153.0		7.5	3.5		1.3	1.0	
Delay (s)	36.8	41.3	22.0	30.8	183.4		44.3	15.4		24.3	26.7	
Level of Service	D	D	C	C	F		D	B		C	C	
Approach Delay (s)		40.3			180.7			19.4			26.1	
Approach LOS		D			F			B			C	

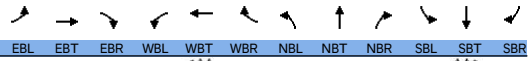
Intersection Summary				
HCM Average Control Delay	78.7	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.02			
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	16.5	
Intersection Capacity Utilization	92.6%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	206	37	14	262	271	32	807	37	50	221	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.99			1.00	0.96	1.00	1.00		1.00	0.99	
Flpb, ped/bikes	0.98	1.00			1.00	1.00	0.98	1.00		1.00	1.00	
Frt	1.00	0.98			1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1741	1800			1856	1527	1738	1845		1770	1764	
Flt Permitted	0.42	1.00			0.98	1.00	0.56	1.00		0.13	1.00	
Satd. Flow (perm)	761	1800			1818	1527	1032	1845		234	1764	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.97	0.92	0.92
Adj. Flow (vph)	38	224	40	15	285	295	35	877	40	52	240	85
RTOR Reduction (vph)	0	13	0	0	0	179	0	2	0	0	17	0
Lane Group Flow (vph)	38	251	0	0	300	116	35	915	0	52	308	0
Confl. Peds. (#/hr)	32		32	24		24	16		16	19		19
Confl. Bikes (#/hr)			6			4			25			3
Turn Type	Perm			Perm		Perm	Perm			pm+pt		
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	15.6	15.6			15.6	15.6	27.3	27.3		35.4	35.4	
Effective Green, g (s)	15.6	15.6			15.6	15.6	27.3	27.3		35.4	35.4	
Actuated g/C Ratio	0.26	0.26			0.26	0.26	0.46	0.46		0.59	0.59	
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	198	468			473	397	470	839		230	1041	
v/s Ratio Prot		0.14						c0.50		0.01	c0.17	
v/s Ratio Perm	0.05				c0.17	0.08	0.03			0.12		
v/c Ratio	0.19	0.54			0.63	0.29	0.07	1.09		0.23	0.30	
Uniform Delay, d1	17.3	19.1			19.7	17.8	9.2	16.3		11.8	6.1	
Progression Factor	1.00	1.00			1.02	1.37	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	1.2			1.4	0.2	0.3	58.6		0.5	0.7	
Delay (s)	17.8	20.3			21.6	24.5	9.5	75.0		12.3	6.8	
Level of Service	B	C			C	C	A	E		B	A	
Approach Delay (s)		20.0			23.0			72.6			7.6	
Approach LOS		B			C			E			A	

Intersection Summary				
HCM Average Control Delay	41.2	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5	
Intersection Capacity Utilization	91.2%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	186	110	70	331	141	127	931	135	52	656	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Util. Factor		1.00	1.00	1.00	1.00			0.95			0.91	
Frpb, ped/bikes		1.00	0.90	1.00	0.96			0.99			0.99	
Flpb, ped/bikes		1.00	1.00	0.92	1.00			1.00			1.00	
Frt		1.00	0.85	1.00	0.96			0.98			0.99	
Flt Protected		0.99	1.00	0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1846	1430	1629	1711			3413			4990	
Flt Permitted		0.83	1.00	0.57	1.00			0.65			0.77	
Satd. Flow (perm)		1541	1430	980	1711			2240			3879	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	28	202	120	76	360	153	138	1012	142	57	713	49
RTOR Reduction (vph)	0	0	76	0	25	0	0	16	0	0	12	0
Lane Group Flow (vph)	0	230	44	76	488	0	0	1276	0	0	807	0
Confl. Peds. (#/hr)	74		74	120		120	85		85	65		65
Confl. Bikes (#/hr)			30			13			10			6
Turn Type	Perm		Perm	Perm			Prot			Perm		
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Effective Green, g (s)		22.0	22.0	22.0	22.0			29.0			18.0	
Actuated g/C Ratio		0.37	0.37	0.37	0.37			0.48			0.30	
Clearance Time (s)		4.0	4.0	4.0	4.0			5.0			5.0	
Lane Grp Cap (vph)		565	524	359	627			1220			1164	
v/s Ratio Prot					c0.29			c0.12				
v/s Ratio Perm		0.15	0.03	0.08				c0.38			0.21	
v/c Ratio		0.41	0.08	0.21	0.78			1.05			0.69	
Uniform Delay, d1		14.1	12.4	13.0	16.8			15.5			18.6	
Progression Factor		1.14	1.94	1.00	1.00			1.00			1.00	
Incremental Delay, d2		2.0	0.3	1.3	9.2			38.6			3.4	
Delay (s)		18.2	24.3	14.4	26.0			54.1			22.0	
Level of Service		B	C	B	C			D			C	
Approach Delay (s)		20.3			24.5			54.1			22.0	
Approach LOS		C			C			D			C	

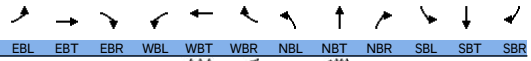
Intersection Summary				
HCM Average Control Delay	35.9	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.92			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	108.1%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	290	1096	0	0	0	0	0	895	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.5						4.0	
Lane Util. Factor					0.91						0.91	
Frpb, ped/bikes					1.00						1.00	
Flpb, ped/bikes					0.99						1.00	
Frt					1.00						0.99	
Flt Protected					0.99						1.00	
Satd. Flow (prot)					4976						5026	
Flt Permitted					0.99						1.00	
Satd. Flow (perm)					4976						5026	
Peak-hour factor, PHF	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25	0.25	0.25	0.92	0.92
Adj. Flow (vph)	0	0	0	315	1130	0	0	0	0	0	973	62
RTOR Reduction (vph)	0	0	0	0	27	0	0	0	0	0	12	0
Lane Group Flow (vph)	0	0	0	0	1418	0	0	0	0	0	1023	0
Confl. Peds. (#/hr)	32		32	47		47	36		36	29		29
Confl. Bikes (#/hr)			3			13			9			2
Turn Type				Perm								
Protected Phases					6						4	
Permitted Phases				6								
Actuated Green, G (s)					26.0						26.5	
Effective Green, g (s)					26.0						26.5	
Actuated g/C Ratio					0.43						0.44	
Clearance Time (s)					3.5						4.0	
Lane Grp Cap (vph)					2156						2220	
v/s Ratio Prot											c0.20	
v/s Ratio Perm					0.29							
v/c Ratio					0.66						0.46	
Uniform Delay, d1					13.5						11.7	
Progression Factor					0.66						1.00	
Incremental Delay, d2					1.3						0.7	
Delay (s)					10.2						12.4	
Level of Service					B						B	
Approach Delay (s)		0.0			10.2			0.0			12.4	
Approach LOS		A			B			A			B	

Intersection Summary				
HCM Average Control Delay	11.2	HCM Level of Service		B
HCM Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		7.5
Intersection Capacity Utilization	54.6%	ICU Level of Service		A
Analysis Period (min)	15			

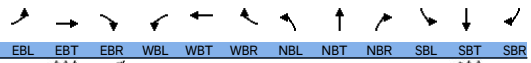
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	0	1183	70	436	1152	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.5	5.5		4.0				
Lane Util. Factor					0.91	1.00		0.86				
Frpb, ped/bikes					1.00	0.94		1.00				
Flpb, ped/bikes					1.00	1.00		0.97				
Frt					1.00	0.85		1.00				
Flt Protected					1.00	1.00		0.99				
Satd. Flow (prot)					5085	1484		6107				
Flt Permitted					1.00	1.00		0.99				
Satd. Flow (perm)					5085	1484		6107				
Peak-hour factor, PHF	0.25	0.25	0.25	0.25	0.95	0.92	0.92	0.96	0.25	0.25	0.25	0.25
Adj. Flow (vph)	0	0	0	0	1245	76	474	1200	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	2	0	16	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1245	74	0	1658	0	0	0	0
Confl. Peds. (#/hr)	121		121	69		69	118		118	84		84
Confl. Bikes (#/hr)			3									15
Turn Type						Perm	Perm					
Protected Phases					6			4				
Permitted Phases						6	4					
Actuated Green, G (s)					29.9	29.9		20.6				
Effective Green, g (s)					29.9	29.9		20.6				
Actuated g/C Ratio					0.50	0.50		0.34				
Clearance Time (s)					5.5	5.5		4.0				
Lane Grp Cap (vph)					2534	740		2097				
v/s Ratio Prot					c0.24							
v/s Ratio Perm						0.05		0.27				
v/c Ratio					0.49	0.10		0.79				
Uniform Delay, d1					10.0	7.9		17.8				
Progression Factor					1.00	1.00		1.00				
Incremental Delay, d2					0.7	0.3		3.1				
Delay (s)					10.7	8.2		20.9				
Level of Service					B	A		C				
Approach Delay (s)		0.0			10.5			20.9			0.0	
Approach LOS		A			B			C			A	

Intersection Summary				
HCM Average Control Delay	16.3	HCM Level of Service		B
HCM Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		9.5
Intersection Capacity Utilization	61.6%	ICU Level of Service		B
Analysis Period (min)	15			

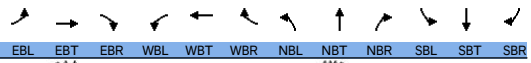
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1295	226	0	0	0	0	0	0	60	1100	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5								5.5	
Lane Util. Factor		0.91	1.00								0.91	
Frpb, ped/bikes		1.00	0.96								1.00	
Flpb, ped/bikes		1.00	1.00								1.00	
Frt		1.00	0.85								1.00	
Flt Protected		1.00	1.00								1.00	
Satd. Flow (prot)		5085	1527								5068	
Flt Permitted		1.00	1.00								1.00	
Satd. Flow (perm)		5085	1527								5068	
Peak-hour factor, PHF	0.25	0.96	0.92	0.25	0.25	0.25	0.25	0.25	0.25	0.92	0.93	0.25
Adj. Flow (vph)	0	1349	246	0	0	0	0	0	0	65	1183	0
RTOR Reduction (vph)	0	0	15	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	1349	231	0	0	0	0	0	0	0	1244	0
Confl. Peds. (#/hr)	20		20	30		30	12		12	17		17
Confl. Bikes (#/hr)			5			7			3			
Turn Type			Perm							Perm		
Protected Phases		2									4	
Permitted Phases			2							4		
Actuated Green, G (s)		23.0	23.0								26.0	
Effective Green, g (s)		23.0	23.0								26.0	
Actuated g/C Ratio		0.38	0.38								0.43	
Clearance Time (s)		5.5	5.5								5.5	
Lane Grp Cap (vph)		1949	585								2196	
v/s Ratio Prot		c0.27										
v/s Ratio Perm			0.15								0.25	
v/c Ratio		0.69	0.40								0.57	
Uniform Delay, d1		15.5	13.4								12.8	
Progression Factor		0.79	0.68								0.52	
Incremental Delay, d2		2.0	1.9								0.9	
Delay (s)		14.3	11.1								7.6	
Level of Service		B	B								A	
Approach Delay (s)		13.8			0.0			0.0			7.6	
Approach LOS		B			A			A			A	

Intersection Summary				
HCM Average Control Delay	11.1	HCM Level of Service		B
HCM Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		11.0
Intersection Capacity Utilization	56.7%	ICU Level of Service		B
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	35	844	0	0	0	0	0	387	156	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.5						3.5				
Lane Util. Factor		0.91						0.86				
Frpb, ped/bikes		1.00						0.98				
Flpb, ped/bikes		1.00						1.00				
Frt		1.00						0.96				
Flt Protected		1.00						1.00				
Satd. Flow (prot)		5067						6042				
Flt Permitted		1.00						1.00				
Satd. Flow (perm)		5067						6042				
Peak-hour factor, PHF	0.92	0.92	0.25	0.25	0.25	0.25	0.25	0.92	0.97	0.25	0.25	0.25
Adj. Flow (vph)	38	917	0	0	0	0	0	421	161	0	0	0
RTOR Reduction (vph)	0	8	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	0	947	0	0	0	0	0	567	0	0	0	0
Confl. Peds. (#/hr)	46		46	17		17	53		53	68		68
Confl. Bikes (#/hr)			1			1			6			2
Turn Type	Perm											
Protected Phases		2						4				
Permitted Phases	2											
Actuated Green, G (s)		17.6						35.4				
Effective Green, g (s)		17.6						35.4				
Actuated g/C Ratio		0.29						0.59				
Clearance Time (s)		3.5						3.5				
Vehicle Extension (s)		2.0						2.0				
Lane Grp Cap (vph)		1486						3565				
v/s Ratio Prot								c0.09				
v/s Ratio Perm		0.19										
v/c Ratio		0.64						0.16				
Uniform Delay, d1		18.4						5.6				
Progression Factor		1.00						1.00				
Incremental Delay, d2		0.7						0.1				
Delay (s)		19.1						5.7				
Level of Service		B						A				
Approach Delay (s)		19.1			0.0			5.7			0.0	
Approach LOS		B			A			A			A	

Intersection Summary				
HCM Average Control Delay	14.0	HCM Level of Service		B
HCM Volume to Capacity ratio	0.32			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		7.0
Intersection Capacity Utilization	43.4%	ICU Level of Service		A
Analysis Period (min)	15			

c Critical Lane Group

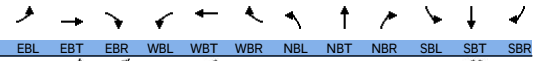
Type	Segment	Direction	Capacity (vphpl)	Lanes	Capacity (vph)	2015					
						AM Peak Hour			PM Peak Hour		
						LOS	Volume	v/c	LOS	Volume	v/c
Other MTS	Telegraph between 20th St. and 27th St.	NB	900	1	900	C	576	0.64	E	879	0.98
		SB	900	1	900	E	779	0.87	D	672	0.75

Type	Segment	Direction	Capacity (vphpl)	Lanes	Capacity (vph)	2030					
						AM Peak Hour			PM Peak Hour		
						LOS	Volume	v/c	LOS	Volume	v/c
Other MTS	Telegraph between 20th St. and 27th St.	NB	900	1	900	D	688	0.76	F	1,080	1.20
		SB	900	1	900	E	897	1.00	E	779	0.87

Type	Segment	Direction	Capacity (vphpl)	Lanes	Capacity (vph)	2015 + Phase 1					
						AM Peak Hour			PM Peak Hour		
						LOS	Volume	v/c	LOS	Volume	v/c
Other MTS	Telegraph between 20th St. and 27th St.	NB	900	1	900	C	578	0.64	E	890	0.99
		SB	900	1	900	E	779	0.87	D	674	0.75

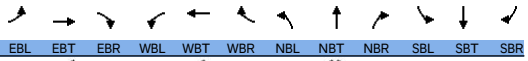
Type	Segment	Direction	Capacity (vphpl)	Lanes	Capacity (vph)	2015 + Project					
						AM Peak Hour			PM Peak Hour		
						LOS	Volume	v/c	LOS	Volume	v/c
Other MTS	Telegraph between 20th St. and 27th St.	NB	900	1	900	C	582	0.65	F	913	1.01
		SB	900	1	900	E	793	0.88	D	680	0.76

Type	Segment	Direction	Capacity (vphpl)	Lanes	Capacity (vph)	2030 + Project					
						AM Peak Hour			PM Peak Hour		
						LOS	Volume	v/c	LOS	Volume	v/c
Other MTS	Telegraph between 20th St. and 27th St.	NB	900	1	900	D	694	0.77	F	1,114	1.24
		SB	900	1	900	F	911	1.01	E	787	0.87



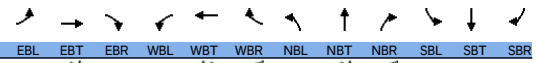
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	190	56	50	51	0	0	0	0	154	400	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.95	
Frpb, ped/bikes		1.00	0.85		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.94						0.97	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.98						0.99	
Satd. Flow (prot)		1863	1341		1712						3337	
Flt Permitted		1.00	1.00		0.63						0.99	
Satd. Flow (perm)		1863	1341		1100						3337	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	207	61	54	55	0	0	0	0	167	435	33
RTOR Reduction (vph)	0	0	50	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	207	11	0	109	0	0	0	0	0	633	0
Confl. Peds. (#/hr)	106		106	134		134	73		73	52		52
Confl. Bikes (#/hr)			3			7			21			1
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		14.8	14.8		14.8						57.2	
Effective Green, g (s)		14.8	14.8		14.8						57.2	
Actuated g/C Ratio		0.18	0.18		0.18						0.72	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		345	248		204						2386	
v/s Ratio Prot		c0.11										
v/s Ratio Perm			0.01		0.10						0.19	
v/c Ratio		0.60	0.05		0.53						0.27	
Uniform Delay, d1		29.9	26.8		29.5						4.0	
Progression Factor		1.00	1.00		1.00						0.71	
Incremental Delay, d2		2.9	0.1		2.7						0.3	
Delay (s)		32.8	26.9		32.2						3.1	
Level of Service		C	C		C						A	
Approach Delay (s)		31.5			32.2			0.0			3.1	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM Average Control Delay	13.7	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.33			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	59.7%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



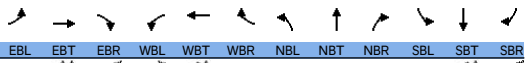
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	172	4	0	39	34	10	202	81	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.94			0.96				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.94			0.96				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1847			1643			3254				
Flt Permitted		0.99			1.00			1.00				
Satd. Flow (perm)		1839			1643			3254				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	187	4	0	42	37	11	220	88	0	0	0
RTOR Reduction (vph)	0	1	0	0	13	0	0	73	0	0	0	0
Lane Group Flow (vph)	0	198	0	0	66	0	0	246	0	0	0	0
Confl. Peds. (#/hr)	58		58	134		134	73		73	87		87
Confl. Bikes (#/hr)						5			5			2
Turn Type	Perm						Perm					
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		29.3			29.3			7.7				
Effective Green, g (s)		29.3			29.3			7.7				
Actuated g/C Ratio		0.65			0.65			0.17				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		1197			1070			557				
v/s Ratio Prot					0.04							
v/s Ratio Perm		c0.11						0.08				
v/c Ratio		0.17			0.06			0.44				
Uniform Delay, d1		3.1			2.9			16.7				
Progression Factor		0.82			1.00			1.00				
Incremental Delay, d2		0.3			0.1			0.2				
Delay (s)		2.8			3.0			16.9				
Level of Service		A			A			B				
Approach Delay (s)		2.8			3.0			16.9			0.0	
Approach LOS		A			A			B			A	

Intersection Summary				
HCM Average Control Delay	10.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.22			
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	35.1%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	277	0	0	252	86	32	190	94	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.93		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3512			3366	1337		3486	1459			
Flt Permitted		0.91			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3225			3366	1337		3486	1459			
Peak-hour factor, PHF	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	301	0	0	274	93	35	207	102	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	19	0	0	88	0	0	0
Lane Group Flow (vph)	0	331	0	0	282	65	0	242	14	0	0	0
Confl. Peds. (#/hr)	40		40	45		45	51		51	207		207
Confl. Bikes (#/hr)			5			6			8			12
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		62.0			62.0	62.0		11.0	11.0			
Effective Green, g (s)		62.0			62.0	62.0		11.0	11.0			
Actuated g/C Ratio		0.78			0.78	0.78		0.14	0.14			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2499			2609	1036		479	201			
v/s Ratio Prot					0.08							
v/s Ratio Perm		c0.10				0.05		0.07	0.01			
v/c Ratio		0.13			0.11	0.06		0.51	0.07			
Uniform Delay, d1		2.3			2.2	2.1		32.0	30.0			
Progression Factor		1.00			0.49	0.09		1.00	1.00			
Incremental Delay, d2		0.1			0.1	0.1		0.8	0.1			
Delay (s)		2.4			1.2	0.3		32.8	30.2			
Level of Service		A			A	A		C	C			
Approach Delay (s)		2.4			1.0			32.0			0.0	
Approach LOS		A			A			C			A	

Intersection Summary				
HCM Average Control Delay	11.7	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.19			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	56.1%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	226	150	158	249	0	0	0	0	67	340	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.95	1.00	0.91	0.91						0.95	1.00
Frpb, ped/bikes		1.00	0.90	1.00	1.00						1.00	0.69
Flpb, ped/bikes		1.00	1.00	1.00	0.99						0.95	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.99	1.00
Satd. Flow (prot)		3539	1422	1610	3350						3336	1091
Flt Permitted		1.00	1.00	0.95	0.94						0.99	1.00
Satd. Flow (perm)		3539	1422	1610	3148						3336	1091
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	246	158	172	271	0	0	0	0	73	370	97
RTOR Reduction (vph)	0	0	112	0	0	0	0	0	0	0	0	59
Lane Group Flow (vph)	0	246	46	143	300	0	0	0	0	0	443	38
Confl. Peds. (#/hr)	53		53	86		86	105		105	331		331
Confl. Bikes (#/hr)			16			2			1			14
Turn Type		Perm	Prot								Perm	Perm
Protected Phases		2		1	6							4
Permitted Phases			2								4	
Actuated Green, G (s)		21.0	21.0	16.0	41.0						31.0	31.0
Effective Green, g (s)		21.0	21.0	16.0	41.0						31.0	31.0
Actuated g/C Ratio		0.26	0.26	0.20	0.51						0.39	0.39
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		929	373	322	1654						1293	423
v/s Ratio Prot		c0.07		c0.09	0.04							
v/s Ratio Perm			0.03		0.06						0.13	0.03
v/c Ratio		0.26	0.12	0.44	0.18						0.34	0.09
Uniform Delay, d1		23.4	22.5	28.1	10.5						17.3	15.5
Progression Factor		1.08	1.76	1.26	1.75						1.13	1.82
Incremental Delay, d2		0.7	0.7	0.3	0.0						0.1	0.0
Delay (s)		25.9	40.2	35.7	18.3						19.6	28.3
Level of Service		C	D	D	B						B	C
Approach Delay (s)		31.5			23.9			0.0			21.2	
Approach LOS		C			C			A			C	

Intersection Summary				
HCM Average Control Delay	25.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.34			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	87.5%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	203	102	75	170	0	0	0	0	51	521	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.95	
Frpb, ped/bikes		1.00	0.91		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.97						0.98	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.98						1.00	
Satd. Flow (prot)		1863	1435		1786						3380	
Flt Permitted		1.00	1.00		0.74						1.00	
Satd. Flow (perm)		1863	1435		1339						3380	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.97	0.92
Adj. Flow (vph)	0	221	111	82	185	0	0	0	0	55	537	32
RTOR Reduction (vph)	0	0	21	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	221	90	0	267	0	0	0	0	0	621	0
Confl. Peds. (#/hr)	58		58	100		100	50		50	104		104
Confl. Bikes (#/hr)			8			6			10			28
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		20.7	20.7		20.7						51.3	
Effective Green, g (s)		20.7	20.7		20.7						51.3	
Actuated g/C Ratio		0.26	0.26		0.26						0.64	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		482	371		346						2167	
v/s Ratio Prot		0.12										
v/s Ratio Perm			0.06		c0.20						0.18	
v/c Ratio		0.46	0.24		0.77						0.29	
Uniform Delay, d1		24.9	23.5		27.5						6.3	
Progression Factor		1.00	1.00		1.00						1.23	
Incremental Delay, d2		0.7	0.3		10.2						0.3	
Delay (s)		25.6	23.8		37.7						8.1	
Level of Service		C	C		D						A	
Approach Delay (s)		25.0			37.7			0.0			8.1	
Approach LOS		C			D			A			A	

Intersection Summary				
HCM Average Control Delay	19.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.43			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	59.7%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	106	1	0	102	72	21	342	181	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.97			0.94				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.94			0.95				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1841			1706			3134				
Flt Permitted		0.97			1.00			1.00				
Satd. Flow (perm)		1800			1706			3134				
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	14	115	1	0	111	78	23	368	197	0	0	0
RTOR Reduction (vph)	0	0	0	0	32	0	0	151	0	0	0	0
Lane Group Flow (vph)	0	130	0	0	157	0	0	437	0	0	0	0
Confl. Peds. (#/hr)	71		71	82		82	88		88	75		75
Confl. Bikes (#/hr)			8			2			40			1
Turn Type	Perm						Perm					
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		26.5			26.5			10.5				
Effective Green, g (s)		26.5			26.5			10.5				
Actuated g/C Ratio		0.59			0.59			0.23				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		1060			1005			731				
v/s Ratio Prot					c0.09							
v/s Ratio Perm		0.07						0.14				
v/c Ratio		0.12			0.16			0.60				
Uniform Delay, d1		4.1			4.2			15.4				
Progression Factor		0.44			1.00			1.00				
Incremental Delay, d2		0.2			0.3			0.9				
Delay (s)		2.0			4.5			16.2				
Level of Service		A			A			B				
Approach Delay (s)		2.0			4.5			16.2			0.0	
Approach LOS		A			A			B			A	

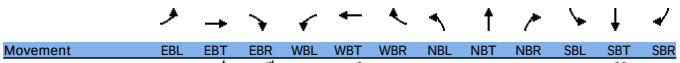
Intersection Summary				
HCM Average Control Delay	11.8	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.28			
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	44.3%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	331	0	0	389	97	65	391	257	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3510			3372	1319		3482	1459			
Flt Permitted		0.88			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3118			3372	1319		3482	1459			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	41	360	0	0	423	103	71	425	276	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	29	0	0	213	0	0	0
Lane Group Flow (vph)	0	401	0	0	432	64	0	496	63	0	0	0
Confl. Peds. (#/hr)	42		42	54		54	58		58	194		194
Confl. Bikes (#/hr)			12			7			5			8
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		54.8			54.8	54.8		18.2	18.2			
Effective Green, g (s)		54.8			54.8	54.8		18.2	18.2			
Actuated g/C Ratio		0.68			0.68	0.68		0.23	0.23			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2136			2310	904		792	332			
v/s Ratio Prot					0.13							
v/s Ratio Perm		c0.13				0.05		0.14	0.04			
v/c Ratio		0.19			0.19	0.07		0.63	0.19			
Uniform Delay, d1		4.6			4.6	4.2		27.8	24.9			
Progression Factor		1.00			0.86	0.63		1.00	1.00			
Incremental Delay, d2		0.2			0.2	0.1		1.6	0.3			
Delay (s)		4.7			4.1	2.8		29.4	25.2			
Level of Service		A			A	A		C	C			
Approach Delay (s)		4.7			3.8			27.9			0.0	
Approach LOS		A			A			C			A	

Intersection Summary				
HCM Average Control Delay	15.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.30			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	58.0%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

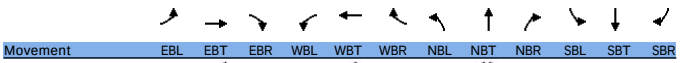
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	408	178	141	366	0	0	0	0	82	522	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.95	1.00	0.91	0.91						0.95	1.00
Frpb, ped/bikes		1.00	0.91	1.00	1.00						1.00	0.69
Flpb, ped/bikes		1.00	1.00	1.00	1.00						0.96	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.99	1.00
Satd. Flow (prot)		3539	1439	1610	3376						3372	1094
Flt Permitted		1.00	1.00	0.95	0.94						0.99	1.00
Satd. Flow (perm)		3539	1439	1610	3196						3372	1094
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	443	193	153	398	0	0	0	0	89	567	129
RTOR Reduction (vph)	0	0	46	0	0	0	0	0	0	0	0	81
Lane Group Flow (vph)	0	443	148	138	413	0	0	0	0	0	656	48
Confl. Peds. (#/hr)	51		51	114		114	115		115	333		333
Confl. Bikes (#/hr)			8			3			17			6
Turn Type		Perm		Prot							Perm	
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		28.0	28.0	10.0	42.0						30.0	30.0
Effective Green, g (s)		28.0	28.0	10.0	42.0						30.0	30.0
Actuated g/C Ratio		0.35	0.35	0.12	0.52						0.38	0.38
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		1239	504	201	1700						1265	410
v/s Ratio Prot		c0.13		c0.09	0.03							
v/s Ratio Perm			0.10		0.10						0.19	0.04
v/c Ratio		0.36	0.29	0.69	0.24						0.52	0.12
Uniform Delay, d1		19.3	18.8	33.5	10.3						19.4	16.3
Progression Factor		1.06	1.08	1.00	1.00						1.32	3.03
Incremental Delay, d2		0.8	1.4	7.5	0.0						0.1	0.0
Delay (s)		21.3	21.9	41.0	10.4						25.8	49.5
Level of Service		C	C	D	B						C	D
Approach Delay (s)		21.4			18.0			0.0			29.7	
Approach LOS		C			B			A			C	

Intersection Summary				
HCM Average Control Delay	23.8	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	93.3%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				



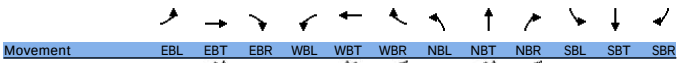
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	227	67	59	61	0	0	0	0	184	477	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.95	
Frpb, ped/bikes		1.00	0.85		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.95						0.97	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.98						0.99	
Satd. Flow (prot)		1863	1341		1724						3337	
Flt Permitted		1.00	1.00		0.56						0.99	
Satd. Flow (perm)		1863	1341		992						3337	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	247	73	64	66	0	0	0	0	200	518	39
RTOR Reduction (vph)	0	0	42	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	247	31	0	130	0	0	0	0	0	755	0
Confl. Peds. (#/hr)	106		106	134		134	73		73	52		52
Confl. Bikes (#/hr)			3			7			21			1
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		16.7	16.7		16.7						55.3	
Effective Green, g (s)		16.7	16.7		16.7						55.3	
Actuated g/C Ratio		0.21	0.21		0.21						0.69	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		389	280		207						2307	
v/s Ratio Prot		c0.13										
v/s Ratio Perm			0.02		0.13						0.23	
v/c Ratio		0.63	0.11		0.63						0.33	
Uniform Delay, d1		28.9	25.6		28.8						4.9	
Progression Factor		1.00	1.00		1.00						0.84	
Incremental Delay, d2		3.4	0.2		5.8						0.3	
Delay (s)		32.2	25.8		34.7						4.5	
Level of Service		C	C		C						A	
Approach Delay (s)		30.8			34.7			0.0			4.5	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM Average Control Delay	14.7	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.40			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	63.0%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



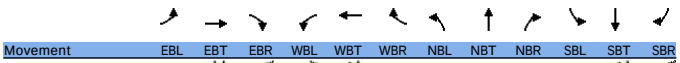
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	198	4	0	45	39	12	242	96	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.94			0.96				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.94			0.96				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1848			1647			3256				
Flt Permitted		0.99			1.00			1.00				
Satd. Flow (perm)		1840			1647			3256				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	215	4	0	49	42	13	263	104	0	0	0
RTOR Reduction (vph)	0	1	0	0	15	0	0	85	0	0	0	0
Lane Group Flow (vph)	0	227	0	0	76	0	0	295	0	0	0	0
Confl. Peds. (#/hr)	58		58	134		134	73		73	87		87
Confl. Bikes (#/hr)						5			5			2
Turn Type	Perm						Perm					
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		28.7			28.7			8.3				
Effective Green, g (s)		28.7			28.7			8.3				
Actuated g/C Ratio		0.64			0.64			0.18				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		1174			1050			601				
v/s Ratio Prot					0.05							
v/s Ratio Perm		c0.12						0.09				
v/c Ratio		0.19			0.07			0.49				
Uniform Delay, d1		3.4			3.1			16.5				
Progression Factor		0.75			1.00			1.00				
Incremental Delay, d2		0.4			0.1			0.2				
Delay (s)		2.9			3.2			16.7				
Level of Service		A			A			B				
Approach Delay (s)		2.9			3.2			16.7			0.0	
Approach LOS		A			A			B			A	

Intersection Summary				
HCM Average Control Delay	10.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.26			
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	38.7%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				



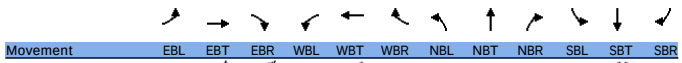
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	330	0	0	301	102	39	227	113	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.93		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3513			3366	1337		3485	1461			
Flt Permitted		0.91			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3197			3366	1337		3485	1461			
Peak-hour factor, PHF	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	359	0	0	327	111	42	247	123	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	24	0	0	104	0	0	0
Lane Group Flow (vph)	0	394	0	0	337	76	0	289	19	0	0	0
Confl. Peds. (#/hr)	40		40	45		45	51		51	207		207
Confl. Bikes (#/hr)			5			6			8			12
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		60.7			60.7	60.7		12.3	12.3			
Effective Green, g (s)		60.7			60.7	60.7		12.3	12.3			
Actuated g/C Ratio		0.76			0.76	0.76		0.15	0.15			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2426			2554	1014		536	225			
v/s Ratio Prot					0.10							
v/s Ratio Perm		c0.12				0.06		0.08	0.01			
v/c Ratio		0.16			0.13	0.07		0.54	0.08			
Uniform Delay, d1		2.7			2.6	2.5		31.2	29.0			
Progression Factor		1.00			0.48	0.26		1.00	1.00			
Incremental Delay, d2		0.1			0.1	0.1		1.0	0.2			
Delay (s)		2.8			1.3	0.8		32.3	29.2			
Level of Service		A			A	A		C	C			
Approach Delay (s)		2.8			1.2			31.4			0.0	
Approach LOS		A			A			C			A	

Intersection Summary				
HCM Average Control Delay	11.7	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.23			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	56.9%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



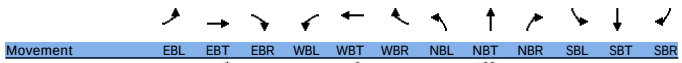
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	270	179	188	298	0	0	0	0	80	406	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.95	1.00	0.91	0.91						0.95	1.00
Frpb, ped/bikes		1.00	0.90	1.00	1.00						1.00	0.69
Flpb, ped/bikes		1.00	1.00	1.00	0.99						0.95	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.99	1.00
Satd. Flow (prot)		3539	1422	1610	3354						3336	1091
Flt Permitted		1.00	1.00	0.95	0.93						0.99	1.00
Satd. Flow (perm)		3539	1422	1610	3134						3336	1091
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	293	188	204	324	0	0	0	0	87	441	116
RTOR Reduction (vph)	0	0	91	0	0	0	0	0	0	0	0	71
Lane Group Flow (vph)	0	293	97	171	357	0	0	0	0	0	528	45
Confl. Peds. (#/hr)	53		53	86		86	105		105	331		331
Confl. Bikes (#/hr)			16			2			1			14
Turn Type		Perm	Prot								Perm	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2								4	4
Actuated Green, G (s)		21.0	21.0	16.0	41.0						31.0	31.0
Effective Green, g (s)		21.0	21.0	16.0	41.0						31.0	31.0
Actuated g/C Ratio		0.26	0.26	0.20	0.51						0.39	0.39
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		929	373	322	1650						1293	423
v/s Ratio Prot		c0.08		c0.11	0.04							
v/s Ratio Perm			0.07		0.07						0.16	0.04
v/c Ratio		0.32	0.26	0.53	0.22						0.41	0.11
Uniform Delay, d1		23.7	23.4	28.6	10.7						17.8	15.7
Progression Factor		1.02	1.22	1.17	1.93						1.14	2.03
Incremental Delay, d2		0.9	1.7	0.7	0.0						0.1	0.0
Delay (s)		25.1	30.3	34.3	20.6						20.4	31.9
Level of Service		C	C	C	C						C	C
Approach Delay (s)		27.1			25.0			0.0			22.4	
Approach LOS		C			C			A			C	

Intersection Summary				
HCM Average Control Delay	24.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.41			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	87.5%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				



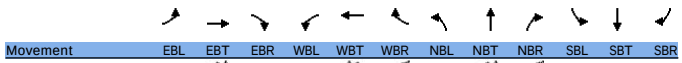
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	250	126	92	209	0	0	0	0	62	640	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.95	
Frpb, ped/bikes		1.00	0.91		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.98						0.98	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.98						1.00	
Satd. Flow (prot)		1863	1437		1792						3382	
Flt Permitted		1.00	1.00		0.70						1.00	
Satd. Flow (perm)		1863	1437		1270						3382	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.97	0.92
Adj. Flow (vph)	0	272	137	100	227	0	0	0	0	67	660	38
RTOR Reduction (vph)	0	0	10	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	272	127	0	327	0	0	0	0	0	763	0
Confl. Peds. (#/hr)	58		58	100		100	50		50	104		104
Confl. Bikes (#/hr)			8			6			10			28
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		25.2	25.2		25.2						46.8	
Effective Green, g (s)		25.2	25.2		25.2						46.8	
Actuated g/C Ratio		0.32	0.32		0.32						0.58	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		587	453		400						1978	
v/s Ratio Prot		0.15										
v/s Ratio Perm			0.09		c0.26						0.23	
v/c Ratio		0.46	0.28		0.82						0.39	
Uniform Delay, d1		22.0	20.6		25.3						8.9	
Progression Factor		1.00	1.00		1.00						1.21	
Incremental Delay, d2		0.6	0.3		12.2						0.5	
Delay (s)		22.6	20.9		37.5						11.2	
Level of Service		C	C		D						B	
Approach Delay (s)		22.0			37.5			0.0			11.2	
Approach LOS		C			D			A			B	

Intersection Summary				
HCM Average Control Delay	19.9	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	65.0%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				



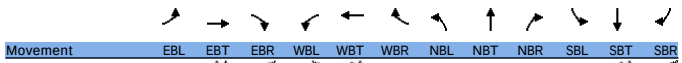
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	122	1	0	116	83	25	420	223	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.97			0.94				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.94			0.95				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1842			1705			3142				
Flt Permitted		0.97			1.00			1.00				
Satd. Flow (perm)		1795			1705			3142				
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	16	133	1	0	126	90	27	452	242	0	0	0
RTOR Reduction (vph)	0	0	0	0	40	0	0	177	0	0	0	0
Lane Group Flow (vph)	0	150	0	0	176	0	0	544	0	0	0	0
Confl. Peds. (#/hr)	71		71	82		82	88		88	75		75
Confl. Bikes (#/hr)			8			2			40			1
Turn Type	Perm						Perm					
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		25.0			25.0			12.0				
Effective Green, g (s)		25.0			25.0			12.0				
Actuated g/C Ratio		0.56			0.56			0.27				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		997			947			838				
v/s Ratio Prot					c0.10							
v/s Ratio Perm		0.08						0.17				
v/c Ratio		0.15			0.19			0.65				
Uniform Delay, d1		4.8			5.0			14.6				
Progression Factor		0.46			1.00			1.00				
Incremental Delay, d2		0.3			0.4			1.3				
Delay (s)		2.5			5.4			15.9				
Level of Service		A			A			B				
Approach Delay (s)		2.5			5.4			15.9			0.0	
Approach LOS		A			A			B			A	

Intersection Summary				
HCM Average Control Delay	12.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.34			
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	50.4%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				



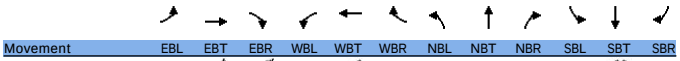
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	406	0	0	478	119	80	481	315	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		0.99			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3512			3371	1319		3482	1460			
Flt Permitted		0.86			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3046			3371	1319		3482	1460			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	50	441	0	0	520	127	87	523	339	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	41	0	0	159	0	0	0
Lane Group Flow (vph)	0	491	0	0	532	73	0	610	180	0	0	0
Confl. Peds. (#/hr)	42		42	54		54	58		58	194		194
Confl. Bikes (#/hr)			12			7			5			8
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		51.5			51.5	51.5		21.5	21.5			
Effective Green, g (s)		51.5			51.5	51.5		21.5	21.5			
Actuated g/C Ratio		0.64			0.64	0.64		0.27	0.27			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		1961			2170	849		936	392			
v/s Ratio Prot					0.16							
v/s Ratio Perm		c0.16				0.06		0.18	0.12			
v/c Ratio		0.25			0.24	0.09		0.65	0.46			
Uniform Delay, d1		6.1			6.0	5.4		25.9	24.4			
Progression Factor		1.00			0.73	0.25		1.00	1.00			
Incremental Delay, d2		0.3			0.2	0.2		1.6	0.9			
Delay (s)		6.4			4.6	1.5		27.6	25.3			
Level of Service		A			A	A		C	C			
Approach Delay (s)		6.4			4.1			26.7			0.0	
Approach LOS		A			A			C			A	

Intersection Summary				
HCM Average Control Delay	14.9	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.37			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	58.9%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



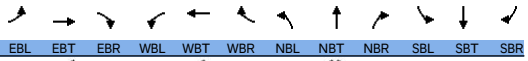
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	502	218	174	449	0	0	0	0	100	642	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.95	1.00	0.91	0.91						0.95	1.00
Frpb, ped/bikes		1.00	0.91	1.00	1.00						1.00	0.69
Flpb, ped/bikes		1.00	1.00	1.00	1.00						0.96	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.99	1.00
Satd. Flow (prot)		3539	1439	1610	3377						3372	1094
Flt Permitted		1.00	1.00	0.95	0.94						0.99	1.00
Satd. Flow (perm)		3539	1439	1610	3178						3372	1094
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	546	237	189	488	0	0	0	0	109	698	159
RTOR Reduction (vph)	0	0	31	0	0	0	0	0	0	0	0	99
Lane Group Flow (vph)	0	546	206	170	507	0	0	0	0	0	807	60
Confl. Peds. (#/hr)	51		51	114		114	115		115	333		333
Confl. Bikes (#/hr)			8			3			17			6
Turn Type		Perm		Prot							Perm	
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		28.0	28.0	10.0	42.0						30.0	30.0
Effective Green, g (s)		28.0	28.0	10.0	42.0						30.0	30.0
Actuated g/C Ratio		0.35	0.35	0.12	0.52						0.38	0.38
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		1239	504	201	1693						1265	410
v/s Ratio Prot		c0.15		c0.11	0.04							
v/s Ratio Perm			0.14		0.12						0.24	0.05
v/c Ratio		0.44	0.41	0.85	0.30						0.64	0.15
Uniform Delay, d1		20.0	19.7	34.2	10.7						20.5	16.5
Progression Factor		1.03	1.03	1.00	1.00						1.29	3.07
Incremental Delay, d2		1.1	2.4	25.6	0.0						0.8	0.1
Delay (s)		21.7	22.7	59.8	10.7						27.3	50.7
Level of Service		C	C	E	B						C	D
Approach Delay (s)		22.0			23.1			0.0			31.1	
Approach LOS		C			C			A			C	

Intersection Summary				
HCM Average Control Delay	25.9	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.59			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	93.3%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				



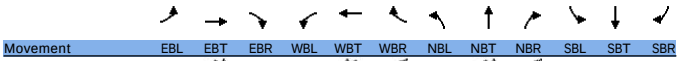
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	283	56	50	56	0	0	0	0	228	400	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.95	
Frpb, ped/bikes		1.00	0.85		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.96						0.96	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.98						0.98	
Satd. Flow (prot)		1863	1342		1744						3296	
Flt Permitted		1.00	1.00		0.58						0.98	
Satd. Flow (perm)		1863	1342		1041						3296	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	308	61	54	61	0	0	0	0	248	435	33
RTOR Reduction (vph)	0	0	46	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	308	15	0	115	0	0	0	0	0	714	0
Confl. Peds. (#/hr)	106		106	134		134	73		73	52		52
Confl. Bikes (#/hr)			3			7			21			1
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		19.8	19.8		19.8						52.2	
Effective Green, g (s)		19.8	19.8		19.8						52.2	
Actuated g/C Ratio		0.25	0.25		0.25						0.65	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		461	332		258						2151	
v/s Ratio Prot		c0.17										
v/s Ratio Perm			0.01		0.11						0.22	
v/c Ratio		0.67	0.05		0.45						0.33	
Uniform Delay, d1		27.1	22.9		25.5						6.2	
Progression Factor		1.00	1.00		1.00						0.72	
Incremental Delay, d2		3.7	0.1		1.2						0.4	
Delay (s)		30.8	23.0		26.7						4.8	
Level of Service		C	C		C						A	
Approach Delay (s)		29.5			26.7			0.0			4.8	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM Average Control Delay	14.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.42			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	62.0%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



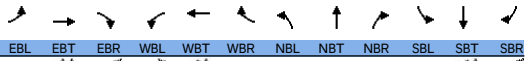
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	213	4	0	40	38	10	204	133	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.94			0.95				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.93			0.94				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1850			1635			3155				
Flt Permitted		0.99			1.00			1.00				
Satd. Flow (perm)		1843			1635			3155				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	232	4	0	43	41	11	222	145	0	0	0
RTOR Reduction (vph)	0	1	0	0	15	0	0	119	0	0	0	0
Lane Group Flow (vph)	0	243	0	0	69	0	0	259	0	0	0	0
Confl. Peds. (#/hr)	58		58	134		134	73		73	87		87
Confl. Bikes (#/hr)						5			5			2
Turn Type	Perm						Perm					
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		29.0			29.0			8.0				
Effective Green, g (s)		29.0			29.0			8.0				
Actuated g/C Ratio		0.64			0.64			0.18				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		1188			1054			561				
v/s Ratio Prot					0.04							
v/s Ratio Perm		c0.13						0.08				
v/c Ratio		0.20			0.07			0.46				
Uniform Delay, d1		3.3			3.0			16.6				
Progression Factor		0.52			1.00			1.00				
Incremental Delay, d2		0.4			0.1			0.2				
Delay (s)		2.1			3.1			16.8				
Level of Service		A			A			B				
Approach Delay (s)		2.1			3.1			16.8			0.0	
Approach LOS		A			A			B			A	

Intersection Summary				
HCM Average Control Delay	10.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.26			
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	39.3%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				



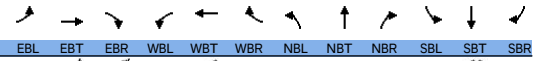
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	313	0	0	257	88	32	242	96	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.93		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			0.99	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3515			3364	1337		3496	1462			
Flt Permitted		0.92			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3237			3364	1337		3496	1462			
Peak-hour factor, PHF	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	340	0	0	279	96	35	263	104	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	21	0	0	88	0	0	0
Lane Group Flow (vph)	0	370	0	0	288	65	0	298	16	0	0	0
Confl. Peds. (#/hr)	40		40	45		45	51		51	207		207
Confl. Bikes (#/hr)			5			6			8			12
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		60.6			60.6	60.6		12.4	12.4			
Effective Green, g (s)		60.6			60.6	60.6		12.4	12.4			
Actuated g/C Ratio		0.76			0.76	0.76		0.16	0.16			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2452			2548	1013		542	227			
v/s Ratio Prot					0.09							
v/s Ratio Perm		c0.11				0.05		0.09	0.01			
v/c Ratio		0.15			0.11	0.06		0.55	0.07			
Uniform Delay, d1		2.7			2.6	2.5		31.2	28.9			
Progression Factor		1.00			2.00	4.21		1.00	1.00			
Incremental Delay, d2		0.1			0.1	0.1		1.1	0.1			
Delay (s)		2.8			5.2	10.5		32.4	29.0			
Level of Service		A			A	B		C	C			
Approach Delay (s)		2.8			6.5			31.5			0.0	
Approach LOS		A			A			C			A	

Intersection Summary				
HCM Average Control Delay	14.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.22			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	56.4%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



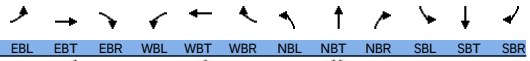
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	264	150	159	256	0	0	0	0	67	340	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.95	1.00	0.91	0.91						0.95	1.00
Frpb, ped/bikes		1.00	0.90	1.00	1.00						1.00	0.69
Flpb, ped/bikes		1.00	1.00	1.00	0.99						0.95	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.99	1.00
Satd. Flow (prot)		3539	1422	1610	3354						3336	1091
Flt Permitted		1.00	1.00	0.95	0.94						0.99	1.00
Satd. Flow (perm)		3539	1422	1610	3152						3336	1091
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	287	158	173	278	0	0	0	0	73	370	97
RTOR Reduction (vph)	0	0	111	0	0	0	0	0	0	0	0	59
Lane Group Flow (vph)	0	287	47	145	306	0	0	0	0	0	443	38
Confl. Peds. (#/hr)	53		53	86		86	105		105	331		331
Confl. Bikes (#/hr)			16			2			1			14
Turn Type		Perm	Prot								Perm	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		21.0	21.0	16.0	41.0						31.0	31.0
Effective Green, g (s)		21.0	21.0	16.0	41.0						31.0	31.0
Actuated g/C Ratio		0.26	0.26	0.20	0.51						0.39	0.39
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		929	373	322	1656						1293	423
v/s Ratio Prot		c0.08		c0.09	0.04							
v/s Ratio Perm			0.03		0.06						0.13	0.03
v/c Ratio		0.31	0.13	0.45	0.18						0.34	0.09
Uniform Delay, d1		23.7	22.5	28.1	10.5						17.3	15.5
Progression Factor		1.04	1.67	1.48	0.47						1.13	1.86
Incremental Delay, d2		0.9	0.7	0.3	0.0						0.1	0.0
Delay (s)		25.5	38.3	42.1	5.0						19.6	28.9
Level of Service		C	D	D	A						B	C
Approach Delay (s)		30.1			16.9			0.0			21.3	
Approach LOS		C			B			A			C	

Intersection Summary				
HCM Average Control Delay	22.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.36			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	87.5%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				



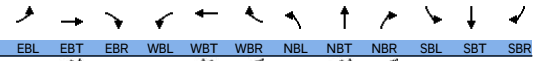
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	220	102	75	204	0	0	0	0	65	521	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.95	
Frpb, ped/bikes		1.00	0.91		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.98						0.97	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.99						0.99	
Satd. Flow (prot)		1863	1436		1797						3360	
Flt Permitted		1.00	1.00		0.77						0.99	
Satd. Flow (perm)		1863	1436		1398						3360	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.97	0.92
Adj. Flow (vph)	0	239	111	82	222	0	0	0	0	71	537	32
RTOR Reduction (vph)	0	0	20	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	239	91	0	304	0	0	0	0	0	637	0
Confl. Peds. (#/hr)	58		58	100		100	50		50	104		104
Confl. Bikes (#/hr)			8			6			10			28
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		22.9	22.9		22.9						49.1	
Effective Green, g (s)		22.9	22.9		22.9						49.1	
Actuated g/C Ratio		0.29	0.29		0.29						0.61	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		533	411		400						2062	
v/s Ratio Prot		0.13										
v/s Ratio Perm			0.06		c0.22						0.19	
v/c Ratio		0.45	0.22		0.76						0.31	
Uniform Delay, d1		23.4	21.8		26.0						7.4	
Progression Factor		1.00	1.00		1.00						1.25	
Incremental Delay, d2		0.6	0.3		8.3						0.4	
Delay (s)		24.0	22.0		34.3						9.6	
Level of Service		C	C		C						A	
Approach Delay (s)		23.4			34.3			0.0			9.6	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM Average Control Delay	19.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.45			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	60.3%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



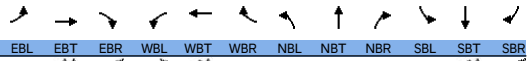
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	113	1	0	109	99	21	358	191	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.97			0.94				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.94			0.95				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		1843			1682			3134				
Flt Permitted		0.97			1.00			1.00				
Satd. Flow (perm)		1800			1682			3134				
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	14	123	1	0	118	108	23	385	208	0	0	0
RTOR Reduction (vph)	0	0	0	0	45	0	0	158	0	0	0	0
Lane Group Flow (vph)	0	138	0	0	181	0	0	458	0	0	0	0
Confl. Peds. (#/hr)	71		71	82		82	88		88	75		75
Confl. Bikes (#/hr)			8			2			40			1
Turn Type	Perm						Perm					
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		26.2			26.2			10.8				
Effective Green, g (s)		26.2			26.2			10.8				
Actuated g/C Ratio		0.58			0.58			0.24				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		1048			979			752				
v/s Ratio Prot					c0.11							
v/s Ratio Perm		0.08						0.15				
v/c Ratio		0.13			0.18			0.61				
Uniform Delay, d1		4.3			4.4			15.2				
Progression Factor		0.44			1.00			1.00				
Incremental Delay, d2		0.2			0.4			1.0				
Delay (s)		2.1			4.8			16.2				
Level of Service		A			A			B				
Approach Delay (s)		2.1			4.8			16.2			0.0	
Approach LOS		A			A			B			A	

Intersection Summary				
HCM Average Control Delay	11.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.31			
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	45.4%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				



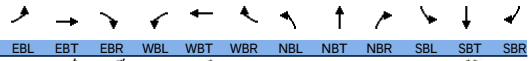
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	338	0	0	421	113	65	401	257	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3512			3370	1319		3483	1459			
Flt Permitted		0.88			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3107			3370	1319		3483	1459			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	41	367	0	0	458	120	71	436	276	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	34	0	0	211	0	0	0
Lane Group Flow (vph)	0	408	0	0	469	74	0	507	65	0	0	0
Confl. Peds. (#/hr)	42		42	54		54	58		58	194		194
Confl. Bikes (#/hr)			12			7			5			8
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		54.6			54.6	54.6		18.4	18.4			
Effective Green, g (s)		54.6			54.6	54.6		18.4	18.4			
Actuated g/C Ratio		0.68			0.68	0.68		0.23	0.23			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2121			2300	900		801	336			
v/s Ratio Prot					c0.14							
v/s Ratio Perm		0.13				0.06		0.15	0.04			
v/c Ratio		0.19			0.20	0.08		0.63	0.19			
Uniform Delay, d1		4.6			4.7	4.3		27.8	24.8			
Progression Factor		1.00			0.82	0.52		1.00	1.00			
Incremental Delay, d2		0.2			0.2	0.2		1.6	0.3			
Delay (s)		4.8			4.0	2.4		29.4	25.1			
Level of Service		A			A	A		C	C			
Approach Delay (s)		4.8			3.7			27.9			0.0	
Approach LOS		A			A			C			A	

Intersection Summary				
HCM Average Control Delay	14.7	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.31			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	58.0%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



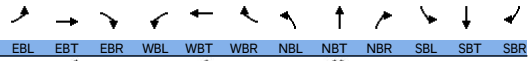
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	415	178	147	414	0	0	0	0	82	522	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.95	1.00	0.91	0.91						0.95	1.00
Frpb, ped/bikes		1.00	0.91	1.00	1.00						1.00	0.69
Flpb, ped/bikes		1.00	1.00	1.00	1.00						0.96	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.99	1.00
Satd. Flow (prot)		3539	1439	1610	3377						3372	1094
Flt Permitted		1.00	1.00	0.95	0.94						0.99	1.00
Satd. Flow (perm)		3539	1439	1610	3195						3372	1094
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	451	193	160	450	0	0	0	0	89	567	129
RTOR Reduction (vph)	0	0	43	0	0	0	0	0	0	0	0	81
Lane Group Flow (vph)	0	451	150	144	466	0	0	0	0	0	656	48
Confl. Peds. (#/hr)	51		51	114		114	115		115	333		333
Confl. Bikes (#/hr)			8			3			17			6
Turn Type		Perm	Prot							Perm		Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		28.0	28.0	10.0	42.0						30.0	30.0
Effective Green, g (s)		28.0	28.0	10.0	42.0						30.0	30.0
Actuated g/C Ratio		0.35	0.35	0.12	0.52						0.38	0.38
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		1239	504	201	1700						1265	410
v/s Ratio Prot		c0.13		c0.09	0.03							
v/s Ratio Perm			0.10		0.11						0.19	0.04
v/c Ratio		0.36	0.30	0.72	0.27						0.52	0.12
Uniform Delay, d1		19.4	18.9	33.6	10.5						19.4	16.3
Progression Factor		1.05	1.06	1.00	1.00						1.34	3.01
Incremental Delay, d2		0.8	1.5	9.7	0.0						0.1	0.0
Delay (s)		21.2	21.6	43.3	10.6						26.1	49.3
Level of Service		C	C	D	B						C	D
Approach Delay (s)		21.3			18.3			0.0			29.9	
Approach LOS		C			B			A			C	

Intersection Summary				
HCM Average Control Delay	23.7	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	93.3%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				



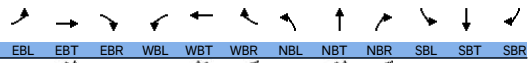
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	354	65	50	64	0	0	0	0	285	412	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.95	
Frpb, ped/bikes		1.00	0.85		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.97						0.95	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.98						0.98	
Satd. Flow (prot)		1863	1342		1766						3275	
Flt Permitted		1.00	1.00		0.57						0.98	
Satd. Flow (perm)		1863	1342		1035						3275	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	385	71	54	70	0	0	0	0	310	448	33
RTOR Reduction (vph)	0	0	46	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	385	25	0	124	0	0	0	0	0	789	0
Confl. Peds. (#/hr)	106		106	134		134	73		73	52		52
Confl. Bikes (#/hr)			3			7			21			1
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		23.8	23.8		23.8						48.2	
Effective Green, g (s)		23.8	23.8		23.8						48.2	
Actuated g/C Ratio		0.30	0.30		0.30						0.60	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		554	399		308						1973	
v/s Ratio Prot		c0.21										
v/s Ratio Perm			0.02		0.12						0.24	
v/c Ratio		0.69	0.06		0.40						0.40	
Uniform Delay, d1		24.9	20.1		22.4						8.3	
Progression Factor		1.00	1.00		1.00						0.79	
Incremental Delay, d2		3.8	0.1		0.9						0.5	
Delay (s)		28.7	20.2		23.3						7.1	
Level of Service		C	C		C						A	
Approach Delay (s)		27.3			23.3			0.0			7.1	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM Average Control Delay	15.3	HCM Level of Service		B
HCM Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	67.6%	ICU Level of Service		C
Analysis Period (min)	15			
c Critical Lane Group				



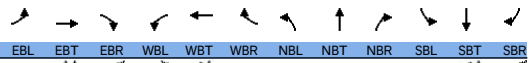
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	253	4	0	43	43	10	213	173	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.94			0.94				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.93			0.93				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1852			1629			3108				
Flt Permitted		1.00			1.00			1.00				
Satd. Flow (perm)		1846			1629			3108				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	275	4	0	47	47	11	232	188	0	0	0
RTOR Reduction (vph)	0	1	0	0	17	0	0	154	0	0	0	0
Lane Group Flow (vph)	0	286	0	0	77	0	0	277	0	0	0	0
Confl. Peds. (#/hr)	58		58	134		134	73		73	87		87
Confl. Bikes (#/hr)						5			5			2
Turn Type	Perm						Perm					
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		28.8			28.8			8.2				
Effective Green, g (s)		28.8			28.8			8.2				
Actuated g/C Ratio		0.64			0.64			0.18				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		1181			1043			566				
v/s Ratio Prot					0.05							
v/s Ratio Perm		c0.16						0.09				
v/c Ratio		0.24			0.07			0.49				
Uniform Delay, d1		3.5			3.1			16.5				
Progression Factor		0.49			1.00			1.00				
Incremental Delay, d2		0.5			0.1			0.2				
Delay (s)		2.2			3.2			16.8				
Level of Service		A			A			B				
Approach Delay (s)		2.2			3.2			16.8			0.0	
Approach LOS		A			A			B			A	

Intersection Summary				
HCM Average Control Delay	10.0	HCM Level of Service		B
HCM Volume to Capacity ratio	0.30			
Actuated Cycle Length (s)	45.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	43.2%	ICU Level of Service		A
Analysis Period (min)	15			
c Critical Lane Group				



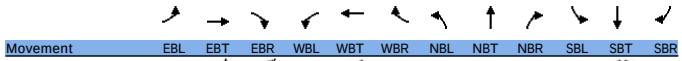
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	350	0	0	261	90	35	289	113	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.93		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			0.99	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3517			3365	1336		3499	1463			
Flt Permitted		0.92			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3248			3365	1336		3499	1463			
Peak-hour factor, PHF	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	380	0	0	284	98	38	314	123	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	23	0	0	102	0	0	0
Lane Group Flow (vph)	0	410	0	0	293	65	0	352	21	0	0	0
Confl. Peds. (#/hr)	40		40	45		45	51		51	207		207
Confl. Bikes (#/hr)			5			6			8			12
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		59.3			59.3	59.3		13.7	13.7			
Effective Green, g (s)		59.3			59.3	59.3		13.7	13.7			
Actuated g/C Ratio		0.74			0.74	0.74		0.17	0.17			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2408			2494	990		599	251			
v/s Ratio Prot					0.09							
v/s Ratio Perm		c0.13				0.05		0.10	0.01			
v/c Ratio		0.17			0.12	0.07		0.59	0.08			
Uniform Delay, d1		3.1			2.9	2.8		30.5	27.9			
Progression Factor		1.00			1.95	4.01		1.00	1.00			
Incremental Delay, d2		0.2			0.1	0.1		1.5	0.1			
Delay (s)		3.2			5.8	11.4		32.0	28.0			
Level of Service		A			A	B		C	C			
Approach Delay (s)		3.2			7.1			31.0			0.0	
Approach LOS		A			A			C			A	

Intersection Summary				
HCM Average Control Delay	14.8	HCM Level of Service		B
HCM Volume to Capacity ratio	0.25			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		7.0
Intersection Capacity Utilization	56.6%	ICU Level of Service		B
Analysis Period (min)	15			
c Critical Lane Group				



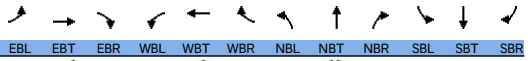
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	301	167	194	259	0	0	0	0	67	361	89
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.95	1.00	0.91	0.91						0.95	1.00
Frpb, ped/bikes		1.00	0.90	1.00	1.00						1.00	0.69
Flpb, ped/bikes		1.00	1.00	1.00	0.99						0.95	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	0.99						0.99	1.00
Satd. Flow (prot)		3539	1422	1610	3334						3346	1091
Flt Permitted		1.00	1.00	0.95	0.89						0.99	1.00
Satd. Flow (perm)		3539	1422	1610	2995						3346	1091
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	327	176	211	282	0	0	0	0	73	392	97
RTOR Reduction (vph)	0	0	94	0	0	0	0	0	0	0	0	59
Lane Group Flow (vph)	0	327	82	160	333	0	0	0	0	0	465	38
Confl. Peds. (#/hr)	53		53	86		86	105		105	331		331
Confl. Bikes (#/hr)			16			2			1			14
Turn Type		Perm	Prot								Perm	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2									4
Actuated Green, G (s)		21.0	21.0	16.0	41.0						31.0	31.0
Effective Green, g (s)		21.0	21.0	16.0	41.0						31.0	31.0
Actuated g/C Ratio		0.26	0.26	0.20	0.51						0.39	0.39
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		929	373	322	1603						1297	423
v/s Ratio Prot		c0.09		c0.10	0.04							
v/s Ratio Perm			0.06		0.06						0.14	0.03
v/c Ratio		0.35	0.22	0.50	0.21						0.36	0.09
Uniform Delay, d1		24.0	23.1	28.4	10.6						17.4	15.5
Progression Factor		1.01	1.30	1.50	0.46						1.09	1.79
Incremental Delay, d2		1.0	1.4	0.4	0.0						0.1	0.0
Delay (s)		25.3	31.4	43.0	4.9						19.1	27.8
Level of Service		C	C	D	A						B	C
Approach Delay (s)		27.5			17.3			0.0			20.6	
Approach LOS		C			B			A			C	

Intersection Summary				
HCM Average Control Delay	21.8	HCM Level of Service		C
HCM Volume to Capacity ratio	0.39			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization	87.5%	ICU Level of Service		E
Analysis Period (min)	15			
c Critical Lane Group				



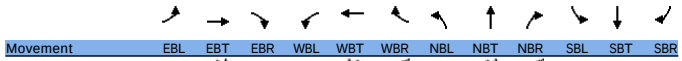
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	237	103	75	238	0	0	0	0	78	529	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.95	
Frpb, ped/bikes		1.00	0.91		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.98						0.97	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.99						0.99	
Satd. Flow (prot)		1863	1436		1805						3345	
Flt Permitted		1.00	1.00		0.79						0.99	
Satd. Flow (perm)		1863	1436		1442						3345	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.97	0.92
Adj. Flow (vph)	0	258	112	82	259	0	0	0	0	85	545	32
RTOR Reduction (vph)	0	0	19	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	258	93	0	341	0	0	0	0	0	660	0
Confl. Peds. (#/hr)	58		58	100		100	50		50	104		104
Confl. Bikes (#/hr)			8			6			10			28
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		25.0	25.0		25.0						47.0	
Effective Green, g (s)		25.0	25.0		25.0						47.0	
Actuated g/C Ratio		0.31	0.31		0.31						0.59	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		582	449		451						1965	
v/s Ratio Prot		0.14										
v/s Ratio Perm			0.07		c0.24						0.20	
v/c Ratio		0.44	0.21		0.76						0.34	
Uniform Delay, d1		21.9	20.2		24.8						8.5	
Progression Factor		1.00	1.00		1.00						1.26	
Incremental Delay, d2		0.5	0.2		7.1						0.4	
Delay (s)		22.5	20.5		31.8						11.1	
Level of Service		C	C		C						B	
Approach Delay (s)		21.9			31.8			0.0			11.1	
Approach LOS		C			C			A			B	

Intersection Summary				
HCM Average Control Delay	19.1	HCM Level of Service		B
HCM Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	62.7%	ICU Level of Service		B
Analysis Period (min)	15			
c Critical Lane Group				



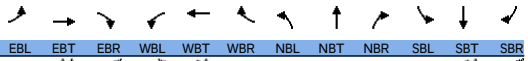
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	121	1	0	134	108	21	380	200	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.97			0.94				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.94			0.95				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1844			1694			3140				
Flt Permitted		0.97			1.00			1.00				
Satd. Flow (perm)		1799			1694			3140				
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	14	132	1	0	146	117	23	409	217	0	0	0
RTOR Reduction (vph)	0	0	0	0	45	0	0	163	0	0	0	0
Lane Group Flow (vph)	0	147	0	0	218	0	0	486	0	0	0	0
Confl. Peds. (#/hr)	71		71	82		82	88		88	75		75
Confl. Bikes (#/hr)			8			2			40			1
Turn Type	Perm						Perm					
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		25.9			25.9			11.1				
Effective Green, g (s)		25.9			25.9			11.1				
Actuated g/C Ratio		0.58			0.58			0.25				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		1035			975			775				
v/s Ratio Prot					c0.13							
v/s Ratio Perm		0.08						0.15				
v/c Ratio		0.14			0.22			0.63				
Uniform Delay, d1		4.4			4.7			15.1				
Progression Factor		0.48			1.00			1.00				
Incremental Delay, d2		0.3			0.5			1.1				
Delay (s)		2.4			5.2			16.2				
Level of Service		A			A			B				
Approach Delay (s)		2.4			5.2			16.2			0.0	
Approach LOS		A			A			B			A	

Intersection Summary				
HCM Average Control Delay	11.6	HCM Level of Service		B
HCM Volume to Capacity ratio	0.34			
Actuated Cycle Length (s)	45.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	46.7%	ICU Level of Service		A
Analysis Period (min)	15			
c Critical Lane Group				



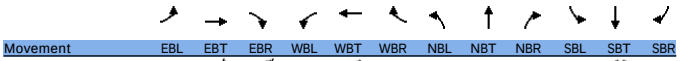
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	346	0	0	453	129	80	417	298	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3513			3368	1319		3475	1460			
Flt Permitted		0.88			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3096			3368	1319		3475	1460			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	41	376	0	0	492	137	87	453	320	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	41	0	0	201	0	0	0
Lane Group Flow (vph)	0	417	0	0	505	82	0	540	119	0	0	0
Confl. Peds. (#/hr)	42		42	54		54	58		58	194		194
Confl. Bikes (#/hr)			12			7			5			8
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		53.4			53.4	53.4		19.6	19.6			
Effective Green, g (s)		53.4			53.4	53.4		19.6	19.6			
Actuated g/C Ratio		0.67			0.67	0.67		0.25	0.25			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2067			2248	880		851	358			
v/s Ratio Prot					c0.15							
v/s Ratio Perm		0.13				0.06		0.16	0.08			
v/c Ratio		0.20			0.22	0.09		0.63	0.33			
Uniform Delay, d1		5.1			5.2	4.7		27.0	24.8			
Progression Factor		1.00			0.79	0.39		1.00	1.00			
Incremental Delay, d2		0.2			0.2	0.2		1.6	0.6			
Delay (s)		5.3			4.3	2.0		28.6	25.4			
Level of Service		A			A	A		C	C			
Approach Delay (s)		5.3			3.9			27.4			0.0	
Approach LOS		A			A			C			A	

Intersection Summary				
HCM Average Control Delay	14.8	HCM Level of Service		B
HCM Volume to Capacity ratio	0.33			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		7.0
Intersection Capacity Utilization	58.2%	ICU Level of Service		B
Analysis Period (min)	15			
c Critical Lane Group				



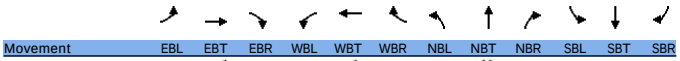
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	450	192	157	462	0	0	0	0	82	531	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.95	1.00	0.91	0.91						0.95	1.00
Frpb, ped/bikes		1.00	0.91	1.00	1.00						1.00	0.69
Flpb, ped/bikes		1.00	1.00	1.00	1.00						0.96	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.99	1.00
Satd. Flow (prot)		3539	1439	1610	3378						3374	1094
Flt Permitted		1.00	1.00	0.95	0.94						0.99	1.00
Satd. Flow (perm)		3539	1439	1610	3193						3374	1094
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	489	209	171	502	0	0	0	0	89	577	129
RTOR Reduction (vph)	0	0	38	0	0	0	0	0	0	0	0	81
Lane Group Flow (vph)	0	489	171	154	519	0	0	0	0	0	666	48
Confl. Peds. (#/hr)	51		51	114		114	115		115	333		333
Confl. Bikes (#/hr)			8			3			17			6
Turn Type			Perm	Prot							Perm	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2								4	4
Actuated Green, G (s)		28.0	28.0	10.0	42.0						30.0	30.0
Effective Green, g (s)		28.0	28.0	10.0	42.0						30.0	30.0
Actuated g/C Ratio		0.35	0.35	0.12	0.52						0.38	0.38
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		1239	504	201	1699						1265	410
v/s Ratio Prot		c0.14		c0.10	0.04							
v/s Ratio Perm			0.12		0.12						0.20	0.04
v/c Ratio		0.39	0.34	0.77	0.31						0.53	0.12
Uniform Delay, d1		19.6	19.2	33.9	10.7						19.5	16.3
Progression Factor		1.06	1.08	1.00	1.00						1.34	2.98
Incremental Delay, d2		0.9	1.8	14.4	0.0						0.2	0.0
Delay (s)		21.7	22.4	48.3	10.8						26.4	48.8
Level of Service		C	C	D	B						C	D
Approach Delay (s)		21.9			19.4			0.0			30.0	
Approach LOS		C			B			A			C	

Intersection Summary				
HCM Average Control Delay	24.1	HCM Level of Service		C
HCM Volume to Capacity ratio	0.51			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		12.0
Intersection Capacity Utilization	93.3%	ICU Level of Service		F
Analysis Period (min)	15			
c Critical Lane Group				



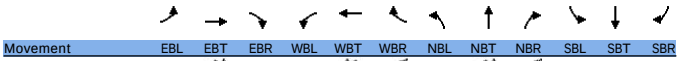
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	391	76	59	74	0	0	0	0	315	489	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.95	
Frpb, ped/bikes		1.00	0.85		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.97						0.96	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.98						0.98	
Satd. Flow (prot)		1863	1343		1770						3284	
Flt Permitted		1.00	1.00		0.53						0.98	
Satd. Flow (perm)		1863	1343		956						3284	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	425	83	64	80	0	0	0	0	342	532	39
RTOR Reduction (vph)	0	0	33	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	425	50	0	144	0	0	0	0	0	911	0
Confl. Peds. (#/hr)	106		106	134		134	73		73	52		52
Confl. Bikes (#/hr)			3			7			21			1
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		26.0	26.0		26.0						46.0	
Effective Green, g (s)		26.0	26.0		26.0						46.0	
Actuated g/C Ratio		0.32	0.32		0.32						0.57	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		605	436		311						1888	
v/s Ratio Prot		c0.23										
v/s Ratio Perm			0.04		0.15						0.28	
v/c Ratio		0.70	0.11		0.46						0.48	
Uniform Delay, d1		23.6	18.9		21.5						10.0	
Progression Factor		1.00	1.00		1.00						0.90	
Incremental Delay, d2		3.7	0.1		1.1						0.7	
Delay (s)		27.3	19.0		22.5						9.7	
Level of Service		C	B		C						A	
Approach Delay (s)		26.0			22.5			0.0			9.7	
Approach LOS		C			C			A			A	

Intersection Summary				
HCM Average Control Delay	16.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.56			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	72.8%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				



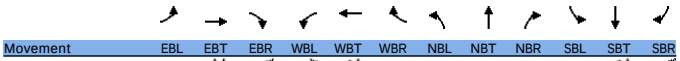
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	8	279	4	0	49	48	12	253	188	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.94			0.95				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.93			0.94				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1852			1631			3129				
Flt Permitted		0.99			1.00			1.00				
Satd. Flow (perm)		1846			1631			3129				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	303	4	0	53	52	13	275	204	0	0	0
RTOR Reduction (vph)	0	1	0	0	19	0	0	164	0	0	0	0
Lane Group Flow (vph)	0	315	0	0	86	0	0	328	0	0	0	0
Confl. Peds. (#/hr)	58		58	134		134	73		73	87		87
Confl. Bikes (#/hr)						5			5			2
Turn Type	Perm						Perm					
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		28.2			28.2			8.8				
Effective Green, g (s)		28.2			28.2			8.8				
Actuated g/C Ratio		0.63			0.63			0.20				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		1157			1022			612				
v/s Ratio Prot					0.05							
v/s Ratio Perm		c0.17						0.10				
v/c Ratio		0.27			0.08			0.54				
Uniform Delay, d1		3.8			3.3			16.3				
Progression Factor		0.52			1.00			1.00				
Incremental Delay, d2		0.5			0.2			0.5				
Delay (s)		2.5			3.5			16.7				
Level of Service		A			A			B				
Approach Delay (s)		2.5			3.5			16.7			0.0	
Approach LOS		A			A			B			A	

Intersection Summary				
HCM Average Control Delay	10.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.34			
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	46.9%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				



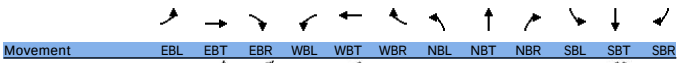
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	34	403	0	0	310	106	42	326	132	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.93		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			0.99	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3518			3364	1336		3496	1464			
Flt Permitted		0.91			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3220			3364	1336		3496	1464			
Peak-hour factor, PHF	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	438	0	0	337	115	46	354	143	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	28	0	0	116	0	0	0
Lane Group Flow (vph)	0	473	0	0	348	75	0	400	27	0	0	0
Confl. Peds. (#/hr)	40		40	45		45	51		51	207		207
Confl. Bikes (#/hr)			5			6			8			12
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		58.0			58.0	58.0		15.0	15.0			
Effective Green, g (s)		58.0			58.0	58.0		15.0	15.0			
Actuated g/C Ratio		0.72			0.72	0.72		0.19	0.19			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		2335			2439	969		656	275			
v/s Ratio Prot					0.10							
v/s Ratio Perm		c0.15				0.06		0.11	0.02			
v/c Ratio		0.20			0.14	0.08		0.61	0.10			
Uniform Delay, d1		3.5			3.4	3.2		29.8	26.9			
Progression Factor		1.00			1.66	3.19		1.00	1.00			
Incremental Delay, d2		0.2			0.1	0.1		1.6	0.2			
Delay (s)		3.7			5.7	10.4		31.4	27.1			
Level of Service		A			A	B		C	C			
Approach Delay (s)		3.7			6.8			30.3			0.0	
Approach LOS		A			A			C			A	

Intersection Summary				
HCM Average Control Delay	14.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.29			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	57.5%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



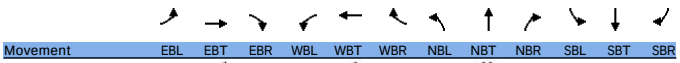
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	345	196	224	308	0	0	0	0	80	427	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.95	1.00	0.91	0.91						0.95	1.00
Frpb, ped/bikes		1.00	0.90	1.00	1.00						1.00	0.69
Flpb, ped/bikes		1.00	1.00	1.00	0.99						0.95	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	0.99						0.99	1.00
Satd. Flow (prot)		3539	1422	1610	3341						3345	1091
Flt Permitted		1.00	1.00	0.95	0.88						0.99	1.00
Satd. Flow (perm)		3539	1422	1610	2974						3345	1091
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	375	206	243	335	0	0	0	0	87	464	116
RTOR Reduction (vph)	0	0	76	0	0	0	0	0	0	0	0	71
Lane Group Flow (vph)	0	375	130	187	391	0	0	0	0	0	551	45
Confl. Peds. (#/hr)	53		53	86		86	105		105	331		331
Confl. Bikes (#/hr)			16			2			1			14
Turn Type		Perm	Prot							Perm		Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		21.0	21.0	16.0	41.0						31.0	31.0
Effective Green, g (s)		21.0	21.0	16.0	41.0						31.0	31.0
Actuated g/C Ratio		0.26	0.26	0.20	0.51						0.39	0.39
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		929	373	322	1598						1296	423
v/s Ratio Prot		c0.11		c0.12	0.05							
v/s Ratio Perm			0.09		0.08						0.16	0.04
v/c Ratio		0.40	0.35	0.58	0.24						0.43	0.11
Uniform Delay, d1		24.3	23.9	29.0	10.9						18.0	15.7
Progression Factor		0.96	1.04	1.52	0.56						1.04	1.91
Incremental Delay, d2		1.3	2.5	0.9	0.0						0.1	0.0
Delay (s)		24.7	27.4	45.0	6.2						18.7	30.0
Level of Service		C	C	D	A						B	C
Approach Delay (s)		25.7			18.7			0.0			20.7	
Approach LOS		C			B			A			C	

Intersection Summary				
HCM Average Control Delay	21.7	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.46			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	87.5%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				



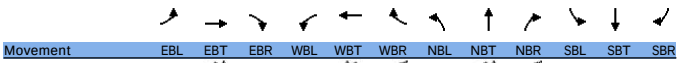
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	284	127	92	277	0	0	0	0	89	648	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		1.00						0.95	
Frpb, ped/bikes		1.00	0.91		1.00						0.99	
Flpb, ped/bikes		1.00	1.00		0.98						0.97	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.99						0.99	
Satd. Flow (prot)		1863	1438		1807						3353	
Flt Permitted		1.00	1.00		0.75						0.99	
Satd. Flow (perm)		1863	1438		1367						3353	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.97	0.92
Adj. Flow (vph)	0	309	138	100	301	0	0	0	0	97	668	38
RTOR Reduction (vph)	0	0	9	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	309	129	0	401	0	0	0	0	0	800	0
Confl. Peds. (#/hr)	58		58	100		100	50		50	104		104
Confl. Bikes (#/hr)			8			6			10			28
Turn Type			Perm	Perm						Perm		
Protected Phases		4			4						2	
Permitted Phases			4	4						2		
Actuated Green, G (s)		29.7	29.7		29.7						42.3	
Effective Green, g (s)		29.7	29.7		29.7						42.3	
Actuated g/C Ratio		0.37	0.37		0.37						0.53	
Clearance Time (s)		4.0	4.0		4.0						4.0	
Vehicle Extension (s)		3.0	3.0		3.0						3.0	
Lane Grp Cap (vph)		692	534		507						1773	
v/s Ratio Prot		0.17										
v/s Ratio Perm			0.09		c0.29						0.24	
v/c Ratio		0.45	0.24		0.79						0.45	
Uniform Delay, d1		19.0	17.4		22.4						11.7	
Progression Factor		1.00	1.00		1.00						1.22	
Incremental Delay, d2		0.5	0.2		8.2						0.7	
Delay (s)		19.4	17.6		30.6						15.0	
Level of Service		B	B		C						B	
Approach Delay (s)		18.9			30.6			0.0			15.0	
Approach LOS		B			C			A			B	

Intersection Summary				
HCM Average Control Delay	19.8	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.59			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	69.9%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				



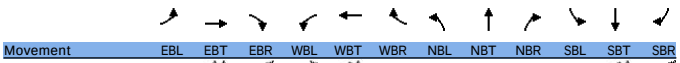
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	137	1	0	148	119	25	458	242	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		1.00			1.00			0.95				
Frpb, ped/bikes		1.00			0.97			0.94				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.94			0.95				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1845			1694			3147				
Flt Permitted		0.97			1.00			1.00				
Satd. Flow (perm)		1792			1694			3147				
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.92	0.92	0.92	0.93	0.92	0.25	0.25	0.25
Adj. Flow (vph)	16	149	1	0	161	129	27	492	263	0	0	0
RTOR Reduction (vph)	0	0	0	0	50	0	0	174	0	0	0	0
Lane Group Flow (vph)	0	166	0	0	240	0	0	608	0	0	0	0
Confl. Peds. (#/hr)	71		71	82		82	88		88	75		75
Confl. Bikes (#/hr)			8			2			40			1
Turn Type	Perm						Perm					
Protected Phases		2			2			1				
Permitted Phases	2						1					
Actuated Green, G (s)		24.1			24.1			12.9				
Effective Green, g (s)		24.1			24.1			12.9				
Actuated g/C Ratio		0.54			0.54			0.29				
Clearance Time (s)		4.0			4.0			4.0				
Vehicle Extension (s)		2.0			2.0			2.0				
Lane Grp Cap (vph)		960			907			902				
v/s Ratio Prot					c0.14							
v/s Ratio Perm		0.09						0.19				
v/c Ratio		0.17			0.26			0.67				
Uniform Delay, d1		5.3			5.7			14.2				
Progression Factor		0.55			1.00			1.00				
Incremental Delay, d2		0.4			0.7			1.6				
Delay (s)		3.3			6.4			15.8				
Level of Service		A			A			B				
Approach Delay (s)		3.3			6.4			15.8			0.0	
Approach LOS		A			A			B			A	

Intersection Summary				
HCM Average Control Delay	11.9	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.41			
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	52.8%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	46	421	0	0	542	151	95	507	356	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0		4.0	4.0			
Lane Util. Factor		0.95			0.91	0.91		0.95	1.00			
Frpb, ped/bikes		1.00			1.00	0.92		1.00	0.92			
Flpb, ped/bikes		1.00			1.00	1.00		0.99	1.00			
Frt		1.00			1.00	0.85		1.00	0.85			
Flt Protected		1.00			1.00	1.00		0.99	1.00			
Satd. Flow (prot)		3514			3369	1319		3477	1461			
Flt Permitted		0.86			1.00	1.00		0.99	1.00			
Satd. Flow (perm)		3020			3369	1319		3477	1461			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.94	0.92	0.92	0.93	0.92	0.92	0.92
Adj. Flow (vph)	50	458	0	0	589	161	103	551	383	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	55	0	0	145	0	0	0
Lane Group Flow (vph)	0	508	0	0	603	90	0	654	238	0	0	0
Confl. Peds. (#/hr)	42		42	54		54	58		58	194		194
Confl. Bikes (#/hr)			12			7			5			8
Turn Type	Perm					Perm	Perm		Perm			
Protected Phases		2			2			1				
Permitted Phases	2					2	1		1			
Actuated Green, G (s)		49.5			49.5	49.5		23.5	23.5			
Effective Green, g (s)		49.5			49.5	49.5		23.5	23.5			
Actuated g/C Ratio		0.62			0.62	0.62		0.29	0.29			
Clearance Time (s)		3.0			3.0	3.0		4.0	4.0			
Vehicle Extension (s)		3.0			3.0	3.0		3.0	3.0			
Lane Grp Cap (vph)		1869			2085	816		1021	429			
v/s Ratio Prot					c0.18							
v/s Ratio Perm		0.17				0.07		0.19	0.16			
v/c Ratio		0.27			0.29	0.11		0.64	0.55			
Uniform Delay, d1		7.0			7.1	6.2		24.6	23.8			
Progression Factor		1.00			0.64	0.11		1.00	1.00			
Incremental Delay, d2		0.4			0.3	0.2		1.4	1.5			
Delay (s)		7.3			4.9	1.0		26.0	25.4			
Level of Service		A			A	A		C	C			
Approach Delay (s)		7.3			4.1			25.7			0.0	
Approach LOS		A			A			C			A	

Intersection Summary				
HCM Average Control Delay	14.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.40			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	7.0	
Intersection Capacity Utilization	62.0%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	544	232	190	545	0	0	0	0	100	651	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Lane Util. Factor		0.95	1.00	0.91	0.91						0.95	1.00
Frpb, ped/bikes		1.00	0.91	1.00	1.00						1.00	0.69
Flpb, ped/bikes		1.00	1.00	1.00	1.00						0.96	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						0.99	1.00
Satd. Flow (prot)		3539	1439	1610	3379						3374	1094
Flt Permitted		1.00	1.00	0.95	0.94						0.99	1.00
Satd. Flow (perm)		3539	1439	1610	3174						3374	1094
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92
Adj. Flow (vph)	0	591	252	207	592	0	0	0	0	109	708	159
RTOR Reduction (vph)	0	0	26	0	0	0	0	0	0	0	0	97
Lane Group Flow (vph)	0	591	226	186	613	0	0	0	0	0	817	62
Confl. Peds. (#/hr)	51		51	114		114	115		115	333		333
Confl. Bikes (#/hr)			8			3			17			6
Turn Type			Perm	Prot							Perm	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2									4
Actuated Green, G (s)		28.0	28.0	10.0	42.0						30.0	30.0
Effective Green, g (s)		28.0	28.0	10.0	42.0						30.0	30.0
Actuated g/C Ratio		0.35	0.35	0.12	0.52						0.38	0.38
Clearance Time (s)		4.0	4.0	4.0	4.0						4.0	4.0
Vehicle Extension (s)		2.0	2.0	2.0	2.0						2.0	2.0
Lane Grp Cap (vph)		1239	504	201	1692						1265	410
v/s Ratio Prot		c0.17		c0.12	0.05							
v/s Ratio Perm			0.16		0.14						0.24	0.06
v/c Ratio		0.48	0.45	0.93	0.36						0.65	0.15
Uniform Delay, d1		20.3	20.0	34.6	11.1						20.6	16.6
Progression Factor		1.03	1.02	1.00	1.00						1.23	2.65
Incremental Delay, d2		1.3	2.7	42.2	0.0						0.8	0.1
Delay (s)		22.0	23.2	76.8	11.2						26.2	44.0
Level of Service		C	C	E	B						C	D
Approach Delay (s)		22.4			26.5			0.0			29.1	
Approach LOS		C			C			A			C	

Intersection Summary				
HCM Average Control Delay	26.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.62			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	93.3%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

APPENDIX G.11

Alternative Freeway Access Route Analysis Memo

AECOM
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Memorandum

Date:	March 25, 2009
To:	Margaret Stanzione, Community and Economic Development Agency, City of Oakland Gordon Lum, Transportation Services Division, Community and Economic Development Agency, City of Oakland
From:	Jeffrey Chan, PTP
Subject:	Kaiser Center Redevelopment Project Transportation Impact Analysis – Alternative Freeway Access Route Analysis

This memorandum summarizes the findings from the supplemental analysis considering the effect of high intersection delays on the diversion of Project-generated vehicles to alternative access routes to and from freeways. The analysis considers the following alternative routes:

- To / from I-580 Grand Avenue / Lakeshore Avenue On- and Off-Ramps;
- To SR 13 via Oakland Avenue / Harrison Avenue; and,
- To SB I-880 via the Embarcadero / 10th Avenue On-Ramp.

The following seven "diversion" intersections were selected for analysis:

45. Grand Avenue / El Embarcadero (*signalized*);
46. Lakeshore Avenue / El Embarcadero (*unsignalized*);
47. Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (*signalized*);
48. Lakeshore Avenue / MacArthur Boulevard (EB) / I-580 EB On-Ramp (*signalized*);
49. Oakland Avenue / MacArthur Boulevard (WB) / Santa Clara Avenue / I-580 WB Off-Ramp (*signalized*);
50. Harrison Street / MacArthur Boulevard (WB) / Santa Clara Avenue (*signalized*); and,
51. Oakland Avenue / Monte Vista Avenue (*unsignalized*).

All intersections are located outside of the Downtown[(1)] area. The alternative routes and selected study locations are illustrated in **Figure 1**.

(1) Downtown is defined in the Land Use and Transportation Element of the City of Oakland General Plan (page 67) as the area generally bounded by West Grand Avenue to the north, Lake Merritt and Channel Park to the east, the Oakland Estuary to the south and I-980 / Brush Street to the west.



alternative routes.cdr

KAISER CENTER TRANSPORTATION STUDY ALTERNATIVE FREEWAY ACCESS ROUTE MEMO

Figure 1

ALTERNATIVE ROUTES

Existing Conditions

Existing Conditions level of service (LOS) at each of the selected study locations is summarized in **Table 1**.

Table 1: Intersection Level of Service – Existing Conditions

No.	Intersection	Traffic Control[a]	AM Peak Hour		PM Peak Hour	
			LOS	Delay[b]	LOS	Delay[b]
Outside Downtown						
45	Grand Avenue / El Embarcadero	Signal	B	15.7	B	17.4
46	Lakeshore Avenue / El Embarcadero	OWSC	**F**	**>50.0**	**F**	**>50.0**
47	Grand Avenue / MacArthur Blvd. (EB) / I-580 EB Off-Ramp	Signal	D	40.2	**E**	**59.7**
48	Lakeshore Avenue / MacArthur Blvd. (EB) / I-580 EB On-Ramp	Signal	C	22.9	D	41.6
49	Oakland Avenue / MacArthur Blvd. (WB) / Santa Clara Avenue / I-580 WB Off-Ramp	Signal	B	19.5	B	12.9
50	Harrison Street / MacArthur Blvd. (WB) / Santa Clara Avenue	Signal	C	26.9	B	16.7
51	Oakland Avenue / Monte Vista Avenue	AWSC	B	11.4	B	12.1

Bold indicates intersections operating at LOS E or LOS F.

[a] AWSC = All-way stop controlled intersection; OWSC = One-way stop controlled intersection

[b] The LOS and delay for one-way stop controlled intersections represents the worst movement or approach. The LOS and delay for signalized intersections and all-way stop controlled intersections represent the average delay for all movements.

SOURCE: AECOM, 2009.

As shown in **Table 1**, the following intersections currently operate at LOS E or LOS F:

- Intersection #46: Lakeshore Avenue / El Embarcadero (AM / PM) – LOS F; and,
- Intersection #47: Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (PM) – LOS E.

Near-Term (2015) Conditions

Near-Term (2015) Conditions LOS at each of the selected study locations is summarized in **Table 2**.

Table 2: Intersection Level of Service – Near-Term (2015) Conditions

			Existing Conditions				Near-Term (2015) Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
No.	Intersection	Traffic Control[a]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]
Outside Downtown										
45	Grand Avenue / El Embarcadero	Signal	B	15.7	B	17.4	C	24.5	**E**	**77.7**
46	Lakeshore Avenue / El Embarcadero	OWSC[c]	**F**	**>50.0**	**F**	**>50.0**	B	16.3	B	15.2
47	Grand Avenue / MacArthur Blvd. (EB)	Signal	D	40.2	**E**	**59.7**	D	37.6	**F**	**>80.0**
48	Lakeshore Avenue / MacArthur Blvd. (EB)	Signal	C	22.9	D	41.6	C	27.1	**F**	**>80.0**
49	Oakland Avenue / MacArthur Blvd. (WB)	Signal	B	19.5	B	12.9	C	23.2	B	15.1
50	Harrison Street / MacArthur Blvd. (WB)	Signal	C	26.9	B	16.7	D	46.4	B	17.9
51	Oakland Avenue / Monte Vista Avenue	AWSC	B	11.4	B	12.1	B	13.9	C	20.2

Bold indicates intersections operating at LOS E or LOS F.

[a] AWSC = All-way stop controlled intersection; OWSC = One-way stop controlled intersection

[b] The LOS and delay for one-way stop controlled intersections represents the worst movement or approach. The LOS and delay for signalized intersections and all-way stop controlled intersections represent the average delay for all movements.

[c] Intersection would be signalized as part of Measure DD.

SOURCE: AECOM, 2009.

As shown in **Table 2**, the following intersections would operate at LOS E or LOS F under Near-Term (2015) Conditions:

- Intersection #45: Grand Avnue / El Embarcadero (PM) – LOS E;
- Intersection #47: Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (PM) – LOS F; and,
- Intersection #48: Lakeshore Avenue / MacArthur Boulevard (EB) (PM) – LOS F.

LOS at some intersections, such as Lakeshore Avenue / El Embarcadero, would improve in the future, mostly as a result of improvements proposed under Measure DD.

Cumulative (2030) Conditions

Cumulative (2030) Conditions LOS at each of the selected study locations is summarized in **Table 3**.

Table 3: Intersection Level of Service – Cumulative (2030) Conditions

			Existing Conditions				Cumulative (2030) Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
No.	Intersection	Traffic Control[a]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]
Outside Downtown										
45	Grand Avenue / El Embarcadero	Signal	B	15.7	B	17.4	D	38.8	**F**	**>80.0**
46	Lakeshore Avenue / El Embarcadero	OWSC[c]	**F**	**51.9**	**F**	**>80.0**	B	18.7	B	16.2
47	Grand Avenue / MacArthur Blvd. (EB)	Signal	D	40.2	**E**	**59.7**	D	43.6	**F**	**>80.0**
48	Lakeshore Avenue / MacArthur Blvd. (EB)	Signal	C	22.9	D	41.6	C	29.1	**F**	**>80.0**
49	Oakland Avenue / MacArthur Blvd. (WB)	Signal	B	19.5	B	12.9	D	51.0	C	20.4
50	Harrison Street / MacArthur Blvd. (WB)	Signal	C	26.9	B	16.7	**E**	**72.1**	C	21.0
51	Oakland Avenue / Monte Vista Avenue	AWSC	B	11.4	B	12.1	C	18.7	**E**	**48.8**

Bold indicates intersections operating at LOS E or LOS F.

[a] AWSC = All-way stop controlled intersection; OWSC = One-way stop controlled intersection

[b] The LOS and delay for one-way stop controlled intersections represents the worst movement or approach. The LOS and delay for signalized intersections and all-way stop controlled intersections represent the average delay for all movements.

[c] Intersection would be signalized as part of Measure DD.

SOURCE: AECOM, 2009.

As shown in **Table 3**, the following intersections would operate at LOS E or LOS F under Cumulative (2030) Conditions:

- Intersection #45: Grand Avenue / El Embarcadero (PM) – LOS E;
- Intersection #47: Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (PM) – LOS F; and,
- Intersection #48: Lakeshore Avenue / MacArthur Boulevard (EB) (PM) – LOS F.

LOS at some intersections, such as Lakeshore Avenue / El Embarcadero, would improve in the future, mostly as a result of improvements proposed under Measure DD.

Existing plus Project (Phase I and Phase II) Conditions

Existing plus Project (Phase I and Phase II) Conditions LOS at each of the selected study locations is summarized in **Table 4**.

Table 4: Intersection Level of Service – Existing plus Project Conditions

			Existing Conditions				Existing plus Project (Phase I and Phase II) Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
No.	Intersection	Traffic Control[a]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]
Outside Downtown										
45	Grand Avenue / El Embarcadero	Signal	B	15.7	B	17.4	B	17.5	B	18.8
46	Lakeshore Avenue / El Embarcadero	OWSC	**F**	**>50.0**	**F**	**>50.0**	**F**	**>50.0**	**F**	**>50.0**
47	Grand Avenue / MacArthur Blvd. (EB)	Signal	D	40.2	**E**	**59.7**	D	39.3	**E**	**76.7**
48	Lakeshore Avenue / MacArthur Blvd. (EB)	Signal	C	22.9	D	41.6	C	22.8	D	45.6
49	Oakland Avenue / MacArthur Blvd. (WB)	Signal	B	19.5	B	12.9	C	21.0	B	13.3
50	Harrison Street / MacArthur Blvd. (WB)	Signal	C	26.9	B	16.7	C	30.6	B	16.8
51	Oakland Avenue / Monte Vista Avenue	AWSC	B	11.4	B	12.1	B	12.4	B	14.8

Bold indicates intersections operating at LOS E or LOS F.

[a] AWSC = All-way stop controlled intersection; OWSC = One-way stop controlled intersection

[b] The LOS and delay for one-way stop controlled intersections represents the worst movement or approach. The LOS and delay for signalized intersections and all-way stop controlled intersections represent the average delay for all movements.

SOURCE: AECOM, 2009.

As shown in **Table 4**, the following intersections would operate at LOS E or LOS F under Existing plus Project (Phase I and Phase II) Conditions:

- Intersection #46: Lakeshore Avenue / El Embarcadero (AM / PM) – LOS F; and,
- Intersection #47: Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (PM) – LOS E.

The Project's impacts at each of the above intersections are discussed below:

- <u>Intersection #46: Lakeshore Avenue / El Embarcadero (AM / PM)</u>
  The intersection of Lakeshore Avenue / El Embarcadero would operate at LOS F in both the AM and PM peak hours under both Existing plus Project Conditions and Existing plus Project (Phase I and Phase II) Conditions. The intersection is located outside the Downtown area.

  The intersection satisfies California MUTCD peak hour traffic signal warrants under Existing plus Project (Phase I and Phase II) Conditions for both the AM and PM peak hours. However, the intersection satisfies peak hour traffic signal warrants even under Existing Conditions without the Project.

It should also be noted that this intersection would be signalized under Measure DD and would operate at acceptable conditions under Near-Term (2015) Conditions and Cumulative (2030) Conditions. Given these considerations, the Project impacts at this intersection are considered less than significant.

Mitigation: None required.

- Intersection #47: Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (PM)
  The intersection of Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp would operate at LOS E in the PM peak hour during both Existing Conditions and Existing plus Project (Phase I and Phase II) Conditions.

  Since the Project would cause an increase in average intersection delay of 17.0 seconds, which is greater than the four (4) second threshold of significance, and cause an increase in average delay on the critical northbound right movement greater than the six (6) second threshold of significance, the Project would would potentially result in a significant impact at this intersection.

  Mitigation: The Applicant, Owners, or Successors-in-Interest of the Project shall reconstruct and restripe the right-turn channel on the northbound Grand Avenue approach to accommodate an additional right turn lane. After implementation of the mitigation measure, the intersection would operate at LOS C in the PM peak hour. During the AM peak hour, the intersection would continue to operate at LOS D.

  Significance after Implementation of Mitigation: Less than significant.

The 95th percentile queues at LOS E or LOS F intersections under Existing plus Project (Phase I and Phase II) Conditions as shown in **Table 4**, are summarized in **Table 5**. In all cases, the storage capacity is taken as the distance to the nearest intersection, major driveway, or pedestrian crossing.

Table 5: 95th Percentile Queues – Existing plus Project (Phase I and Phase II) Conditions

				Existing Conditions			Existing plus Project (Phase I and Phase II) Conditions		
					Queue Length (ft)			Queue Length (ft)	
No.	Intersection	Lane Group		Storage Cap. (ft)	AM Peak Hour	PM Peak Hour	Storage Cap. (ft)	AM Peak Hour	PM Peak Hour
46	Lakeshore Avenue / El Embarcadero	EB	L	275	207	**521**	275	**451**	**>1,000**
			R	275	51	**305**	275	51	**305**
47	Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp	NE	T	350	--	**374**	350	--	**374**
			R	200	--	**621**	200	--	**720**
		SW	L	175	--	**283**	175	--	**283**
			T	425	--	162	425	--	175
		SE	LTR	375	--	306	375	--	306

Bold indicates exceedance of storage capacity.

SOURCE: AECOM, 2009.

As shown in **Table 5**, the 95th percentile queues in the following lane groups at LOS E or LOS F locations under Existing plus Project (Phase I and Phase II) Conditions would exceed the available storage capacity:

- Intersection #46: Lakeshore Avenue / El Embarcadero (AM / PM) – EBL; and,
- Intersection #47: Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (AM / PM) – NET (AM / PM), NER (PM), SWL (AM / PM).

It should be noted, however, that in general, the 95th percentile queues at the above locations already exceed the available storage capacity under Existing Conditions. At the following locations where 95th percentile queues exceed storage capacity under Existing plus Project (Phase I and Phase II) Conditions, the Project would cause an increase of 25 feet or greater in 95th percentile queues:

- Intersection #46: Lakeshore Avenue / El Embarcadero (AM / PM) – EBL
  In the EBL lane group, the Project would cause an increase in 95th percentile queue length of 244 feet in the AM peak hour. In the PM peak hour, the queue length is infinitely long. Since the Project would cause an increase in 95th percentile queue length greater than 25 feet, the Project would potentially result in a significant impact at this intersection.

  As noted in the intersection impact discussion, the intersection would already meet signal warrants under Existing Conditions and is planned for improvements under Measure DD including signalization. After signalization, the 95th percentile queues on the EBL lane group would no longer exceed the storage capacity under Existing plus Project (Phase I and Phase II) Conditions.

  Mitigation: None required.

- Intersection #47: Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (PM) – NER
  In the NER lane group, the Project would cause an increase in 95th percentile queue length of 99 feet in the PM peak hour. Since the Project would cause an increase in 95th percentile queue length greater than 25 feet, the Project would potentially result in a significant impact at this intersection.

  Mitigation: After implementation of the mitigation measure proposed to mitigate intersection LOS impacts, the 95th percentile queues in the NER lane group would no longer exceed the storage capacity under Existing plus Project (Phase I and Phase II) Conditions.

  Significance after Implementation of Mitigation: Less than significant.

Near-Term (2015) plus Project (Phase I) Conditions

Near-Term (2015) plus Project (Phase I) Conditions LOS at each of the selected study locations is summarized in **Table 6**.

As shown in **Table 6**, the following intersections would operate at LOS E or LOS F under Near-Term (2015) plus Project (Phase I) Conditions:

- Intersection #45: Grand Avenue / El Embarcadero (PM) – LOS F;
- Intersection #47: Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (PM) – LOS E; and,
- Intersection #48: Lakeshore Avenue / MacArthur Boulevard (EB) / I-580 EB On-Ramp (PM) – LOS F.

Table 6: Intersection Level of Service – Near-Term (2015) plus Project (Phase I) Conditions

			Near-Term (2015) Conditions				Near-Term (2015) plus Project (Phase I) Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
No.	Intersection	Traffic Control[a]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]
Outside Downtown										
45	Grand Avenue / El Embarcadero	Signal	C	24.5	**E**	**77.7**	C	24.7	**F**	**>80.0**
46	Lakeshore Avenue / El Embarcadero	Signal[c]	B	16.3	B	15.2	B	16.3	B	15.8
47	Grand Avenue / MacArthur Blvd. (EB)	Signal	D	37.6	**F**	**>80.0**	D	37.3	**F**	**>80.0**
48	Lakeshore Avenue / MacArthur Blvd. (EB)	Signal	C	27.1	**F**	**>80.0**	C	27.1	**F**	**>80.0**
49	Oakland Avenue / MacArthur Blvd. (WB)	Signal	C	23.2	B	15.1	C	24.1	B	15.4
50	Harrison Street / MacArthur Blvd. (WB)	Signal	D	46.4	B	17.9	D	48.7	B	18.0
51	Oakland Avenue / Monte Vista Avenue	AWSC	B	13.9	C	20.2	B	14.7	C	23.8

Bold indicates intersections operating at LOS E or LOS F.

[a] AWSC = All-way stop controlled intersection; OWSC = One-way stop controlled intersection

[b] The LOS and delay for one-way stop controlled intersections represents the worst movement or approach. The LOS and delay for signalized intersections and all-way stop controlled intersections represent the average delay for all movements.

[c] Intersection would be signalized as part of Measure DD.

SOURCE: AECOM, 2009.

The Project's impacts at each of the above intersections are discussed below:

- Intersection #45: Grand Avenue / El Embarcadero (PM)
  The intersection of Grand Avenue / El Embarcadero would operate at LOS F in the PM peak hour under Near-Term (2015) plus Project (Phase I) Conditions. The intersection would operate at LOS E in the PM peak hour under Near-Term (2015) Conditions. The intersection is located outside the Downtown area.

  Because the Project would cause the intersection to degrade from LOS E to LOS F, the Project would potentially contribute to a significant near-term impact at this intersection. It should be noted, however, that this intersection would undergo geometric changes as part of Measure DD and would already operate at LOS E with 77.7 seconds of average intersection delay under Near-Term (2015) Conditions as a direct result of these changes. The highest delays would be on the northeast Grand Avenue approach, which would have a limited amount of green time available due to the protected left-turn phase on the southwest Grand Avenue approach and the split northwest El Embarcadero approach. While the Project would add traffic to this approach, the poor operation of this approach is directly a result of the Measure DD changes to this intersection. Therefore, the Project's impacts at this intersection are considered less than significant.

  Given that there is approximately 30 feet of right-of-way on the northeast Grand Avenue approach, an additional northeast through lane could be accommodated by restriping the

approach, which would improve operations to LOS C in the PM peak hour. In the AM peak hour, the intersection would continue to operate at LOS C.

Mitigation: None required.

- Intersection #47: Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (PM)
  The intersection of Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp would operate at LOS F in the PM peak hour under both Near-Term (2015) Conditions and Near-Term (2015) plus Project (Phase I) Conditions. The intersection is located outside the Downtown area.

  Because delay values over 80.0 seconds tend to increase exponentially and are thus generally considered unreliable, the increase in v/c ratio as a result of Project traffic was instead evaluated. The intersection would operate with a v/c ratio of 1.20 under Near-Term (2015) Conditions and 1.23 under Near-Term (2015) plus Project (Phase I) Conditions in the PM peak hour. Since the maximum increase in v/c ratio would be three (3) percent, which is not above the three (3) percent threshold of significance, the Project would not potentially contribute to a significant near-term impact at this intersection.

  Mitigation: None required.

- Intersection #48: Lakeshore Avenue / MacArthur Boulevard / I-580 EB On-Ramp (EB) (PM)
  The intersection of Lakeshore Avenue / MacArthur Boulevard (EB) / I-580 EB On-Ramp would operate at LOS F in the PM peak hour under both Near-Term (2015) Conditions and Near-Term (2015) plus Project (Phase I) Conditions. The intersection is located outside the Downtown area.

  Because delay values over 80.0 seconds tend to increase exponentially and are thus generally considered unreliable, the increase in v/c ratio as a result of Project traffic was instead evaluated. The intersection would operate with a v/c ratio of 1.11 under Near-Term (2015) Conditions and 1.13 under Near-Term (2015) plus Project (Phase I) Conditions in the PM peak hour. Since the maximum increase in v/c ratio would be two (2) percent, which is below the three (3) percent threshold of significance, the Project would not potentially contribute to a significant near-term impact at this intersection.

  Mitigation: None required.

The 95th percentile queues at LOS E or LOS F intersections under Near-Term (2015) plus Project (Phase I) Conditions as shown in **Table 6**, are summarized in **Table 7**.

Table 7: 95th Percentile Queues – Near-Term (2015) plus Project (Phase I) Conditions

				Near-Term (2015)Conditions			Near-Term (2015) plus Project (Phase I) Conditions		
					Queue Length (ft)			Queue Length (ft)	
No.	Intersection	Lane Group		Storage Cap. (ft)	AM Peak Hour	PM Peak Hour	Storage Cap. (ft)	AM Peak Hour	PM Peak Hour
45	Grand Avenue / El Embarcadero	NE	TR	600	--	**964**	600	--	**1,005**
		SW	L	325	--	85[a]	325	--	88[a]
			T	325	--	0[a]	325	--	0[a]
		NW	LR	275	--	241	275	--	241
47	Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp	NE	T	350	--	167	350	--	162
			R	200	--	**420**	200	--	**435**
		SW	L	175	--	**462**	175	--	**462**
			T	425	--	242	425	--	250
		SE	LTR	375	--	**553**	375	--	**553**
48	Lakeshore Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp	NE	TR	250	--	**296**	250	--	**309**
		SW	L	150	--	**473**	150	--	**473**
			T	150	--	48	150	--	48
		EB	L	475	--	126	475	--	126
			T	475	--	**487**	475	--	**487**
			R	475	--	354	475	--	363

Bold indicates exceedance of storage capacity.

[a] Volume for 95th percentile queue is metered by upstream signal.

SOURCE: AECOM, 2009.

As shown in **Table 7**, the 95th percentile queues in the following lane groups at LOS E or LOS F locations under Near-Term (2015) plus Project (Phase I) Conditions would exceed the available storage capacity:

- Intersection #45: Grand Avenue / El Embarcadero (PM) – NETR;
- Intersection #46: Lakeshore Avenue / El Embarcadero (PM) – NER, SWL, and SELTR; and,
- Intersection #48: Lakeshore Avenue / MacArthur Boulevard (EB) / I-580 EB On-Ramp (PM) – NETR, SWL, and EBT.

It should be noted, however, that the 95th percentile queues at the above locations already exceed the available storage capacity under Near-Term (2015) Conditions. At the following location where 95th percentile queues exceed storage capacity under Near-Term (2015) plus Project (Phase I) Conditions, the Project would cause an increase of 25 feet or greater in 95th percentile queues:

- Intersection #45: Grand Avenue / El Embarcadero (PM) – NETR
  In the NETR lane group, the Project would cause an increase in 95th percentile queue length of 41 feet in the PM peak hour. On the SWL and SWT lane groups, queues are short because the arrival of vehicles at the approach is controlled by the traffic signal at the upstream intersection. Since the Project would cause an increase in 95th percentile queue length greater than 25 feet, the Project would potentially result in a significant impact at this intersection.

As noted in the intersection impact discussion, this intersection would undergo geometric changes as part of Measure DD. The 95th percentile queue length on the NETR lane group would already exceed the storage capacity under Near-Term (2015) Conditions as a direct result of these changes. Therefore, the Project's impacts at this intersection are considered less than significant.

If the northeast Grand Avenue approach were restriped to accommodate an additional through lane, the 95th percentile queues in the PM peak hour would be reduced to 596 feet, which would no longer exceed the storage capacity.

Mitigation: None required.

Near-Term (2015) plus Project (Phase I and Phase II) Conditions

Near-Term (2015) plus Project (Phase I and Phase II) Conditions LOS at each of the selected study locations is summarized in **Table 8**.

Table 8: Intersection Level of Service – Near-Term (2015) plus Project (Phase I and Phase II) Conditions

			Near-Term (2015) Conditions				Near-Term (2015) plus Project (Phase I and Phase II) Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
No.	Intersection	Traffic Control[a]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]
Outside Downtown										
45	Grand Avenue / El Embarcadero	Signal	C	24.5	**E**	**77.7**	C	25.5	**F**	**>80.0**
46	Lakeshore Avenue / El Embarcadero	Signal[c]	B	16.3	B	15.2	B	16.4	B	17.0
47	Grand Avenue / MacArthur Blvd. (EB)	Signal	D	37.6	**F**	**>80.0**	D	37.3	**F**	**>80.0**
48	Lakeshore Avenue / MacArthur Blvd. (EB)	Signal	C	27.1	**F**	**>80.0**	C	27.2	**F**	**>80.0**
49	Oakland Avenue / MacArthur Blvd. (WB)	Signal	C	23.2	B	15.1	C	27.8	B	15.8
50	Harrison Street / MacArthur Blvd. (WB)	Signal	D	46.4	B	17.9	D	52.0	B	18.1
51	Oakland Avenue / Monte Vista Avenue	AWSC	B	13.9	C	20.2	C	15.9	D	30.9

Bold indicates intersections operating at LOS E or LOS F.

[a] AWSC = All-way stop controlled intersection; OWSC = One-way stop controlled intersection

[b] The LOS and delay for one-way stop controlled intersections represents the worst movement or approach. The LOS and delay for signalized intersections and all-way stop controlled intersections represent the average delay for all movements.

[c] Intersection would be signalized as part of Measure DD.

SOURCE: AECOM, 2009.

As shown in **Table 8**, the following intersections would operate at LOS E or LOS F under Near-Term (2015) plus Project (Phase I and Phase II) Conditions:

- Intersection #45: Grand Avenue / El Embarcadero (PM) – LOS F;

- Intersection #47: Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (PM) – LOS E; and,
- Intersection #48: Lakeshore Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (PM) – LOS F.

The Project's impacts at each of the above intersections are discussed below:

- Intersection #45: Grand Avenue / El Embarcadero (PM)
  The intersection of Grand Avenue / El Embarcadero would operate at LOS F in the PM peak hour under Near-Term (2015) plus Project (Phase I and Phase II) Conditions. The intersection would operate at LOS E in the PM peak hour under Near-Term (2015) Conditions. The intersection is located outside the Downtown area.

  Because the Project would cause the intersection to degrade from LOS E to LOS F, the Project would potentially contribute to a significant near-term impact at this intersection. It should be noted, however, that this intersection would undergo geometric changes as part of Measure DD and would already operate at LOS E with 77.7 seconds of average intersection delay under Near-Term (2015) Conditions as a direct result of these changes. The highest delays would be on the northeast Grand Avenue approach, which would have a limited amount of green time available due to the protected left-turn phase on the southwest Grand Avenue approach and the split northwest El Embarcadero approach. While the Project would add traffic to this approach, the poor operation of this approach is directly a result of the Measure DD changes to this intersection. Therefore, the Project's impacts at this intersection are considered less than significant.

  Given that there is approximately 30 feet of right-of-way on the northeast Grand Avenue approach, an additional northeast through lane could be accommodated by restriping the approach, which would improve operations to LOS C in the PM peak hour. In the AM peak hour, the intersection would continue to operate at LOS C.

  Mitigation: None required.

- Intersection #47: Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (PM)
  The intersection of Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp would operate at LOS F in the PM peak hour under both Near-Term (2015) Conditions and Near-Term (2015) plus Project (Phase I) Conditions. The intersection is located outside the Downtown area.

  Because delay values over 80.0 seconds tend to increase exponentially and are thus generally considered unreliable, the increase in v/c ratio as a result of Project traffic was instead evaluated. The intersection would operate with a v/c ratio of 1.20 under Near-Term (2015) Conditions and 1.26 under Near-Term (2015) plus Project (Phase I) Conditions in the PM peak hour. Since the maximum increase in v/c ratio would be six (6) percent, which is above the three (3) percent threshold of significance, the Project would potentially contribute to a significant near-term impact at this intersection.

  Mitigation: As proposed under Existing plus Project (Phase I and Phase II) Conditions, the Applicant, Owners, or Successors-in-Interest of the Project shall reconstruct and restripe the right-turn channel on the northbound Grand Avenue approach to accommodate an additional right turn lane. After implementation of the mitigation measure, the intersection would still operate at LOS E in the PM peak hour, but the Project's impacts at this intersection would be mitigated. During the AM peak hour, the intersection would continue to operate at LOS D.

  Significance after Implementation of Mitigation: Less than significant.

- Intersection #48: Lakeshore Avenue / MacArthur Boulevard / I-580 EB On-Ramp (EB) (PM)
  The intersection of Lakeshore Avenue / MacArthur Boulevard (EB) / I-580 EB On-Ramp would operate at LOS F in the PM peak hour under both Near-Term (2015) Conditions and Near-Term (2015) plus Project (Phase I) Conditions. The intersection is located outside the Downtown area.

  Because delay values over 80.0 seconds tend to increase exponentially and are thus generally considered unreliable, the increase in v/c ratio as a result of Project traffic was instead evaluated. The intersection would operate with a v/c ratio of 1.11 under Near-Term (2015) Conditions and 1.15 under Near-Term (2015) plus Project (Phase I) Conditions in the PM peak hour. Since the maximum increase in v/c ratio would be four (4) percent, which is above the three (3) percent threshold of significance, the Project would potentially contribute to a significant near-term impact at this intersection.

  Mitigation: The Applicant, Owners, or Successors-in-Interest of the Project shall retime the signal at this intersection, increasing green time to the critical southbound left-turn movement from Lakeshore Avenue and eastbound through movement from MacArthur Boulevard. After implementation of the mitigation measure, the intersection would still operate at LOS E in the PM peak hour, but the Project's impacts at this intersection would be mitigated.

  Significance after Implementation of Mitigation: Less than significant.

The 95th percentile queues at LOS E or LOS F intersections under Near-Term (2015) plus Project (Phase I) Conditions as shown in **Table 8**, are summarized in **Table 9**.

As shown in **Table 9**, the 95th percentile queues in the following lane groups at LOS E or LOS F locations under Near-Term (2015) plus Project (Phase I and Phase II) Conditions would exceed the available storage capacity:

- Intersection #45: Grand Avenue / El Embarcadero (PM) – NETR;
- Intersection #46: Lakeshore Avenue / El Embarcadero (PM) – NER, SWL, and SELTR; and,
- Intersection #48: Lakeshore Avenue / MacArthur Boulevard (EB) / I-580 EB On-Ramp (PM) – NETR, SWL, and EBT.

It should be noted, however, that the 95th percentile queues at the above locations already exceed the available storage capacity under Near-Term (2015) Conditions. At the following location where 95th percentile queues exceed storage capacity under Near-Term (2015) plus Project (Phase I) Conditions, the Project would cause an increase of 25 feet or greater in 95th percentile queues:

- Intersection #45: Grand Avenue / El Embarcadero (PM) – NETR
  In the NETR lane group, the Project would cause an increase in 95th percentile queue length of 41 feet in the PM peak hour. Since the Project would cause an increase in 95th percentile queue length greater than 25 feet, the Project would potentially result in a significant impact at this intersection.

  As noted in the intersection impact discussion, this intersection would undergo geometric changes as part of Measure DD. The 95th percentile queue length on the NETR lane group would already exceed the storage capacity under Near-Term (2015) Conditions as a direct result of these changes. Therefore, the Project's impacts at this intersection are considered less than significant.

Table 9: 95th Percentile Queues – Near-Term (2015) plus Project (Phase I and Phase II) Conditions

				Near-Term (2015) Conditions			Near-Term (2015) plus Project (Phase I and Phase II) Conditions		
					Queue Length (ft)			Queue Length (ft)	
No.	Intersection	Lane Group		Storage Cap. (ft)	AM Peak Hour	PM Peak Hour	Storage Cap. (ft)	AM Peak Hour	PM Peak Hour
45	Grand Avenue / El Embarcadero	NE	TR	600	--	**964**	600	--	**1,057**
		SW	L	325	--	85[a]	325	--	89[a]
			T	325	--	0[a]	325	--	0[a]
		NW	LR	275	--	241	275	--	241
47	Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp	NE	T	350	--	167	350	--	154
			R	200	--	**420**	200	--	**452**
		SW	L	175	--	**462**	175	--	**462**
			T	425	--	242	425	--	258
		SE	LTR	375	--	**553**	375	--	**553**
48	Lakeshore Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp	NE	TR	250	--	**296**	250	--	**326**
		SW	L	150	--	**473**	150	--	**473**
			T	150	--	48	150	--	48
		EB	L	475	--	126	475	--	124
			T	475	--	**487**	475	--	**488**
			R	475	--	354	475	--	364

Bold indicates exceedance of storage capacity.

[a] Volume for 95th percentile queue is metered by upstream signal.

SOURCE: AECOM, 2009.

If the northeast Grand Avenue approach were restriped to accommodate an additional through lane, the 95th percentile queues in the PM peak hour would be reduced to 632 feet, which would still exceed the storage capacity, but mitigate the Project's impacts at this intersection

Mitigation: None required.

Cumulative (2030) plus Project (Phase I and Phase II) Conditions

Cumulative (2030) plus Project (Phase I and Phase II) Conditions LOS at each of the selected study locations is summarized in **Table 10**.

Table 10: Intersection Level of Service – Cumulative (2030) plus Project (Phase I and Phase II) Conditions

			Cumulative (2030) Conditions				Cumulative (2030) plus Project (Phase I and Phase II) Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
No.	Intersection	Traffic Control[a]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]
Outside Downtown										
45	Grand Avenue / El Embarcadero	Signal	D	38.8	**F**	**>80.0**	D	41.4	**F**	**>80.0**
46	Lakeshore Avenue / El Embarcadero	Signal[c]	B	18.7	B	16.2	B	18.7	B	18.2
47	Grand Avenue / MacArthur Blvd. (EB)	Signal	D	43.6	**F**	**>80.0**	D	44.0	**F**	**>80.0**
48	Lakeshore Avenue / MacArthur Blvd. (EB)	Signal	C	29.1	**F**	**>80.0**	C	29.0	**F**	**>80.0**
49	Oakland Avenue / MacArthur Blvd. (WB)	Signal	D	51.0	C	20.4	**E**	**69.0**	C	23.3
50	Harrison Street / MacArthur Blvd. (WB)	Signal	**E**	**72.1**	C	21.0	**F**	**>80.0**	C	21.3
51	Oakland Avenue / Monte Vista Avenue	AWSC	C	18.7	**E**	**48.8**	C	22.7	**F**	**>50.0**

Bold indicates intersections operating at LOS E or LOS F.

[a] AWSC = All-way stop controlled intersection; OWSC = One-way stop controlled intersection

[b] The LOS and delay for one-way stop controlled intersections represents the worst movement or approach. The LOS and delay for signalized intersections and all-way stop controlled intersections represent the average delay for all movements.

[c] Intersection would be signalized as part of Measure DD.

SOURCE: AECOM, 2009.

As shown in **Table 10**, the following intersections would operate at LOS E or LOS F under Cumulative (2030) plus Project (Phase I and Phase II) Conditions:

- Intersection #45: Grand Avenue / El Embarcadero (PM) – LOS F;
- Intersection #47: Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (PM) – LOS F;
- Intersection #48: Lakeshore Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (PM) – LOS F;
- Intersection #49: Oakland Avenue / MacArthur Boulevard (WB) / Santa Clara Avenue / I-580 WB Off-Ramp (AM) – LOS E;
- Intersection #50: Harrison Street / MacArthur Boulevard (WB) / Santa Clara Avenue (AM) – LOS F; and,
- Intersection #51: Oakland Avenue / Monte Vista Avenue (PM) – LOS F.

The Project's impacts at each of the above intersections are discussed below:

- <u>Intersection #45: Grand Avenue / El Embarcadero (PM)</u>
  The intersection of Grand Avenue / El Embarcadero would operate at LOS F in the PM peak hour under both Cumulative (2030) Conditions and Cumulative (2030) plus Project (Phase I and Phase II) Conditions. The intersection is located outside the Downtown area.

Because delay values over 80.0 seconds tend to increase exponentially and are thus generally considered unreliable, the increase in v/c ratio as a result of Project traffic was instead evaluated. The intersection would operate with a v/c ratio of 1.01 under Cumulative (2030) Conditions and 1.06 under Cumulative (2030) plus Project (Phase I) Conditions in the PM peak hour. Since the maximum increase in v/c ratio would be five (5) percent, which is above the three (3) percent threshold of significance, the Project would potentially contribute to a significant near-term impact at this intersection.

It should be noted, however, that this intersection would undergo geometric changes as part of Measure DD and would already operate at LOS F with greater than 80.0 seconds of average intersection delay under Cumulative (2030) Conditions as a direct result of these changes. The highest delays would be on the northeast Grand Avenue approach, which would have a limited amount of green time available due to the protected left-turn phase on the southwest Grand Avenue approach and the split northwest El Embarcadero approach. While the Project would add traffic to this approach, the poor operation of this approach is directly a result of the Measure DD changes to this intersection. Therefore, the Project's impacts at this intersection are considered less than significant.

Given that there is approximately 30 feet of right-of-way on the northeast Grand Avenue approach, an additional northeast through lane could be accommodated by restriping the approach, which would improve operations to LOS C in the PM peak hour. In the AM peak hour, the intersection would continue to operate at LOS C.

Mitigation: None required.

- Intersection #47: Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (PM)
  The intersection of Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp would operate at LOS F in the PM peak hour under both Cumulative (2030) Conditions and Cumulative (2030) plus Project (Phase I and Phase II) Conditions. The intersection is located outside the Downtown area.

  Because delay values over 80.0 seconds tend to increase exponentially and are thus generally considered unreliable, the increase in v/c ratio as a result of Project traffic was instead evaluated. The intersection would operate with a v/c ratio of 1.61 under Cumulative (2030) Conditions and 1.66 under Cumulative (2030) plus Project (Phase I and Phase II) Conditions in the PM peak hour. Since the maximum increase in v/c ratio would be five (5) percent, which is above the three (3) percent threshold of significance, the Project would potentially contribute to a significant near-term impact at this intersection.

  Mitigation: As proposed under Existing plus Project (Phase I and Phase II) Conditions and Near-Term (2015) plus Project (Phase I and Phase II) Conditions, the Applicant, Owners, or Successors-in-Interest of the Project shall reconstruct and restripe the right-turn channel on the northbound Grand Avenue approach to accommodate an additional right turn lane. In addition, they shall restripe the eastbound MacArthur Boulevard / I-580 EB Off-Ramp approach to accommodate an additional through lane. After implementation of the mitigation measure, the intersection would still operate at LOS F in the PM peak hour, but the Project's impacts at this intersection would be mitigated. During the AM peak hour, the intersection would continue to operate at LOS C.

  Significance after Implementation of Mitigation: Less than significant.

- Intersection #48: Lakeshore Avenue / MacArthur Boulevard / I-580 EB On-Ramp (EB) (PM)
  The intersection of Lakeshore Avenue / MacArthur Boulevard (EB) / I-580 EB On-Ramp would operate at LOS F in the PM peak hour under both Cumulative (2030) Conditions and Cumulative (2030) plus Project (Phase I and Phase II) Conditions. The intersection is located outside the Downtown area.

  Because delay values over 80.0 seconds tend to increase exponentially and are thus generally considered unreliable, the increase in v/c ratio as a result of Project traffic was instead evaluated. The intersection would operate with a v/c ratio of 1.32 under Near-Term (2015) Conditions and 1.37 under Near-Term (2015) plus Project (Phase I) Conditions in the PM peak hour. Since the maximum increase in v/c ratio would be five (5) percent, which is above the three (3) percent threshold of significance, the Project would potentially contribute to a significant near-term impact at this intersection.

  Mitigation: The Applicant, Owners, or Successors-in-Interest of the Project shall redesign the I-580 EB On-Ramp with an additional lane and restripe the approaches at this intersection as follows:

  - The southbound Lakeshore Avenue approach would be restriped from the existing configuration of one exclusive left-turn lane and two through lanes to two exclusive left-turn lanes and one through lane; and,
  - The median on the northeast Lakeshore Avenue approach would be narrowed and restriped from the existing configuration of one through lane and one shared through-right lane to one through lane and two exclusive right-turn lanes.

  After implementation of the mitigation measure, the intersection would still operate at LOS F in the PM peak hour, but the Project's impacts at this intersection would be mitigated. In the AM peak hour, the intersection would operate at LOS C.

  Significance after Implementation of Mitigation: Less than significant.

- Intersection #49: Oakland Avenue / MacArthur Boulevard (WB) / Santa Clara Avenue / I-580 WB Off-Ramp (AM)
  The intersection of Oakland Avenue / MacArthur Boulevard (WB) / Santa Clara Avenue / I-580 WB Off-Ramp would operate at LOS E in the AM peak hour under Cumulative (2030) plus Project (Phase I and Phase II) Conditions. The intersection would operate at LOS D in the AM peak hour under Cumulative (2030) Conditions. The intersection is located outside the Downtown area.

  Because the Project would cause the intersection to degrade from LOS D to LOS E, the Project would potentially contribute to a significant near-term impact at this intersection.

  Mitigation: The Applicant, Owners, or Successors-in-Interest of the Project shall retime the signal to increase the green time to the northwest MacArthur Boulevard approach. After implementation of the mitigation measure, the intersection would operate at LOS C.

  Significance after Implementation of Mitigation: Less than significant.

- Intersection #50: Harrison Street / MacArthur Boulevard (WB) / Santa Clara Avenue (AM)
  The intersection of Harrison Street / MacArthur Boulevard (WB) / Santa Clara Avenue would operate at LOS F in the AM peak hour under Cumulative (2030) plus Project (Phase I and Phase II) Conditions. The intersection would operate at LOS E in the AM peak hour under Cumulative (2030) Conditions. The intersection is located outside the Downtown area.

Because the Project would cause the intersection to degrade from LOS E to LOS F, the Project would potentially contribute to a significant near-term impact at this intersection.

Mitigation: The Applicant, Owners, or Successors-in-Interest of the Project shall restripe the southwest Harrison Street approach to accommodate an additional through lane. After implementation of the mitigation measure, the intersection would operate at LOS D in the AM peak hour and LOS B in the PM peak hour.

Significance after Implementation of Mitigation: Less than significant.

- Intersection #51: Oakland Avenue / Monte Vista Avenue (PM)
  The intersection of Oakland Avenue / Monte Vista Avenue would operate at LOS F in the PM peak hour under Cumulative (2030) plus Project (Phase I and Phase II) Conditions. The intersection would operate at LOS E in the PM peak hour under Cumulative (2030) Conditions. The intersection is located outside the Downtown area.

  Because the Project would cause the intersection to degrade from LOS E to LOS F, the Project would potentially contribute to a significant near-term impact at this intersection.

  Mitigation: The delays at the intersection are primarily on the eastbound Oakland Avenue approach. The Applicant, Owners, or Successors-in-Interest of the Project shall signalize the intersection. After implementation of the mitigation measure, the intersection would operate at LOS B in the PM peak hour. In the AM peak hour, the intersection would operate at LOS B.

  Significance after Implementation of Mitigation: Less than significant.

The 95th percentile queues at LOS E or LOS F intersections under Cumulative (2030) plus Project (Phase I) Conditions as shown in **Table 10**, are summarized in **Table 11**.

As shown in **Table 11**, the 95th percentile queues in the following lane groups at LOS E or LOS F locations under Cumulative (2030) plus Project (Phase I and Phase II) Conditions would exceed the available storage capacity:

- Intersection #45: Grand Avenue / El Embarcadero (PM) – NETR;
- Intersection #47: Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (PM) – NER, SWL, and SELTR;
- Intersection #48: Lakeshore Avenue / MacArthur Boulevard (EB) / I-580 EB On-Ramp (PM) – NETR, SWL, and EBT;
- Intersection #49: Oakland Avenue / MacArthur Boulevard (WB) / Santa Clara Avenue / I-580 WB Off-Ramp (AM) – NWTR and NELT;
- Intersection #50: Harrison Street / MacArthur Boulevard (WB) / Santa Clara Avenue (AM) – NWL, NWT, and SWTR; and,
- Intersection #51: Oakland Avenue / Monte Vista Avenue (PM) – EBTR.

Table 11: 95th Percentile Queues – Cumulative (2030) plus Project (Phase I and Phase II) Conditions

				Cumulative (2030) Conditions			Cumulative (2030) plus Project (Phase I and Phase II) Conditions		
					Queue Length (ft)			Queue Length (ft)	
No.	Intersection	Lane Group		Storage Cap. (ft)	AM Peak Hour	PM Peak Hour	Storage Cap. (ft)	AM Peak Hour	PM Peak Hour
45	Grand Avenue / El Embarcadero	NE	TR	600	--	**1,031**	600	--	**1,121**
		SW	L	325	--	89[a]	325	--	92[a]
			T	325	--	0[a]	325	--	0[a]
		NW	LR	275	--	249	275	--	249
47	Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp	NE	T	350	--	173	350	--	163
			R	200	--	**477**	200	--	**508**
		SW	L	175	--	**770**	175	--	**770**
			T	425	--	257	425	--	273
		SE	LTR	375	--	**904**	375	--	**904**
48	Lakeshore Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp	NE	TR	250	--	**314**	250	--	**344**
		SW	L	150	--	**497**	150	--	**497**
			T	150	--	50	150	--	50
		EB	L	475	--	86	475	--	86
			T	475	--	**478**	475	--	**484**
			R	475	--	309	475	--	320
49	Oakland Avenue / MacArthur Boulevard (WB)	NW	TR	175	**610**	--	175	**663**	--
		NE	LT	200	**204**	--	200	**205**	--
50	Harrison Street / MacArthur Boulevard (WB) / Santa Clara Avenue	NW	L	250	**375**	--	250	**373**	--
			T	250	**379**	--	250	**379**	--
		SW	TR	300	**655**	--	300	**680**	--
51	Oakland Avenue / Monte Vista Avenue[b]	NB	LTR	250	--	5	250	--	5
		SB	LTR	275	--	15	275	--	15
		EB	L	50	--	28	50	--	28
			TR	150	--	**313**	150	--	**508**
		WB	LTR	350	--	35	350	--	38

Bold indicates exceedance of storage capacity.

[a] Volume for 95th percentile queue is metered by upstream signal.

[b] For all-way stop intersections, queue length represents average queue.

SOURCE: AECOM, 2009.

It should be noted, however, that the 95th percentile queues at the above locations already exceed the available storage capacity under Cumulative (2030) Conditions. At the following location where 95th percentile queues exceed storage capacity under Cumulative (2030) plus Project (Phase I and Phase II) Conditions, the Project would cause an increase of 25 feet or greater in 95th percentile queues:

- Intersection #45: Grand Avenue / El Embarcadero (PM) – NETR
  In the NETR lane group, the Project would cause an increase in 95th percentile queue length of 90 feet in the PM peak hour. Since the Project would cause an increase in 95th percentile queue

length greater than 25 feet, the Project would potentially result in a significant impact at this intersection.

As noted in the intersection impact discussion, this intersection would undergo geometric changes as part of Measure DD. The 95th percentile queue length on the NETR lane group would already exceed the storage capacity under Cumulative (2030) Conditions as a direct result of these changes. Therefore, the Project's impacts at this intersection are considered less than significant.

If the northeast Grand Avenue approach were restriped to accommodate an additional through lane, the 95th percentile queues in the PM peak hour would be reduced to 682 feet, which would still exceed the storage capacity, but mitigate the Project's impacts at this intersection

Mitigation: None required.

- Intersection #47: Grand Avenue / MacArthur Boulevard (EB) / I-580 EB Off-Ramp (PM) – NER
  In the NER lane group, the Project would cause an increase in 95th percentile queue length of 31 feet in the PM peak hour. Since the Project would cause an increase in 95th percentile queue length greater than 25 feet, the Project would potentially result in a significant impact at this intersection.

  Mitigation: After implementation of the mitigation measure proposed to mitigate LOS impacts at this intersection, the 95th percentile queues on the NER lane group under Cumulative (2030) plus Project (Phase I and Phase II) Conditions would be reduced to 330 feet in the PM peak hour, which would no longer exceed the available storage capacity.

  Significance after Implementation of Mitigation: Less than significant.

- Intersection #48: Lakeshore Avenue / MacArthur Boulevard (EB) / I-580 EB On-Ramp (PM) – NETR
  In the NETR lane group, the Project would cause an increase in 95th percentile queue length of 30 feet in the PM peak hour. Since the Project would cause an increase in 95th percentile queue length greater than 25 feet, the Project would potentially result in a significant impact at this intersection.

  Mitigation: After implementation of the mitigation measure proposed to mitigate LOS impacts at this intersection, the 95th percentile queues on the NER lane group under Cumulative (2030) plus Project (Phase I and Phase II) Conditions would still exceed the available storage capacity. Given geometric constraints after implementation of that mitigation measure, it would not be possible to make further changes to lane configuration to mitigate the Project's queuing impacts at this intersection. Therefore, the Project's impacts at this intersection are significant and unavoidable.

  Significance after Implementation of Mitigation: Significant and unavoidable.

- Intersection #49: Oakland Avenue / MacArthur Boulevard (WB) / Santa Clara Avenue / I-580 WB Off-Ramp (AM) – NWTR
  In the EBTR lane group, the Project would cause an increase in 95th percentile queue length of 195 feet in the PM peak hour. Since the Project would cause an increase in 95th percentile queue length greater than 25 feet, the Project would potentially result in a significant impact at this intersection.

Mitigation: After implementation of the mitigation measure proposed to mitigate LOS impacts at this intersection, the 95th percentile queues on the NER lane group under Cumulative (2030) plus Project (Phase I and Phase II) Conditions would be reduced to 337 feet, which would no longer exceed the available storage capacity.

Significance after Implementation of Mitigation: Less than significant.

- Intersection #51: Oakland Avenue / Monte Vista Avenue (PM) – EBTR
  In the EBTR lane group, the Project would cause an increase in 95th percentile queue length of 195 feet in the PM peak hour. Since the Project would cause an increase in the average queue length greater than 25 feet, the Project would potentially result in a significant impact at this intersection.

  Mitigation: After implementation of the mitigation measure proposed to mitigate LOS impacts at this intersection, the 95th percentile queues on the NER lane group under Cumulative (2030) plus Project (Phase I and Phase II) Conditions would be 299 feet, which would still exceed the available storage capacity, but mitigate the Project's impacts at this intersection.

  For the other lane groups, installation of a signal at this intersection would not result in 95th percentile queues that exceed the available storage capacity in the PM peak hour, except for the EBL lane group, which is currently striped as a 50-foot turn pocket. In the PM peak hour, the 95th percentile queues on the EBL lane group under Cumulative (2030) plus Project (Phase I and Phase II) Conditions would be 112 feet. Therefore, the Applicant, Owners, or Successors-in-Interest of the Project shall restripe the pocket with 125 feet of storage capacity.

  Significance after Implementation of Mitigation: Less than significant.

Kaiser Center Redevelopment Project
Transportation Study

Alternative Freeway Access Route Analysis
Technical Appendices

A: Intersection Turning Movement Counts
B: Level of Service Calculation Worksheets
C: Queue Calculation Worksheets

Appendix A

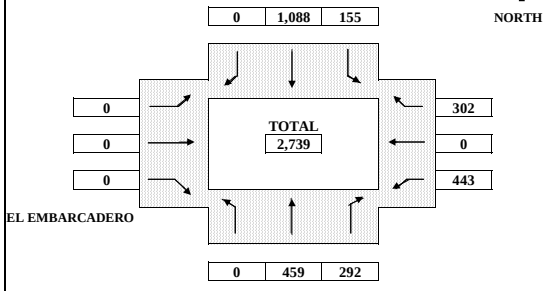
Intersection Turning Movement Counts

B.A.Y.M.E.T.R.I.C.S.

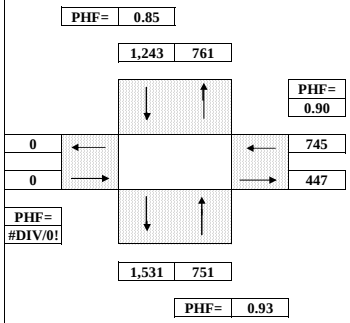
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	OAKLAND TRAFFIC STUDY	**SURVEY DATE:**	2008/11/12	**DAY:**	WEDNESDAY
N-S Approach:	GRAND AVENUE	**SURVEY TIME:**	7:00 午前	**TO**	9:00 午前
E-W Approach:	EL EMBARCADERO	**CITY:**	OAKLAND	**FILE:**	2811065-1AM

PEAK HOUR
08:00 午前 TO 09:00 午前



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
From		To	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
SURVEY DATA															
7:00 AM	---	7:15 午前	0	73	58	19	91	0	0	0	0	37	0	47	***325***
7:15 午前	---	7:30 午前	0	144	90	35	191	0	0	0	0	73	0	103	***636***
7:30 午前	---	7:45 午前	0	233	132	76	375	0	0	0	0	128	0	175	***1,119***
7:45 午前	---	8:00 午前	0	326	193	121	558	0	0	0	0	215	0	251	***1,664***
8:00 午前	---	8:15 午前	0	436	267	150	779	0	0	0	0	318	0	330	***2,280***
8:15 午前	---	8:30 午前	0	550	350	192	1,041	0	0	0	0	443	0	412	***2,988***
8:30 午前	---	8:45 午前	0	646	423	235	1,321	0	0	0	0	534	0	491	***3,650***
8:45 午前	---	9:00 午前	0	785	485	276	1,646	0	0	0	0	658	0	553	***4,403***
TOTAL BY PERIOD															
7:00 AM	---	7:15 午前	0	73	58	19	91	0	0	0	0	37	0	47	***325***
7:15 午前	---	7:30 午前	0	71	32	16	100	0	0	0	0	36	0	56	***311***
7:30 午前	---	7:45 午前	0	89	42	41	184	0	0	0	0	55	0	72	***483***
7:45 午前	---	8:00 午前	0	93	61	45	183	0	0	0	0	87	0	76	***545***
8:00 午前	---	8:15 午前	0	110	74	29	221	0	0	0	0	103	0	79	***616***
8:15 午前	---	8:30 午前	0	114	83	42	262	0	0	0	0	125	0	82	***708***
8:30 午前	---	8:45 午前	0	96	73	43	280	0	0	0	0	91	0	79	***662***
8:45 午前	---	9:00 午前	0	139	62	41	325	0	0	0	0	124	0	62	***753***
HOURLY TOTALS															
7:00 AM	---	8:00 午前	0	326	193	121	558	0	0	0	0	215	0	251	***1,664***
7:15 午前	---	8:15 午前	0	363	209	131	688	0	0	0	0	281	0	283	***1,955***
7:30 午前	---	8:30 午前	0	406	260	157	850	0	0	0	0	370	0	309	***2,352***
7:45 午前	---	8:45 午前	0	413	291	159	946	0	0	0	0	406	0	316	***2,531***
8:00 午前	---	9:00 午前	0	459	292	155	1,088	0	0	0	0	443	0	302	***2,739***

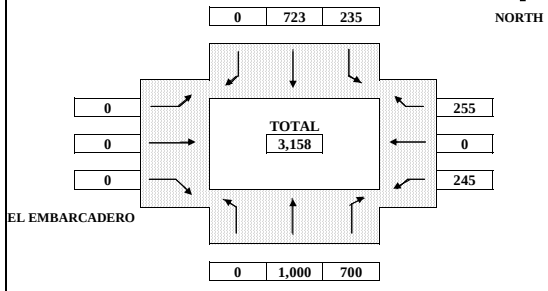
Telephone: (510)232-1271 **Fax: (510)232-1272**

B.A.Y.M.E.T.R.I.C.S.

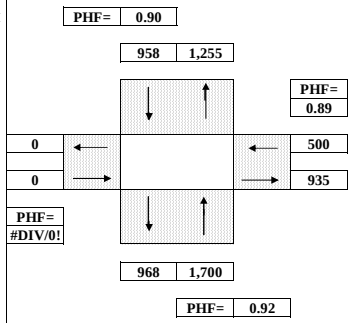
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	OAKLAND TRAFFIC STUDY	**SURVEY DATE:**	2008/11/06	**DAY:**	THURSDAY
N-S Approach:	GRAND AVENUE	**SURVEY TIME:**	4:00 午後	**TO**	6:00 午後
E-W Approach:	EL EMBARCADERO	**CITY:**	OAKLAND	**FILE:**	2811065-1PM

PEAK HOUR
05:00 午後 TO 06:00 午後



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
From		To	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
SURVEY DATA															
4:00 PM	---	4:15 午後	0	142	114	47	143	0	0	0	0	48	0	47	***541***
4:15 午後	---	4:30 午後	0	285	219	95	275	0	0	0	0	99	0	92	***1,065***
4:30 午後	---	4:45 午後	0	498	392	164	429	0	0	0	0	154	0	129	***1,766***
4:45 午後	---	5:00 午後	0	681	541	206	565	0	0	0	0	197	0	189	***2,379***
5:00 午後	---	5:15 午後	0	891	665	270	738	0	0	0	0	255	0	271	***3,090***
5:15 午後	---	5:30 午後	0	1,145	874	328	915	0	0	0	0	316	0	350	***3,928***
5:30 午後	---	5:45 午後	0	1,412	1,070	381	1,083	0	0	0	0	375	0	407	***4,728***
5:45 午後	---	6:00 午後	0	1,681	1,241	441	1,288	0	0	0	0	442	0	444	***5,537***
TOTAL BY PERIOD															
4:00 PM	---	4:15 午後	0	142	114	47	143	0	0	0	0	48	0	47	***541***
4:15 午後	---	4:30 午後	0	143	105	48	132	0	0	0	0	51	0	45	***524***
4:30 午後	---	4:45 午後	0	213	173	69	154	0	0	0	0	55	0	37	***701***
4:45 午後	---	5:00 午後	0	183	149	42	136	0	0	0	0	43	0	60	***613***
5:00 午後	---	5:15 午後	0	210	124	64	173	0	0	0	0	58	0	82	***711***
5:15 午後	---	5:30 午後	0	254	209	58	177	0	0	0	0	61	0	79	***838***
5:30 午後	---	5:45 午後	0	267	196	53	168	0	0	0	0	59	0	57	***800***
5:45 午後	---	6:00 午後	0	269	171	60	205	0	0	0	0	67	0	37	***809***
HOURLY TOTALS															
4:00 PM	---	5:00 午後	0	681	541	206	565	0	0	0	0	197	0	189	***2,379***
4:15 午後	---	5:15 午後	0	749	551	223	595	0	0	0	0	207	0	224	***2,549***
4:30 午後	---	5:30 午後	0	860	655	233	640	0	0	0	0	217	0	258	***2,863***
4:45 午後	---	5:45 午後	0	914	678	217	654	0	0	0	0	221	0	278	***2,962***
5:00 午後	---	6:00 午後	0	1,000	700	235	723	0	0	0	0	245	0	255	***3,158***

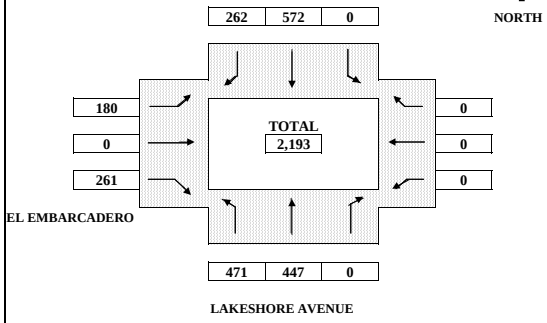
Telephone: (510)232-1271 **Fax: (510)232-1272**

B.A.Y.M.E.T.R.I.C.S.

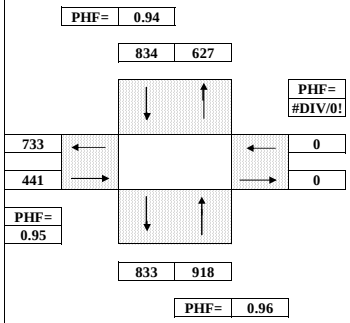
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	OAKLAND TRAFFIC STUDY	**SURVEY DATE:**	2008/11/12	**DAY:**	WEDNESDAY
N-S Approach:	LAKESHORE AVENUE	**SURVEY TIME:**	7:00 午前	**TO**	9:00 午前
E-W Approach:	EL EMBARCADERO	**CITY:**	OAKLAND	**FILE:**	2811065-2AM

PEAK HOUR
08:00 午前 TO 09:00 午前



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
7:00 AM	---	7:15 午前	62	60	0	0	67	25	35	0	32	0	0	0	***281***
7:15 午前	---	7:30 午前	127	150	0	0	186	47	59	0	57	0	0	0	***626***
7:30 午前	---	7:45 午前	218	250	0	0	343	85	87	0	108	0	0	0	***1,091***
7:45 午前	---	8:00 午前	336	372	0	0	494	128	123	0	175	0	0	0	***1,628***
8:00 午前	---	8:15 午前	461	479	0	0	627	184	176	0	238	0	0	0	***2,165***
8:15 午前	---	8:30 午前	586	587	0	0	759	258	224	0	302	0	0	0	***2,716***
8:30 午前	---	8:45 午前	693	702	0	0	908	331	273	0	365	0	0	0	***3,272***
8:45 午前	---	9:00 午前	807	819	0	0	1,066	390	303	0	436	0	0	0	***3,821***
TOTAL BY PERIOD															
7:00 AM	---	7:15 午前	62	60	0	0	67	25	35	0	32	0	0	0	***281***
7:15 午前	---	7:30 午前	65	90	0	0	119	22	24	0	25	0	0	0	***345***
7:30 午前	---	7:45 午前	91	100	0	0	157	38	28	0	51	0	0	0	***465***
7:45 午前	---	8:00 午前	118	122	0	0	151	43	36	0	67	0	0	0	***537***
8:00 午前	---	8:15 午前	125	107	0	0	133	56	53	0	63	0	0	0	***537***
8:15 午前	---	8:30 午前	125	108	0	0	132	74	48	0	64	0	0	0	***551***
8:30 午前	---	8:45 午前	107	115	0	0	149	73	49	0	63	0	0	0	***556***
8:45 午前	---	9:00 午前	114	117	0	0	158	59	30	0	71	0	0	0	***549***
HOURLY TOTALS															
7:00 AM	---	8:00 午前	336	372	0	0	494	128	123	0	175	0	0	0	***1,628***
7:15 午前	---	8:15 午前	399	419	0	0	560	159	141	0	206	0	0	0	***1,884***
7:30 午前	---	8:30 午前	459	437	0	0	573	211	165	0	245	0	0	0	***2,090***
7:45 午前	---	8:45 午前	475	452	0	0	565	246	186	0	257	0	0	0	***2,181***
8:00 午前	---	9:00 午前	471	447	0	0	572	262	180	0	261	0	0	0	***2,193***

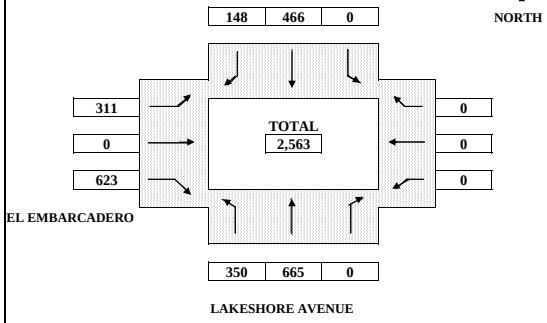
Telephone: (510)232-1271 **Fax: (510)232-1272**

B.A.Y.M.E.T.R.I.C.S.

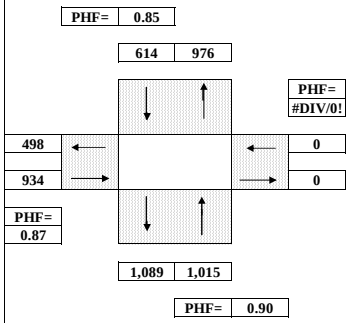
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	OAKLAND TRAFFIC STUDY	**SURVEY DATE:**	2008/11/06	**DAY:**	THURSDAY
N-S Approach:	LAKESHORE AVENUE	**SURVEY TIME:**	4:00 午後	**TO**	6:00 午後
E-W Approach:	EL EMBARCADERO	**CITY:**	OAKLAND	**FILE:**	2811065-2PM

PEAK HOUR
05:00 午後 TO 06:00 午後



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
4:00 PM	---	4:15 午後	61	136	0	0	120	35	67	0	95	0	0	0	***514***
4:15 午後	---	4:30 午後	127	258	0	0	221	65	124	0	191	0	0	0	***986***
4:30 午後	---	4:45 午後	194	396	0	0	325	91	185	0	376	0	0	0	***1,567***
4:45 午後	---	5:00 午後	261	525	0	0	448	127	274	0	475	0	0	0	***2,110***
5:00 午後	---	5:15 午後	355	713	0	0	582	173	359	0	578	0	0	0	***2,760***
5:15 午後	---	5:30 午後	459	866	0	0	692	207	443	0	761	0	0	0	***3,428***
5:30 午後	---	5:45 午後	541	1,059	0	0	798	241	526	0	926	0	0	0	***4,091***
5:45 午後	---	6:00 午後	611	1,190	0	0	914	275	585	0	1,098	0	0	0	***4,673***
TOTAL BY PERIOD															
4:00 PM	---	4:15 午後	61	136	0	0	120	35	67	0	95	0	0	0	***514***
4:15 午後	---	4:30 午後	66	122	0	0	101	30	57	0	96	0	0	0	***472***
4:30 午後	---	4:45 午後	67	138	0	0	104	26	61	0	185	0	0	0	***581***
4:45 午後	---	5:00 午後	67	129	0	0	123	36	89	0	99	0	0	0	***543***
5:00 午後	---	5:15 午後	94	188	0	0	134	46	85	0	103	0	0	0	***650***
5:15 午後	---	5:30 午後	104	153	0	0	110	34	84	0	183	0	0	0	***668***
5:30 午後	---	5:45 午後	82	193	0	0	106	34	83	0	165	0	0	0	***663***
5:45 午後	---	6:00 午後	70	131	0	0	116	34	59	0	172	0	0	0	***582***
HOURLY TOTALS															
4:00 PM	---	5:00 午後	261	525	0	0	448	127	274	0	475	0	0	0	***2,110***
4:15 午後	---	5:15 午後	294	577	0	0	462	138	292	0	483	0	0	0	***2,246***
4:30 午後	---	5:30 午後	332	608	0	0	471	142	319	0	570	0	0	0	***2,442***
4:45 午後	---	5:45 午後	347	663	0	0	473	150	341	0	550	0	0	0	***2,524***
5:00 午後	---	6:00 午後	350	665	0	0	466	148	311	0	623	0	0	0	***2,563***

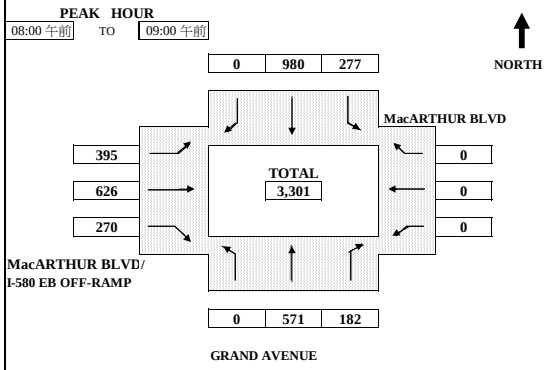
Telephone: (510)232-1271 **Fax: (510)232-1272**

B.A.Y.M.E.T.R.I.C.S.

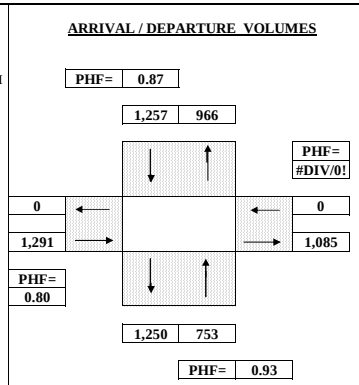
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**OAKLAND TRAFFIC STUDY**	**SURVEY DATE:**	**2008/11/12**	**DAY:**	**WEDNESDAY**
N-S Approach:	**GRAND AVENUE**	**SURVEY TIME:**	**7:00 午前**	**TO**	**9:00 午前**
E-W Approach:	**MacARTHUR BLVD / I-580 EB OFF-RAMP**	**CITY:**	**OAKLAND**	**FILE:**	**2811065-3AM**

PEAK HOUR
08:00 午前 TO 09:00 午前



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
From		To	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
SURVEY DATA															
7:00 AM	---	7:15 午前	0	91	27	32	87	0	43	67	21	0	0	0	***368***
7:15 午前	---	7:30 午前	0	193	48	53	179	0	87	164	47	0	0	0	***771***
7:30 午前	---	7:45 午前	0	314	90	95	351	0	143	275	100	0	0	0	***1,368***
7:45 午前	---	8:00 午前	0	440	133	162	534	0	210	411	144	0	0	0	***2,034***
8:00 午前	---	8:15 午前	0	588	174	212	715	0	319	577	209	0	0	0	***2,794***
8:15 午前	---	8:30 午前	0	744	216	284	972	0	401	731	260	0	0	0	***3,608***
8:30 午前	---	8:45 午前	0	868	255	371	1,221	0	479	859	316	0	0	0	***4,369***
8:45 午前	---	9:00 午前	0	1,011	315	439	1,514	0	605	1,037	414	0	0	0	***5,335***
TOTAL BY PERIOD															
7:00 AM	---	7:15 午前	0	91	27	32	87	0	43	67	21	0	0	0	***368***
7:15 午前	---	7:30 午前	0	102	21	21	92	0	44	97	26	0	0	0	***403***
7:30 午前	---	7:45 午前	0	121	42	42	172	0	56	111	53	0	0	0	***597***
7:45 午前	---	8:00 午前	0	126	43	67	183	0	67	136	44	0	0	0	***666***
8:00 午前	---	8:15 午前	0	148	41	50	181	0	109	166	65	0	0	0	***760***
8:15 午前	---	8:30 午前	0	156	42	72	257	0	82	154	51	0	0	0	***814***
8:30 午前	---	8:45 午前	0	124	39	87	249	0	78	128	56	0	0	0	***761***
8:45 午前	---	9:00 午前	0	143	60	68	293	0	126	178	98	0	0	0	***966***
HOURLY TOTALS															
7:00 AM	---	8:00 午前	0	440	133	162	534	0	210	411	144	0	0	0	***2,034***
7:15 午前	---	8:15 午前	0	497	147	180	628	0	276	510	188	0	0	0	***2,426***
7:30 午前	---	8:30 午前	0	551	168	231	793	0	314	567	213	0	0	0	***2,837***
7:45 午前	---	8:45 午前	0	554	165	276	870	0	336	584	216	0	0	0	***3,001***
8:00 午前	---	9:00 午前	0	571	182	277	980	0	395	626	270	0	0	0	***3,301***

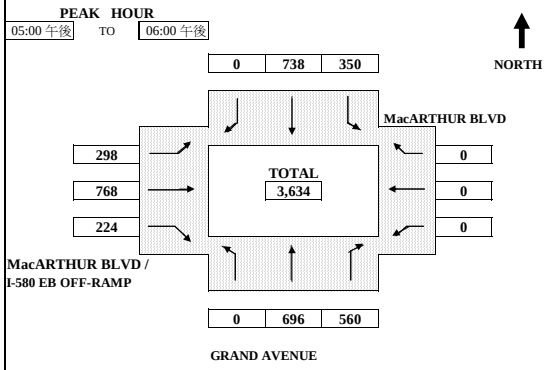
Telephone: (510)232-1271 **Fax: (510)232-1272**

B.A.Y.M.E.T.R.I.C.S.

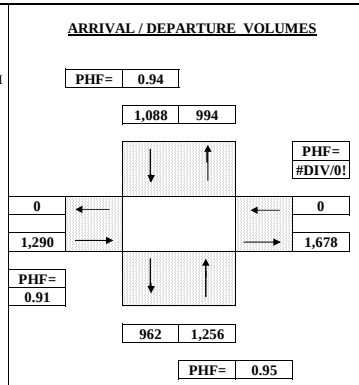
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**OAKLAND TRAFFIC STUDY**	**SURVEY DATE:**	**2008/11/06**	**DAY:**	**THURSDAY**
N-S Approach:	**GRAND AVENUE**	**SURVEY TIME:**	**4:00 午後**	**TO**	**6:00 午後**
E-W Approach:	**MacARTHUR BLVD / I-580 EB OFF-RAMP**	**CITY:**	**OAKLAND**	**FILE:**	**2811065-3PM**

PEAK HOUR
05:00 午後 TO 06:00 午後



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
From		To	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
SURVEY DATA															
4:00 PM	---	4:15 午後	0	115	72	80	134	0	85	158	62	0	0	0	***706***
4:15 午後	---	4:30 午後	0	232	140	145	263	0	176	286	110	0	0	0	***1,352***
4:30 午後	---	4:45 午後	0	351	260	219	420	0	267	479	181	0	0	0	***2,177***
4:45 午後	---	5:00 午後	0	497	365	302	568	0	339	687	214	0	0	0	***2,972***
5:00 午後	---	5:15 午後	0	656	492	379	740	0	415	898	277	0	0	0	***3,857***
5:15 午後	---	5:30 午後	0	843	633	476	925	0	493	1,105	325	0	0	0	***4,800***
5:30 午後	---	5:45 午後	0	1,007	799	565	1,104	0	563	1,272	371	0	0	0	***5,681***
5:45 午後	---	6:00 午後	0	1,193	925	652	1,306	0	637	1,455	438	0	0	0	***6,606***
TOTAL BY PERIOD															
4:00 PM	---	4:15 午後	0	115	72	80	134	0	85	158	62	0	0	0	***706***
4:15 午後	---	4:30 午後	0	117	68	65	129	0	91	128	48	0	0	0	***646***
4:30 午後	---	4:45 午後	0	119	120	74	157	0	91	193	71	0	0	0	***825***
4:45 午後	---	5:00 午後	0	146	105	83	148	0	72	208	33	0	0	0	***795***
5:00 午後	---	5:15 午後	0	159	127	77	172	0	76	211	63	0	0	0	***885***
5:15 午後	---	5:30 午後	0	187	141	97	185	0	78	207	48	0	0	0	***943***
5:30 午後	---	5:45 午後	0	164	166	89	179	0	70	167	46	0	0	0	***881***
5:45 午後	---	6:00 午後	0	186	126	87	202	0	74	183	67	0	0	0	***925***
HOURLY TOTALS															
4:00 PM	---	5:00 午後	0	497	365	302	568	0	339	687	214	0	0	0	***2,972***
4:15 午後	---	5:15 午後	0	541	420	299	606	0	330	740	215	0	0	0	***3,151***
4:30 午後	---	5:30 午後	0	611	493	331	662	0	317	819	215	0	0	0	***3,448***
4:45 午後	---	5:45 午後	0	656	539	346	684	0	296	793	190	0	0	0	***3,504***
5:00 午後	---	6:00 午後	0	696	560	350	738	0	298	768	224	0	0	0	***3,634***

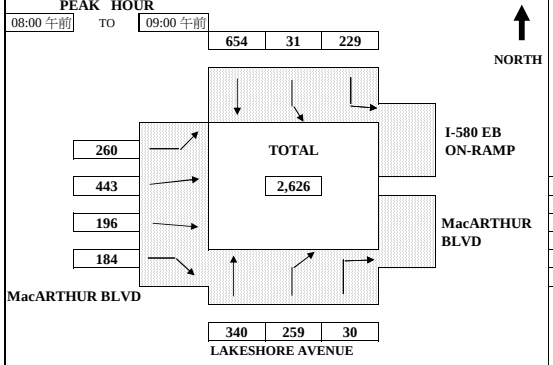
Telephone: (510)232-1271 **Fax: (510)232-1272**

B.A.Y.M.E.T.R.I.C.S.

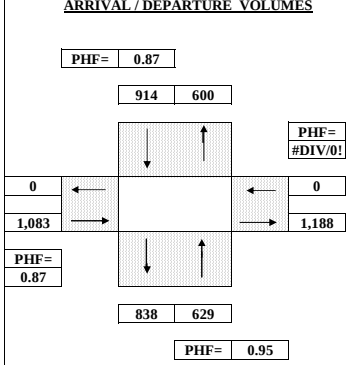
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**OAKLAND TRAFFIC STUDY**	**SURVEY DATE:**	**2008/11/12**	**DAY:**	**WEDNESDAY**
N-S Approach:	**LAKESHORE AVENUE**	**SURVEY TIME:**	**7:00 午前**	**TO**	**9:00 午前**
E-W Approach:	**MacARTHUR BLVD / I-580 EB ON-RAMP**	**CITY:**	**OAKLAND**	**FILE:**	**2811065-4AM**

PEAK HOUR
08:00 午前 TO 09:00 午前



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND				WESTBOUND		
From		To	Thur	To 580	To Mac	Thru	To Mac	To 580	Left	To 580	To Mac	Right			TOTAL
SURVEY DATA															
7:00 AM	---	7:15 午前	28	58	7	71	5	57	30	57	20	18	0	0	***351***
7:15 午前	---	7:30 午前	84	112	10	191	8	133	55	132	45	40	0	0	***810***
7:30 午前	---	7:45 午前	151	165	15	365	17	213	85	233	81	68	0	0	***1,393***
7:45 午前	---	8:00 午前	230	237	25	511	21	307	118	365	122	110	0	0	***2,046***
8:00 午前	---	8:15 午前	320	298	34	666	29	357	178	474	171	150	0	0	***2,677***
8:15 午前	---	8:30 午前	405	360	43	817	33	427	228	582	222	202	0	0	***3,319***
8:30 午前	---	8:45 午前	489	436	49	996	43	494	298	682	263	244	0	0	***3,994***
8:45 午前	---	9:00 午前	570	496	55	1,165	52	536	378	808	318	294	0	0	***4,672***
TOTAL BY PERIOD															
7:00 AM	---	7:15 午前	28	58	7	71	5	57	30	57	20	18	0	0	***351***
7:15 午前	---	7:30 午前	56	54	3	120	3	76	25	75	25	22	0	0	***459***
7:30 午前	---	7:45 午前	67	53	5	174	9	80	30	101	36	28	0	0	***583***
7:45 午前	---	8:00 午前	79	72	10	146	4	94	33	132	41	42	0	0	***653***
8:00 午前	---	8:15 午前	90	61	9	155	8	50	60	109	49	40	0	0	***631***
8:15 午前	---	8:30 午前	85	62	9	151	4	70	50	108	51	52	0	0	***642***
8:30 午前	---	8:45 午前	84	76	6	179	10	67	70	100	41	42	0	0	***675***
8:45 午前	---	9:00 午前	81	60	6	169	9	42	80	126	55	50	0	0	***678***
HOURLY TOTALS															
7:00 AM	---	8:00 午前	230	237	25	511	21	307	118	365	122	110	0	0	***2,046***
7:15 午前	---	8:15 午前	292	240	27	595	24	300	148	417	151	132	0	0	***2,326***
7:30 午前	---	8:30 午前	321	248	33	626	25	294	173	450	177	162	0	0	***2,509***
7:45 午前	---	8:45 午前	338	271	34	631	26	281	213	449	182	176	0	0	***2,601***
8:00 午前	---	9:00 午前	340	259	30	654	31	229	260	443	196	184	0	0	***2,626***

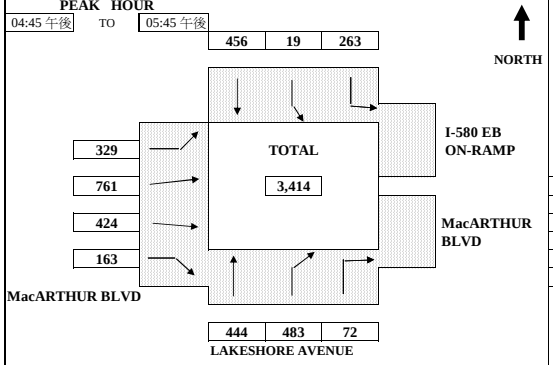
Telephone: (510)232-1271 **Fax: (510)232-1272**

B.A.Y.M.E.T.R.I.C.S.

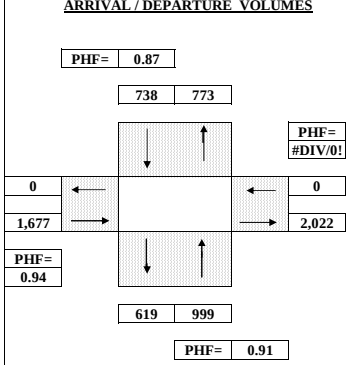
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	**OAKLAND TRAFFIC STUDY**	**SURVEY DATE:**	**2008/11/06**	**DAY:**	**THURSDAY**
N-S Approach:	**LAKESHORE AVENUE**	**SURVEY TIME:**	**4:00 午後**	**TO**	**6:00 午後**
E-W Approach:	**MacARTHUR BLVD / I-580 EB ON-RAMP**	**CITY:**	**OAKLAND**	**FILE:**	**2811065-4PM**

PEAK HOUR
04:45 午後 TO 05:45 午後



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD			NORTHBOUND			SOUTHBOUND			EASTBOUND				WESTBOUND		
From		To	Thur	To 580	To Mac	Thru	To Mac	To 580	Left	To 580	To Mac	Right			TOTAL
SURVEY DATA															
4:00 PM	---	4:15 午後	84	121	0	104	0	76	8	176	86	42	0	0	***697***
4:15 午後	---	4:30 午後	166	206	7	191	6	138	50	311	129	83	0	0	***1,287***
4:30 午後	---	4:45 午後	253	309	11	279	11	206	191	447	194	128	0	0	***2,029***
4:45 午後	---	5:00 午後	351	424	27	385	18	272	264	629	280	183	0	0	***2,833***
5:00 午後	---	5:15 午後	461	567	40	522	20	344	318	832	395	224	0	0	***3,723***
5:15 午後	---	5:30 午後	560	675	63	619	24	405	435	1,017	496	267	0	0	***4,561***
5:30 午後	---	5:45 午後	697	792	83	735	30	469	520	1,208	618	291	0	0	***5,443***
5:45 午後	---	6:00 午後	790	879	100	848	36	537	591	1,362	750	329	0	0	***6,222***
TOTAL BY PERIOD															
4:00 PM	---	4:15 午後	84	121	0	104	0	76	8	176	86	42	0	0	***697***
4:15 午後	---	4:30 午後	82	85	7	87	6	62	42	135	43	41	0	0	***590***
4:30 午後	---	4:45 午後	87	103	4	88	5	68	141	136	65	45	0	0	***742***
4:45 午後	---	5:00 午後	98	115	16	106	7	66	73	182	86	55	0	0	***804***
5:00 午後	---	5:15 午後	110	143	13	137	2	72	54	203	115	41	0	0	***890***
5:15 午後	---	5:30 午後	99	108	23	97	4	61	117	185	101	43	0	0	***838***
5:30 午後	---	5:45 午後	137	117	20	116	6	64	85	191	122	24	0	0	***882***
5:45 午後	---	6:00 午後	93	87	17	113	6	68	71	154	132	38	0	0	***779***
HOURLY TOTALS															
4:00 PM	---	5:00 午後	351	424	27	385	18	272	264	629	280	183	0	0	***2,833***
4:15 午後	---	5:15 午後	377	446	40	418	20	268	310	656	309	182	0	0	***3,026***
4:30 午後	---	5:30 午後	394	469	56	428	18	267	385	706	367	184	0	0	***3,274***
4:45 午後	---	5:45 午後	444	483	72	456	19	263	329	761	424	163	0	0	***3,414***
5:00 午後	---	6:00 午後	439	455	73	463	18	265	327	733	470	146	0	0	***3,389***

Telephone: (510)232-1271 **Fax: (510)232-1272**

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

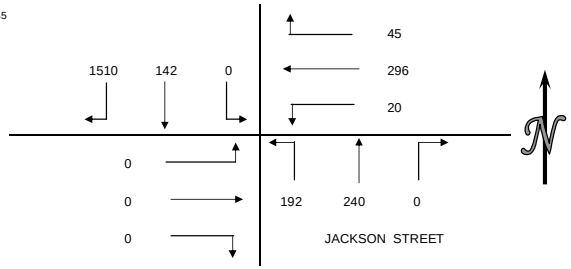
CLIENT: DOWLING ASSOCIATES
PROJECT: 1938 BROADWAY TRAFFIC COUNTS
DATE: THURSDAY OCTOBER 23, 2008
PERIOD" 7:00 AM TO 9:00 AM
INTERSECTION: N/S JACKSON STREET
E/W 6TH STREET
CITY: OAKLAND

VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
700-715	277	19	0	7	65	3	0	33	38	0	0	0	442
715-730	373	36	0	10	71	6	0	33	43	0	0	0	572
730-745	336	19	0	9	81	2	0	42	61	0	0	0	550
745-800	392	33	0	9	77	5	0	69	57	0	0	0	642
800-815	368	26	0	11	73	5	0	54	47	0	0	0	584
815-830	399	39	0	13	77	3	0	65	41	0	0	0	637
830-845	351	44	0	12	69	7	0	52	47	0	0	0	582
845-900	320	42	0	7	96	5	0	66	50	0	0	0	586
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
700-800	1378	107	0	35	294	16	0	177	199	0	0	0	2206
715-815	1469	114	0	39	302	18	0	198	208	0	0	0	2348
730-830	1495	117	0	42	308	15	0	230	206	0	0	0	2413
745-845	1510	142	0	45	296	20	0	240	192	0	0	0	2445
800-900	1438	151	0	43	315	20	0	237	185	0	0	0	2389

PHF 0.946115 0.806818 0.865385 0.961039 0.714286 0.869565 0.842105

AM PEAK HOUR: 745-845



PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-715	0	1	0	2	3
715-730	0	8	0	1	9
730-745	0	8	0	0	8
745-800	0	15	1	1	17
800-815	1	19	0	0	20
815-830	1	11	1	0	13
830-845	0	12	0	1	13
845-900	0	14	0	1	15
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-800	0	32	1	4	37
715-815	1	50	1	2	54
730-830	2	53	2	1	58
745-845	2	57	2	2	63
800-900	2	56	1	2	61

BICYCLE COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-715	0	0	0	1	1
715-730	0	0	0	0	0
730-745	0	0	0	0	0
745-800	0	0	0	0	0
800-815	0	0	0	0	0
815-830	0	0	0	0	0
830-845	0	0	0	0	0
845-900	0	0	0	0	0
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
700-800	0	0	0	1	1
715-815	0	0	0	0	0
730-830	0	0	0	0	0
745-845	0	0	0	0	0
800-900	0	0	0	0	0

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION CAR/PED/BIKE TRAFFIC COUNT RESULTS SUMMARY

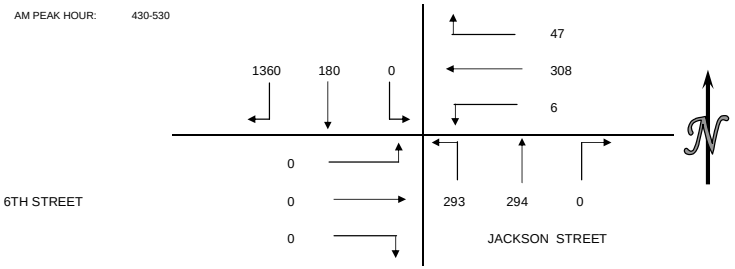
CLIENT: DOWLING ASSOCIATES
PROJECT: 1938 BROADWAY TRAFFIC COUNTS
DATE: THURSDAY OCTOBER 23, 2008
PERIOD" 4:00 PM TO 6:00 PM
INTERSECTION: N/S JACKSON STREET
E/W 6TH STREET
CITY: OAKLAND

VEHICLE COUNTS

15 MIN COUNTS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
400-415	335	42	0	7	101	1	0	60	73	0	0	0	619
415-430	307	29	0	9	67	1	0	52	70	0	0	0	535
430-445	345	45	0	11	97	2	0	79	87	0	0	0	666
445-500	329	43	0	11	53	1	0	82	74	0	0	0	593
500-515	348	49	0	11	99	0	0	76	72	0	0	0	655
515-530	338	43	0	14	59	3	0	57	60	0	0	0	574
530-545	336	48	0	9	83	1	0	56	52	0	0	0	585
545-600	304	52	0	19	83	4	0	59	69	0	0	0	590
HOUR TOTALS	1	2	3	4	5	6	7	8	9	10	11	12	
PERIOD	SBRT	SBTH	SBLT	WBRT	WBTH	WBLT	NBRT	NBTH	NBLT	EBRT	EBTH	EBLT	TOTAL
400-500	1316	159	0	38	318	5	0	273	304	0	0	0	2413
415-515	1329	166	0	42	316	4	0	289	303	0	0	0	2449
430-530	1360	180	0	47	308	6	0	294	293	0	0	0	2488
445-545	1351	183	0	45	294	5	0	271	258	0	0	0	2407
500-600	1326	192	0	53	324	8	0	248	253	0	0	0	2404

PHF 0.977011 0.918367 0.839286 0.777778 0.5 0.896341 0.841954

AM PEAK HOUR: 430-530



PEDESTRIAN COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-415	0	11	0	0	11
415-430	0	3	0	0	3
430-445	0	7	0	0	7
445-500	0	3	0	0	3
500-515	0	9	0	0	9
515-530	0	4	0	0	4
530-545	0	6	0	0	6
545-600	0	8	0	0	8
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-500	0	24	0	0	24
415-515	0	22	0	0	22
430-530	0	23	0	0	23
445-545	0	22	0	0	22
500-600	0	27	0	0	27

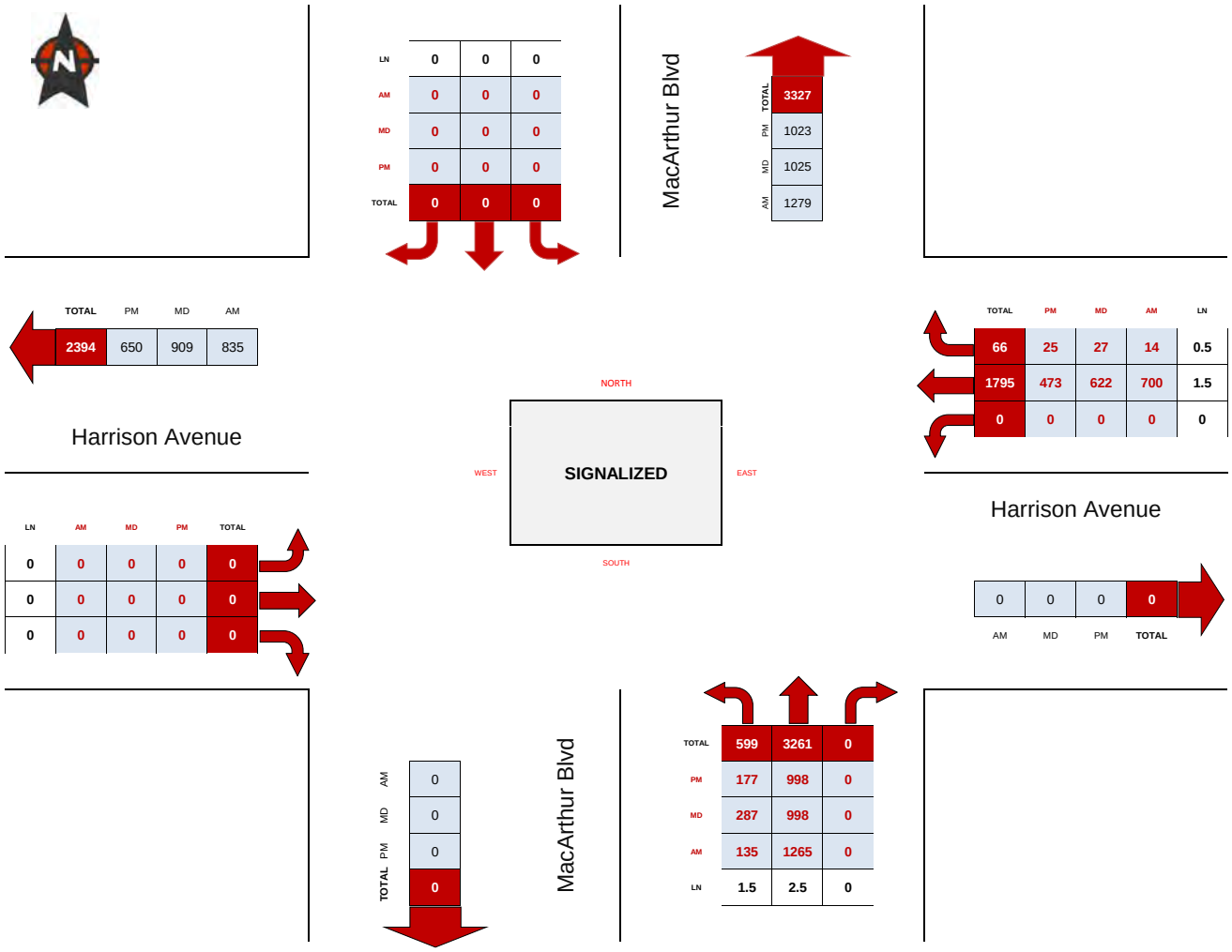
BICYCLE COUNTS

15 MIN COUNTS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-415	0	0	0	0	0
415-430	0	0	0	1	1
430-445	0	0	0	0	0
445-500	0	0	0	0	0
500-515	0	2	0	0	2
515-530	0	0	0	0	0
530-545	0	2	0	0	2
545-600	0	0	0	0	0
HOUR TOTALS	NORTH	EAST	SOUTH	WEST	TOTAL
PERIOD	LEG	LEG	LEG	LEG	
400-500	0	0	0	1	1
415-515	0	2	0	1	3
430-530	0	2	0	0	2
445-545	0	4	0	0	4
500-600	0	4	0	0	4

PEAK HOUR ITM SUMMARY

#013 MacArthur Blvd & Harrison Avenue

LOCATION #:	013	QTD PRJ #:	080170	AM PEAK:	800 AM
NORTH / SOUTH:	MacArthur Blvd	DATE:	Wednesday, April 16, 2008	MD PEAK:	1230 PM
EAST / WEST:	Harrison Avenue	VICINITY:	OAKLAND, CA	PM PEAK:	500 PM



AM COUNT	7:00 AM	TO	9:00 AM	MD COUNT	12:00 PM	TO	2:00 PM	PM COUNT	4:00 PM	TO	6:00 PM

QUALITY TRAFFIC DATA, LLC
11040 Santa Monica Blvd, Suite 207, Los Angeles, CA 90025
Phone: 310-341-0019 Fax: 310-807-9247 Info@QualityTrafficData.com

VEHICLE TURNING MOVEMENT COUNT

#013 MacArthur Blvd & Harrison Avenue - AM PEAK

LOCATION #:	013	QTD PRJ #:	080170
NORTH / SOUTH:	MacArthur Blvd	DATE:	Wednesday, April 16, 2008
EAST / WEST:	Harrison Avenue	VICINITY:	OAKLAND, CA

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS:
LANES:	1.5	2.5	0	0	0	0	0	0	0	0	1.5	0.5	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	38	290	0	0	0	0	0	0	0	0	119	5	452
7:15 AM	42	296	0	0	0	0	0	0	0	0	177	3	518
7:30 AM	97	302	0	0	0	0	0	0	0	0	188	8	595
7:45 AM	62	298	0	0	0	0	0	0	0	0	112	6	478
8:00 AM	44	291	0	0	0	0	0	0	0	0	110	2	447
8:15 AM	34	338	0	0	0	0	0	0	0	0	178	3	553
8:30 AM	29	345	0	0	0	0	0	0	0	0	226	5	605
8:45 AM	28	291	0	0	0	0	0	0	0	0	186	4	509
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	374	2451	0	0	0	0	0	0	0	0	1296	36	4157
P.H.V: [1]	135	1265	0	0	0	0	0	0	0	0	700	14	2114
P.H.F: [2]		0.936			0.000			0.000			0.773		0.874

(1) Peak Hour Volume (Peak Hour Begins At 800 AM)
(2) Peak Hour Factor (directional aggregate)

QUALITY TRAFFIC DATA, LLC
11040 Santa Monica Blvd, Suite 207, Los Angeles, CA 90025
Phone: 310-341-0019 Fax: 310-807-9247 Info@QualityTrafficData.com

VEHICLE TURNING MOVEMENT COUNT

#013 MacArthur Blvd & Harrison Avenue - PM PEAK

LOCATION #:	013	QTD PRJ #:	080170
NORTH / SOUTH:	MacArthur Blvd	DATE:	Wednesday, April 16, 2008
EAST / WEST:	Harrison Avenue	VICINITY:	OAKLAND, CA

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS:
LANES:	1.5	2.5	0	0	0	0	0	0	0	0	1.5	0.5	
4:00 PM	34	220	0	0	0	0	0	0	0	0	127	8	389
4:15 PM	41	232	0	0	0	0	0	0	0	0	134	9	416
4:30 PM	55	251	0	0	0	0	0	0	0	0	100	4	410
4:45 PM	51	231	0	0	0	0	0	0	0	0	105	4	391
5:00 PM	57	236	0	0	0	0	0	0	0	0	115	14	422
5:15 PM	46	261	0	0	0	0	0	0	0	0	112	7	426
5:30 PM	38	252	0	0	0	0	0	0	0	0	129	2	421
5:45 PM	36	249	0	0	0	0	0	0	0	0	117	2	404
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	358	1932	0	0	0	0	0	0	0	0	939	50	3279
P.H.V. [1]	177	998	0	0	0	0	0	0	0	0	473	25	1673
P.H.F. [2]		0.957			0.000			0.000			0.950		0.982

(1) Peak Hour Volume (Peak Hour Begins At 500 PM)
(2) Peak Hour Factor (directional aggregate)

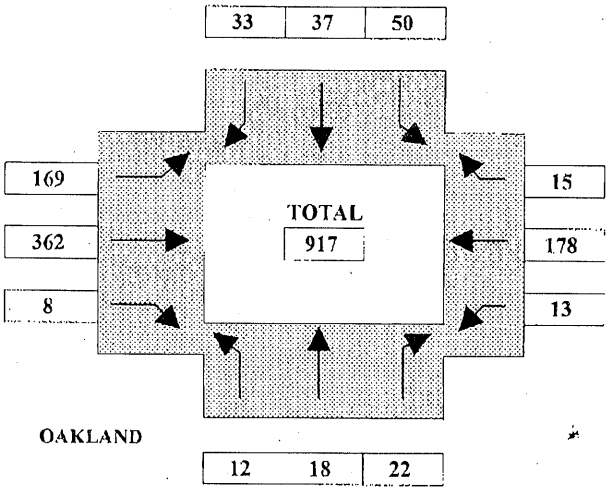
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BAYMETRICS TRAFFIC RESOURCES

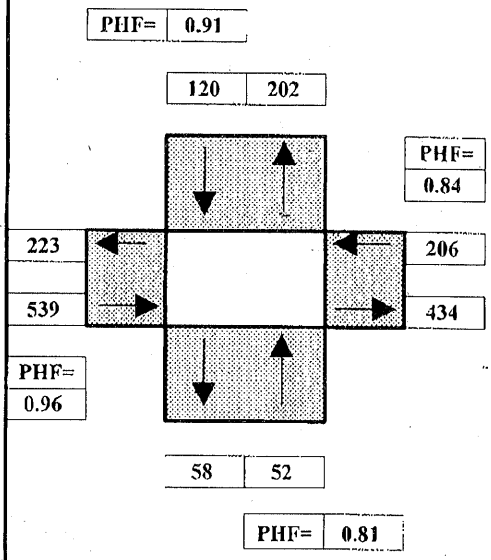
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	412 COURT ST. TS	SURVEY DATE: 7/31/2007	DAY: TUESDAY
N-S Approach:	MONTE VISTA	SURVEY TIME: 7:00 AM	TO 9:00 AM
E-W Approach:	OAKLAND	CITY: OAKLAND	FILE: OLMVOLAM

PEAK HOUR
08:00 AM TO 09:00 AM



ARRIVAL/DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	NORTHBOUND Thru	NORTHBOUND Right	SOUTHBOUND Left	SOUTHBOUND Thru	SOUTHBOUND Right	EASTBOUND Left	EASTBOUND Thru	EASTBOUND Right	WESTBOUND Left	WESTBOUND Thru	WESTBOUND Right	TOTAL
SURVEY DATA															
07:00 AM	---	07:15 AM	0	1	3	7	5	4	25	59	2	2	56	3	*167*
07:15 AM	---	07:30 AM	2	1	10	17	13	10	55	127	3	5	107	5	*355*
07:30 AM	---	07:45 AM	3	2	15	29	24	15	79	199	3	9	155	10	*543*
07:45 AM	---	08:00 AM	3	4	23	39	33	22	114	284	7	11	207	14	*761*
08:00 AM	---	08:15 AM	7	10	29	53	45	25	156	380	10	15	247	20	*997*
08:15 AM	---	08:30 AM	10	13	36	70	53	33	203	468	13	17	300	22	*1,238*
08:30 AM	---	08:45 AM	13	18	40	81	60	43	241	553	13	20	344	25	*1,451*
08:45 AM	---	09:00 AM	15	22	45	89	70	55	283	646	15	24	385	29	*1,678*
TOTAL BY PERIOD															
07:00 AM	---	07:15 AM	0	1	3	7	5	4	25	59	2	2	56	3	*167*
07:15 AM	---	07:30 AM	2	0	7	10	8	6	30	68	1	3	51	2	*188*
07:30 AM	---	07:45 AM	1	1	5	12	11	5	24	72	0	4	48	5	*188*
07:45 AM	---	08:00 AM	0	2	8	10	9	7	35	85	4	2	52	4	*218*
08:00 AM	---	08:15 AM	4	6	6	14	12	3	42	96	3	4	40	6	*236*
08:15 AM	---	08:30 AM	3	3	7	17	8	8	47	88	3	2	53	2	*241*
08:30 AM	---	08:45 AM	3	5	4	11	7	10	38	85	0	3	44	3	*213*
08:45 AM	---	09:00 AM	2	4	5	8	10	12	42	93	2	4	41	4	*227*
HOURLY TOTALS															
07:00 AM	---	08:00 AM	3	4	23	39	33	22	114	284	7	11	207	14	*761*
07:15 AM	---	08:15 AM	7	9	26	46	40	21	131	321	8	13	191	17	*830*
07:30 AM	---	08:30 AM	8	12	26	53	40	23	148	341	10	12	193	17	*883*
07:45 AM	---	08:45 AM	10	16	25	52	36	28	162	354	10	11	189	15	*908*
08:00 AM	---	09:00 AM	12	18	22	50	37	33	169	362	8	13	178	15	*917*

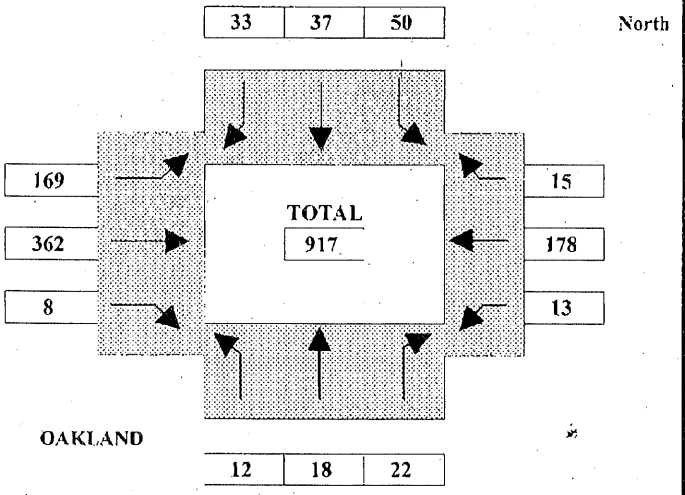
Tel : (510) 232-1271 *Fax: (510) 232-1272*

BAYMETRICS TRAFFIC RESOURCES

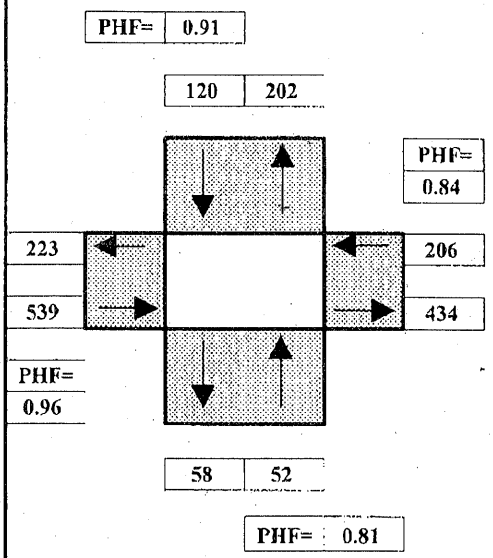
INTERSECTION TURNING MOVEMENT SUMMARY

PROJECT:	412 COURT ST. TS	SURVEY DATE: 7/31/2007	DAY: TUESDAY
N-S Approach:	MONTE VISTA	SURVEY TIME: 4:00 PM TO	6:00 PM
E-W Approach:	OAKLAND	CITY: OAKLAND	FILE: OLMVOLPM

PEAK HOUR
05:00 PM TO 06:00 PM



ARRIVAL / DEPARTURE VOLUMES



TIME PERIOD From		To	NORTHBOUND Left	Thru	Right	SOUTHBOUND Left	Thru	Right	EASTBOUND Left	Thru	Right	WESTBOUND Left	Thru	Right	TOTAL
SURVEY DATA															
04:00 PM	---	04:15 PM	0	1	3	7	5	4	25	59	2	2	56	3	*167*
04:15 PM	---	04:30 PM	2	1	10	17	13	10	55	127	3	5	107	5	*355*
04:30 PM	---	04:45 PM	3	2	15	29	24	15	79	199	3	9	155	10	*543*
04:45 PM	---	05:00 PM	3	4	23	39	33	22	114	284	7	11	207	14	*761*
05:00 PM	---	05:15 PM	7	10	29	53	45	25	156	380	10	15	247	20	*997*
05:15 PM	---	05:30 PM	10	13	36	70	53	33	203	468	13	17	300	22	*1,238*
05:30 PM	---	05:45 PM	13	18	40	81	60	43	241	553	13	20	344	25	*1,451*
05:45 PM	---	06:00 PM	15	22	45	89	70	55	283	646	15	24	385	29	*1,678*
TOTAL BY PERIOD															
04:00 PM	---	04:15 PM	0	1	3	7	5	4	25	59	2	2	56	3	*167*
04:15 PM	---	04:30 PM	2	0	7	10	8	6	30	68	1	3	51	2	*188*
04:30 PM	---	04:45 PM	1	1	5	12	11	5	24	72	0	4	48	5	*188*
04:45 PM	---	05:00 PM	0	2	8	10	9	7	35	85	4	2	52	4	*218*
05:00 PM	---	05:15 PM	4	6	6	14	12	3	42	96	3	4	40	6	*236*
05:15 PM	---	05:30 PM	3	3	7	17	8	8	47	88	3	2	53	2	*241*
05:30 PM	---	05:45 PM	3	5	4	11	7	10	38	85	0	3	44	3	*213*
05:45 PM	---	06:00 PM	2	4	5	8	10	12	42	93	2	4	41	4	*227*
HOURLY TOTALS															
04:00 PM	---	05:00 PM	3	4	23	39	33	22	114	284	7	11	207	14	*761*
04:15 PM	---	05:15 PM	7	9	26	46	40	21	131	321	8	13	191	17	*830*
04:30 PM	---	05:30 PM	8	12	26	53	40	23	148	341	10	12	193	17	*883*
04:45 PM	---	05:45 PM	10	16	25	52	36	28	162	354	10	11	189	15	*908*
05:00 PM	---	06:00 PM	12	18	22	50	37	33	169	362	8	13	178	15	*917*

Tel : (510) 232-1271 *Fax: (510) 232-1272*

Appendix B

Level of Service Calculation Worksheets

Existing Conditions AM Peak Hour

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	0	0	459	292	155	1088
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0	4.0
Lane Util. Factor			0.95	1.00	1.00	0.95
Frt			1.00	0.85	1.00	1.00
Flt Protected			1.00	1.00	0.95	1.00
Satd. Flow (prot)			3539	1583	1770	3539
Flt Permitted			1.00	1.00	0.95	1.00
Satd. Flow (perm)			3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	499	317	168	1183
RTOR Reduction (vph)	0	0	0	176	0	0
Lane Group Flow (vph)	0	0	499	141	168	1183
Turn Type				Perm	Prot	
Protected Phases			2		1	2 4
Permitted Phases				2		2 4
Actuated Green, G (s)			35.6	35.6	11.9	60.1
Effective Green, g (s)			35.6	35.6	11.9	60.1
Actuated g/C Ratio			0.44	0.44	0.15	0.75
Clearance Time (s)			4.0	4.0	4.0	
Vehicle Extension (s)			3.0	3.0	3.0	
Lane Grp Cap (vph)			1575	704	263	2659
v/s Ratio Prot			0.14		c0.09	c0.33
v/s Ratio Perm				0.09		
v/c Ratio			0.32	0.20	0.64	0.44
Uniform Delay, d1			14.3	13.5	32.0	3.7
Progression Factor			1.00	1.00	1.26	0.08
Incremental Delay, d2			0.5	0.6	4.3	0.1
Delay (s)			14.9	14.2	44.5	0.4
Level of Service			B	B	D	A
Approach Delay (s)	0.0		14.6			5.9
Approach LOS	A		B			A

Intersection Summary				
HCM Average Control Delay	9.2	HCM Level of Service		A
HCM Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	68.9%	ICU Level of Service		C
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	180	261	0	918	572	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	196	284	0	998	622	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1121	311	622			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1121	311	622			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	2	59	100			
cM capacity (veh/h)	200	685	955			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	196	284	499	499	311	311
Volume Left	196	0	0	0	0	0
Volume Right	0	284	0	0	0	0
cSH	200	685	1700	1700	1700	1700
Volume to Capacity	0.98	0.41	0.29	0.29	0.18	0.18
Queue Length 95th (ft)	207	51	0	0	0	0
Control Delay (s)	106.9	13.9	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	51.9		0.0		0.0	
Approach LOS	F					

Intersection Summary				
Average Delay	11.9			
Intersection Capacity Utilization	42.0%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	395	626	270	0	571	182	277	980	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.97			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4895			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4895			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	429	680	293	0	621	198	301	1065	0
RTOR Reduction (vph)	0	0	0	46	0	0	0	165	0	0	0
Lane Group Flow (vph)	0	0	0	1356	0	0	621	33	301	1065	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				34.9			17.5	17.5	40.6	62.1	
Effective Green, g (s)				34.9			17.5	17.5	40.6	62.1	
Actuated g/C Ratio				0.33			0.17	0.17	0.38	0.59	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1612			584	261	678	2073	
v/s Ratio Prot				c0.28			c0.18		0.17	c0.30	
v/s Ratio Perm								0.02			
v/c Ratio				0.84			1.06	0.13	0.44	0.51	
Uniform Delay, d1				33.0			44.3	37.7	24.3	13.0	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				4.2			55.2	1.0	2.1	0.9	
Delay (s)				37.1			99.5	38.7	26.4	13.9	
Level of Service				D			F	D	C	B	
Approach Delay (s)	0.0			37.1			84.8			16.7	
Approach LOS	A			D			F			B	

Intersection Summary				
HCM Average Control Delay	40.2	HCM Level of Service		D
HCM Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	106.0	Sum of lost time (s)		13.0
Intersection Capacity Utilization	67.0%	ICU Level of Service		C
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	260	443	196	184	340	259	30	229	31	654
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	4.0	4.0			3.5	4.0
Lane Util. Factor	0.91	0.86	0.91	1.00	0.95	1.00			1.00	0.95
Frt	1.00	0.99	0.85	0.85	1.00	0.85			1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00			0.95	1.00
Satd. Flow (prot)	1610	3177	1441	1583	3539	1583			1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00			0.95	1.00
Satd. Flow (perm)	1610	3177	1441	1583	3539	1583			1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	283	482	213	200	370	282	33	249	34	711
RTOR Reduction (vph)	0	0	0	76	0	3	0	0	0	0
Lane Group Flow (vph)	255	531	192	124	370	312	0	0	283	711
Turn Type	Split		Prot	Perm		Perm		Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases				4		2				
Actuated Green, G (s)	28.1	28.1	28.1	28.1	43.2	43.2			22.2	68.9
Effective Green, g (s)	28.1	28.1	28.1	28.1	43.2	43.2			22.2	68.9
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.41	0.41			0.21	0.65
Clearance Time (s)	5.0	5.0	5.0	5.0	4.0	4.0			3.5	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	427	842	382	420	1442	645			371	2300
v/s Ratio Prot	0.16	c0.17	0.13		0.10				c0.16	0.20
v/s Ratio Perm				0.08		c0.20				
v/c Ratio	0.60	0.63	0.50	0.30	0.26	0.48			0.76	0.31
Uniform Delay, d1	34.0	34.4	33.0	31.1	20.8	23.2			39.4	8.1
Progression Factor	0.75	0.75	0.75	0.59	1.00	1.00			1.00	1.00
Incremental Delay, d2	1.7	1.2	0.8	0.3	0.4	2.6			9.0	0.3
Delay (s)	27.1	26.9	25.4	18.6	21.2	25.8			48.4	8.5
Level of Service	C	C	C	B	C	C			D	A
Approach Delay (s)		25.3			23.3					19.8
Approach LOS		C			C					B

Intersection Summary				
HCM Average Control Delay	22.9	HCM Level of Service		C
HCM Volume to Capacity ratio	0.59			
Actuated Cycle Length (s)	106.0	Sum of lost time (s)		12.5
Intersection Capacity Utilization	57.7%	ICU Level of Service		B
Analysis Period (min)	15			
c Critical Lane Group				

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	2104	103	381	333	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.86			0.91				
Frt					0.99			1.00				
Flt Protected					1.00			0.97				
Satd. Flow (prot)					6363			4953				
Flt Permitted					1.00			0.97				
Satd. Flow (perm)					6363			4953				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2287	112	414	362	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2391	0	0	775	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					38.0			34.0				
Effective Green, g (s)					38.0			34.0				
Actuated g/C Ratio					0.48			0.42				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					3022			2105				
v/s Ratio Prot					c0.38							
v/s Ratio Perm								0.16				
v/c Ratio					0.79			0.37				
Uniform Delay, d1					17.7			15.7				
Progression Factor					1.00			1.16				
Incremental Delay, d2					2.2			0.4				
Delay (s)					19.9			18.6				
Level of Service					B			B				
Approach Delay (s)		0.0			19.9			18.6			0.0	
Approach LOS		A			B			B			A	

Intersection Summary				
HCM Average Control Delay	19.5	HCM Level of Service		B
HCM Volume to Capacity ratio	0.59			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	73.3%	ICU Level of Service		D
Analysis Period (min)	15			

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	973	1418	0	0	0	0	0	990	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4755						3523	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4755						3523	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1058	1541	0	0	0	0	0	1076	33
RTOR Reduction (vph)	0	0	0	5	5	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	630	1959	0	0	0	0	0	1106	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				46.0	46.0						26.0	
Effective Green, g (s)				46.0	46.0						26.0	
Actuated g/C Ratio				0.57	0.57						0.32	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				875	2734						1145	
v/s Ratio Prot											c0.31	
v/s Ratio Perm				c0.41	0.41							
v/c Ratio				0.72	0.72						0.97	
Uniform Delay, d1				12.3	12.3						26.6	
Progression Factor				1.39	1.38						1.00	
Incremental Delay, d2				3.4	1.1						19.6	
Delay (s)				20.6	18.0						46.2	
Level of Service				C	B						D	
Approach Delay (s)		0.0			18.7				0.0		46.2	
Approach LOS		A			B				A		D	

Intersection Summary				
HCM Average Control Delay	26.9	HCM Level of Service		C
HCM Volume to Capacity ratio	0.81			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	73.3%	ICU Level of Service		D
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	74	189	6	9	391	13	9	6	8	18	14	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	80	205	7	10	425	14	10	7	9	20	15	14

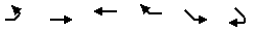
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	80	212	449	25	49
Volume Left (vph)	80	0	10	10	20
Volume Right (vph)	0	7	14	9	14
Hadj (s)	0.53	0.01	0.02	-0.10	-0.06
Departure Headway (s)	5.6	5.1	4.6	5.6	5.6
Degree Utilization, x	0.13	0.30	0.57	0.04	0.08
Capacity (veh/h)	627	689	772	555	569
Control Delay (s)	8.2	9.0	13.4	8.8	9.0
Approach Delay (s)	8.8		13.4	8.8	9.0
Approach LOS	A		B	A	A

Intersection Summary				
Delay	11.4			
HCM Level of Service	B			
Intersection Capacity Utilization	45.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	443	302	459	0	0	800
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	3539			3539
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	3539			3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	482	328	499	0	0	870
RTOR Reduction (vph)	0	169	0	0	0	0
Lane Group Flow (vph)	482	159	499	0	0	870
Turn Type		custom				
Protected Phases	4		2			2
Permitted Phases		2				
Actuated Green, G (s)	20.5	35.6	35.6			35.6
Effective Green, g (s)	20.5	35.6	35.6			35.6
Actuated g/C Ratio	0.26	0.44	0.44			0.44
Clearance Time (s)	4.0	4.0	4.0			4.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	880	704	1575			1575
v/s Ratio Prot	c0.14		0.14			c0.25
v/s Ratio Perm		0.10				
v/c Ratio	0.55	0.23	0.32			0.55
Uniform Delay, d1	25.7	13.7	14.3			16.3
Progression Factor	1.00	1.00	0.13			1.00
Incremental Delay, d2	0.7	0.7	0.5			1.4
Delay (s)	26.4	14.4	2.4			17.7
Level of Service	C	B	A			B
Approach Delay (s)	21.6		2.4			17.7
Approach LOS	C		A			B

Intersection Summary				
HCM Average Control Delay	15.7	HCM Level of Service		B
HCM Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		23.9
Intersection Capacity Utilization	68.9%	ICU Level of Service		C
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	471	0	572	262	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	512	0	622	285	0	0

Direction, Lane #	EB 1	WB 1	WB 2	WB 3
Volume Total (vph)	512	311	311	285
Volume Left (vph)	512	0	0	0
Volume Right (vph)	0	0	0	285
Hadj (s)	0.23	0.03	0.03	-0.67
Departure Headway (s)	4.8	4.9	4.9	3.2
Degree Utilization, x	0.68	0.42	0.42	0.25
Capacity (veh/h)	751	726	727	1112
Control Delay (s)	17.1	10.2	10.2	6.1
Approach Delay (s)	17.1	8.9		
Approach LOS	C	A		

Intersection Summary				
Delay		11.9		
HCM Level of Service		B		
Intersection Capacity Utilization		49.0%	ICU Level of Service	A
Analysis Period (min)		15		

Existing Conditions PM Peak Hour

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	0	0	1000	700	235	723
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0	4.0
Lane Util. Factor			0.95	1.00	1.00	0.95
Frt			1.00	0.85	1.00	1.00
Flt Protected			1.00	1.00	0.95	1.00
Satd. Flow (prot)			3539	1583	1770	3539
Flt Permitted			1.00	1.00	0.95	1.00
Satd. Flow (perm)			3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	1087	761	255	786
RTOR Reduction (vph)	0	0	0	274	0	0
Lane Group Flow (vph)	0	0	1087	487	255	786
Turn Type				Perm	Prot	
Protected Phases			2		1	2 4
Permitted Phases				2		
Actuated Green, G (s)			37.0	37.0	14.9	57.1
Effective Green, g (s)			37.0	37.0	14.9	57.1
Actuated g/C Ratio			0.46	0.46	0.19	0.71
Clearance Time (s)			4.0	4.0	4.0	
Vehicle Extension (s)			3.0	3.0	3.0	
Lane Grp Cap (vph)			1637	732	330	2526
v/s Ratio Prot			0.31		c0.14	c0.22
v/s Ratio Perm				c0.31		
v/c Ratio			0.66	0.67	0.77	0.31
Uniform Delay, d1			16.7	16.7	30.9	4.2
Progression Factor			1.00	1.00	1.34	0.08
Incremental Delay, d2			2.1	4.7	9.9	0.1
Delay (s)			18.8	21.4	51.3	0.4
Level of Service			B	C	D	A
Approach Delay (s)	0.0		19.9			12.9
Approach LOS	A		B			B

Intersection Summary			
HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	311	623	0	1015	466	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	338	677	0	1103	507	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1058	253	507			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1058	253	507			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	9	100			
cM capacity (veh/h)	220	746	1054			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	338	677	552	552	253	253
Volume Left	338	0	0	0	0	0
Volume Right	0	677	0	0	0	0
cSH	220	746	1700	1700	1700	1700
Volume to Capacity	1.54	0.91	0.32	0.32	0.15	0.15
Queue Length 95th (ft)	521	305	0	0	0	0
Control Delay (s)	303.5	38.0	0.0	0.0	0.0	0.0
Lane LOS	F	E				
Approach Delay (s)	126.4		0.0		0.0	
Approach LOS	F					

Intersection Summary			
Average Delay	48.9		
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	298	768	224	0	696	560	350	738	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.97			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4913			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4913			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	324	835	243	0	757	609	380	802	0
RTOR Reduction (vph)	0	0	0	38	0	0	0	106	0	0	0
Lane Group Flow (vph)	0	0	0	1364	0	0	757	503	380	802	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				29.4			21.0	21.0	26.6	51.6	
Effective Green, g (s)				29.4			21.0	21.0	26.6	51.6	
Actuated g/C Ratio				0.33			0.23	0.23	0.30	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1605			826	369	523	2029	
v/s Ratio Prot				c0.28			0.21		c0.21	0.23	
v/s Ratio Perm								c0.32			
v/c Ratio				0.85			0.92	1.36	0.73	0.40	
Uniform Delay, d1				28.2			33.6	34.5	28.4	10.6	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				4.4			16.6	180.3	5.0	0.1	
Delay (s)				32.7			50.2	214.8	33.4	10.7	
Level of Service				C			D	F	C	B	
Approach Delay (s)	0.0			32.7			123.6			18.0	
Approach LOS	A			C			F			B	

Intersection Summary			
HCM Average Control Delay	59.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	329	761	424	163	444	483	72	263	19	456
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	4.0	4.0			4.0	4.0
Lane Util. Factor	0.91	0.86	0.91	1.00	0.95	1.00			1.00	0.95
Frt	1.00	0.99	0.85	0.85	1.00	0.85			1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00			0.95	1.00
Satd. Flow (prot)	1610	3164	1441	1583	3539	1583			1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00			0.95	1.00
Satd. Flow (perm)	1610	3164	1441	1583	3539	1583			1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	358	827	461	177	483	525	78	286	21	496
RTOR Reduction (vph)	0	0	0	36	0	6	0	0	0	0
Lane Group Flow (vph)	322	928	396	141	483	597	0	0	307	496
Turn Type	Split		Prot	Perm		Perm		Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases				4		2				
Actuated Green, G (s)	28.0	28.0	28.0	28.0	37.0	37.0			12.0	53.0
Effective Green, g (s)	28.0	28.0	28.0	28.0	37.0	37.0			12.0	53.0
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.41	0.41			0.13	0.59
Clearance Time (s)	5.0	5.0	5.0	5.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	501	984	448	492	1455	651			236	2084
v/s Ratio Prot	0.20	c0.29	0.27		0.14				c0.17	0.14
v/s Ratio Perm				0.09		c0.38				
v/c Ratio	0.64	0.94	0.88	0.29	0.33	0.92			1.30	0.24
Uniform Delay, d1	26.7	30.2	29.5	23.4	18.1	25.1			39.0	8.8
Progression Factor	0.76	0.79	0.78	0.66	1.00	1.00			1.00	1.00
Incremental Delay, d2	2.1	7.6	8.6	0.5	0.6	20.0			162.8	0.3
Delay (s)	22.4	31.6	31.7	16.0	18.7	45.0			201.8	9.1
Level of Service	C	C	C	B	B	D			F	A
Approach Delay (s)		28.5			33.3					82.8
Approach LOS		C			C					F

Intersection Summary			
HCM Average Control Delay	41.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	1213	172	242	745	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.86			0.91				
Frt					0.98			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6288			5024				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6288			5024				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1318	187	263	810	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	29	0	0	20	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1477	0	0	1053	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					30.0			22.0				
Effective Green, g (s)					30.0			22.0				
Actuated g/C Ratio					0.50			0.37				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					3144			1842				
v/s Ratio Prot					c0.23							
v/s Ratio Perm								0.21				
v/c Ratio					0.47			0.57				
Uniform Delay, d1					9.8			15.2				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.5			1.3				
Delay (s)					10.3			16.5				
Level of Service					B			B				
Approach Delay (s)		0.0			10.3			16.5			0.0	
Approach LOS		A			B			B			A	

Intersection Summary				
HCM Average Control Delay	12.9	HCM Level of Service		B
HCM Volume to Capacity ratio	0.51			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	51.0%	ICU Level of Service		A
Analysis Period (min)	15			

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	475	1008	0	0	0	0	0	526	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4782						3495	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4782						3495	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	516	1096	0	0	0	0	0	572	52
RTOR Reduction (vph)	0	0	0	79	21	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	313	1199	0	0	0	0	0	613	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				29.0	29.0						23.0	
Effective Green, g (s)				29.0	29.0						23.0	
Actuated g/C Ratio				0.48	0.48						0.38	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				736	2311						1340	
v/s Ratio Prot											c0.18	
v/s Ratio Perm				0.21	0.25							
v/c Ratio				0.43	0.52						0.46	
Uniform Delay, d1				10.1	10.7						13.8	
Progression Factor				1.89	1.46						1.00	
Incremental Delay, d2				1.6	0.7						1.1	
Delay (s)				20.7	16.3						15.0	
Level of Service				C	B						B	
Approach Delay (s)		0.0			17.4				0.0		15.0	
Approach LOS		A			B				A		B	

Intersection Summary				
HCM Average Control Delay	16.7	HCM Level of Service		B
HCM Volume to Capacity ratio	0.49			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	51.0%	ICU Level of Service		A
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	169	362	8	13	178	15	12	18	22	50	37	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	184	393	9	14	193	16	13	20	24	54	40	36

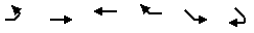
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	184	402	224	57	130
Volume Left (vph)	184	0	14	13	54
Volume Right (vph)	0	9	16	24	36
Hadj (s)	0.53	0.02	0.00	-0.17	-0.05
Departure Headway (s)	5.9	5.3	5.3	5.9	5.8
Degree Utilization, x	0.30	0.60	0.33	0.09	0.21
Capacity (veh/h)	595	661	654	534	562
Control Delay (s)	10.1	14.7	10.8	9.5	10.4
Approach Delay (s)	13.3		10.8	9.5	10.4
Approach LOS	B		B	A	B

Intersection Summary				
Delay	12.1			
HCM Level of Service	B			
Intersection Capacity Utilization	52.3%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	245	255	1000	0	0	713
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	3539			3539
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	3539			3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	266	277	1087	0	0	775
RTOR Reduction (vph)	0	149	0	0	0	0
Lane Group Flow (vph)	266	128	1087	0	0	775
Turn Type		custom				
Protected Phases	4		2			2
Permitted Phases		2				
Actuated Green, G (s)	16.1	37.0	37.0			37.0
Effective Green, g (s)	16.1	37.0	37.0			37.0
Actuated g/C Ratio	0.20	0.46	0.46			0.46
Clearance Time (s)	4.0	4.0	4.0			4.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	691	732	1637			1637
v/s Ratio Prot	c0.08		c0.31			0.22
v/s Ratio Perm		0.08				
v/c Ratio	0.38	0.18	0.66			0.47
Uniform Delay, d1	27.7	12.6	16.7			14.8
Progression Factor	1.00	1.00	0.19			1.00
Incremental Delay, d2	0.4	0.5	1.6			1.0
Delay (s)	28.0	13.1	4.8			15.8
Level of Service	C	B	A			B
Approach Delay (s)	20.4		4.8			15.8
Approach LOS	C		A			B

Intersection Summary				
HCM Average Control Delay	11.8	HCM Level of Service		B
HCM Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		26.9
Intersection Capacity Utilization	63.0%	ICU Level of Service		B
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	350	0	466	148	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	380	0	507	161	0	0

Direction, Lane #	EB 1	WB 1	WB 2	WB 3
Volume Total (vph)	380	253	253	161
Volume Left (vph)	380	0	0	0
Volume Right (vph)	0	0	0	161
Hadj (s)	0.23	0.03	0.03	-0.67
Departure Headway (s)	4.7	4.8	4.8	3.2
Degree Utilization, x	0.49	0.34	0.34	0.14
Capacity (veh/h)	761	739	740	1121
Control Delay (s)	12.2	9.0	9.0	5.5
Approach Delay (s)	12.2	8.2		
Approach LOS	B	A		

Intersection Summary				
Delay		9.6		
HCM Level of Service		A		
Intersection Capacity Utilization	38.9%	ICU Level of Service	A	
Analysis Period (min)		15		

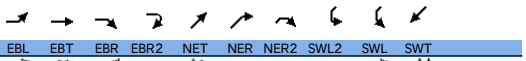
Near-Term Conditions AM Peak Hour



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	671	706	221	0	424	213	282	1170	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.98			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4931			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4931			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.95	0.92
Adj. Flow (vph)	0	0	706	743	233	0	446	224	297	1232	0
RTOR Reduction (vph)	0	0	0	22	0	0	0	187	0	0	0
Lane Group Flow (vph)	0	0	0	1660	0	0	446	37	297	1232	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				36.5			17.5	17.5	39.0	60.5	
Effective Green, g (s)				36.5			17.5	17.5	39.0	60.5	
Actuated g/C Ratio				0.34			0.17	0.17	0.37	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1698			584	261	651	2020	
v/s Ratio Prot				c0.34			c0.13		0.17	c0.35	
v/s Ratio Perm								0.02			
v/c Ratio				1.12dl			0.76	0.14	0.46	0.61	
Uniform Delay, d1				34.4			42.3	37.8	25.4	15.0	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				16.7			9.2	1.1	2.3	1.4	
Delay (s)				51.0			51.4	39.0	27.7	16.4	
Level of Service				D			D	D	C	B	
Approach Delay (s)	0.0			51.0			47.3			18.6	
Approach LOS	A			D			D			B	

Intersection Summary				
HCM Average Control Delay	37.6	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	13.0	
Intersection Capacity Utilization	76.6%	ICU Level of Service	D	
Analysis Period (min)	15			

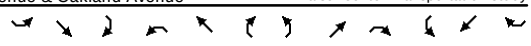
dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	261	490	217	198	341	178	21	345	47	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.97	0.85		0.94				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3101	1441		3343				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3101	1441		3343				1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.97	0.97	0.97	0.95	0.95	0.95
Adj. Flow (vph)	275	516	228	208	352	184	22	363	49	484
RTOR Reduction (vph)	0	0	81	0	3	0	0	0	0	0
Lane Group Flow (vph)	247	681	218	0	555	0	0	0	412	484
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	30.3	30.3	30.3		34.9				28.3	66.7
Effective Green, g (s)	30.3	30.3	30.3		34.9				28.3	66.7
Actuated g/C Ratio	0.29	0.29	0.29		0.33				0.27	0.63
Clearance Time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	460	886	412		1101				473	2227
v/s Ratio Prot	0.15	c0.22	0.15		c0.17				c0.23	0.14
v/s Ratio Perm										
v/c Ratio	0.54	0.77	0.53		0.50				0.87	0.22
Uniform Delay, d1	31.9	34.6	31.9		28.6				37.1	8.4
Progression Factor	0.70	0.71	0.56		1.00				1.00	1.00
Incremental Delay, d2	0.7	2.5	0.8		1.7				16.0	0.2
Delay (s)	23.2	27.1	18.6		30.2				53.1	8.7
Level of Service	C	C	B		C				D	A
Approach Delay (s)		24.2			30.2					29.1
Approach LOS		C			C					C

Intersection Summary				
HCM Average Control Delay	27.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.5	
Intersection Capacity Utilization	67.3%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	2572	126	466	407	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.86			0.91				
Frt					0.99			1.00				
Flt Protected					1.00			0.97				
Satd. Flow (prot)					6361			4952				
Flt Permitted					1.00			0.97				
Satd. Flow (perm)					6361			4952				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.98	0.95	0.95	0.97	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2624	133	491	420	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	9	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2748	0	0	911	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					38.0			34.0				
Effective Green, g (s)					38.0			34.0				
Actuated g/C Ratio					0.48			0.42				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					3021			2105				
v/s Ratio Prot					c0.43							
v/s Ratio Perm								0.18				
v/c Ratio					0.91			0.43				
Uniform Delay, d1					19.4			16.2				
Progression Factor					1.00			1.13				
Incremental Delay, d2					5.3			0.5				
Delay (s)					24.7			18.8				
Level of Service					C			B				
Approach Delay (s)		0.0			24.7			18.8			0.0	
Approach LOS		A			C			B			A	

Intersection Summary				
HCM Average Control Delay	23.2	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.68			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	84.5%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	1189	1734	0	0	0	0	0	1210	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4757						3523	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4757						3523	
Peak-hour factor, PHF	0.92	0.92	0.92	0.99	0.95	0.92	0.92	0.92	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	1201	1825	0	0	0	0	0	1274	39
RTOR Reduction (vph)	0	0	0	2	2	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	731	2291	0	0	0	0	0	1310	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				46.0	46.0						26.0	
Effective Green, g (s)				46.0	46.0						26.0	
Actuated g/C Ratio				0.57	0.57						0.32	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				875	2735						1145	
v/s Ratio Prot											c0.37	
v/s Ratio Perm				0.48	0.48							
v/c Ratio				0.84	0.84						1.14	
Uniform Delay, d1				13.9	13.9						27.0	
Progression Factor				1.39	1.39						1.00	
Incremental Delay, d2				5.1	1.7						75.7	
Delay (s)				24.5	21.1						102.7	
Level of Service				C	C						F	
Approach Delay (s)		0.0			21.9				0.0		102.7	
Approach LOS		A			C				A		F	

Intersection Summary				
HCM Average Control Delay	46.4	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.95			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	84.5%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	90	231	7	11	478	16	11	7	10	22	17	16
Peak Hour Factor	0.98	0.98	0.98	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	92	236	7	12	503	17	12	7	11	23	18	17

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	92	243	532	29	58
Volume Left (vph)	92	0	12	12	23
Volume Right (vph)	0	7	17	11	17
Hadj (s)	0.53	0.01	0.02	-0.10	-0.06
Departure Headway (s)	5.7	5.2	4.7	5.9	5.9
Degree Utilization, x	0.15	0.35	0.69	0.05	0.09
Capacity (veh/h)	611	669	756	533	543
Control Delay (s)	8.5	9.8	17.4	9.2	9.5
Approach Delay (s)	9.5		17.4	9.2	9.5
Approach LOS	A		C	A	A

Intersection Summary				
Delay	13.9			
HCM Level of Service	B			
Intersection Capacity Utilization	53.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	361	213	521	286	115	1094
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frt	0.95		0.95		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1716		3351		1770	3539
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	1716		3351		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	380	224	548	301	121	1152
RTOR Reduction (vph)	38	0	122	0	0	0
Lane Group Flow (vph)	566	0	727	0	121	1152
Turn Type					Prot	
Protected Phases	4		6		5	2
Permitted Phases						
Actuated Green, G (s)	23.1		14.6		10.3	28.9
Effective Green, g (s)	23.1		14.6		10.3	28.9
Actuated g/C Ratio	0.38		0.24		0.17	0.48
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	661		815		304	1705
v/s Ratio Prot	c0.33		c0.22		0.07	c0.33
v/s Ratio Perm						
v/c Ratio	0.86		0.89		0.40	0.68
Uniform Delay, d1	16.9		21.9		22.1	11.9
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	10.6		14.2		3.9	2.2
Delay (s)	27.5		36.1		26.0	14.1
Level of Service	C		D		C	B
Approach Delay (s)	27.5		36.1			15.2
Approach LOS	C		D			B

Intersection Summary			
HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	350	233	416	206	187	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3363		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3363		1770	1583
Peak-hour factor, PHF	0.98	0.98	0.95	0.95	0.97	0.97
Adj. Flow (vph)	357	238	438	217	193	205
RTOR Reduction (vph)	0	0	102	0	0	160
Lane Group Flow (vph)	357	238	553	0	193	45
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	14.0	31.2	13.2		10.9	10.9
Effective Green, g (s)	14.0	31.2	13.2		10.9	10.9
Actuated g/C Ratio	0.28	0.62	0.26		0.22	0.22
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	495	2204	886		385	344
v/s Ratio Prot	c0.20	0.07	c0.16		c0.11	
v/s Ratio Perm						0.03
v/c Ratio	0.72	0.11	0.62		0.50	0.13
Uniform Delay, d1	16.3	3.8	16.3		17.2	15.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.1	0.0	1.4		1.0	0.2
Delay (s)	21.4	3.8	17.6		18.2	16.0
Level of Service	C	A	B		B	B
Approach Delay (s)		14.4	17.6		17.1	
Approach LOS		B	B		B	

Intersection Summary				
HCM Average Control Delay	16.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.62			
Actuated Cycle Length (s)	50.1	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	57.8%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Near-Term Conditions PM Peak Hour

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	316	1362	142	0	571	597	490	1038	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.99			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4963			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4963			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.92	0.97	0.97	0.95	0.95	0.92
Adj. Flow (vph)	0	0	333	1434	149	0	589	615	516	1093	0
RTOR Reduction (vph)	0	0	0	11	0	0	0	56	0	0	0
Lane Group Flow (vph)	0	0	0	1905	0	0	589	559	516	1093	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				30.0			17.6	17.6	29.4	51.0	
Effective Green, g (s)				30.0			17.6	17.6	29.4	51.0	
Actuated g/C Ratio				0.33			0.20	0.20	0.33	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1654			692	310	578	2005	
v/s Ratio Prot				c0.38			0.17		c0.29	0.31	
v/s Ratio Perm								c0.35			
v/c Ratio				1.15			0.85	1.80	0.89	0.55	
Uniform Delay, d1				30.0			34.9	36.2	28.8	12.2	
Progression Factor				1.00			1.24	1.22	1.00	1.00	
Incremental Delay, d2				75.7			1.3	363.3	16.0	0.3	
Delay (s)				105.7			44.6	407.5	44.8	12.5	
Level of Service				F			D	F	D	B	
Approach Delay (s)	0.0			105.7			230.0			22.9	
Approach LOS	A			F			F			C	

Intersection Summary			
HCM Average Control Delay	109.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	414	1092	609	169	346	475	71	329	24	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.98	0.85		0.91				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3127	1441		3214				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3127	1441		3214				1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	436	1149	641	178	364	500	75	346	25	256
RTOR Reduction (vph)	0	0	17	0	7	0	0	0	0	0
Lane Group Flow (vph)	392	1405	590	0	932	0	0	0	371	256
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	28.0	28.0	28.0		37.0				12.0	53.0
Effective Green, g (s)	28.0	28.0	28.0		37.0				12.0	53.0
Actuated g/C Ratio	0.31	0.31	0.31		0.41				0.13	0.59
Clearance Time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	501	973	448		1321				236	2084
v/s Ratio Prot	0.24	c0.45	0.41		c0.29				c0.21	0.07
v/s Ratio Perm										
v/c Ratio	0.78	1.44	1.32		0.86dr				1.57	0.12
Uniform Delay, d1	28.2	31.0	31.0		22.0				39.0	8.2
Progression Factor	0.64	0.65	0.63		1.00				1.00	1.00
Incremental Delay, d2	1.1	200.3	144.6		3.2				276.9	0.1
Delay (s)	19.1	220.6	164.2		25.2				315.9	8.3
Level of Service	B	F	F		C				F	A
Approach Delay (s)		173.5			25.2					190.3
Approach LOS		F			C					F

Intersection Summary			
HCM Average Control Delay	141.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	1650	234	329	1013	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.86			0.91				
Frt					0.98			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6285			5024				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6285			5024				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.98	0.95	0.95	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1684	246	346	1066	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	11	0	0	7	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1920	0	0	1405	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					30.0			22.0				
Effective Green, g (s)					30.0			22.0				
Actuated g/C Ratio					0.50			0.37				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					3143			1842				
v/s Ratio Prot					c0.31							
v/s Ratio Perm								0.28				
v/c Ratio					0.61			0.76				
Uniform Delay, d1					10.8			16.7				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.9			3.1				
Delay (s)					11.7			19.8				
Level of Service					B			B				
Approach Delay (s)		0.0			11.7			19.8			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM Average Control Delay	15.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	646	1371	0	0	0	0	0	715	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4778						3495	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4778						3495	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.99	0.92	0.92	0.92	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	680	1385	0	0	0	0	0	753	68
RTOR Reduction (vph)	0	0	0	41	26	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	455	1543	0	0	0	0	0	810	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				29.0	29.0						23.0	
Effective Green, g (s)				29.0	29.0						23.0	
Actuated g/C Ratio				0.48	0.48						0.38	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				736	2309						1340	
v/s Ratio Prot											c0.23	
v/s Ratio Perm				0.30	0.32							
v/c Ratio				0.62	0.67						0.60	
Uniform Delay, d1				11.4	11.8						14.8	
Progression Factor				1.47	1.41						1.00	
Incremental Delay, d2				3.0	1.2						2.0	
Delay (s)				19.8	17.9						16.9	
Level of Service				B	B						B	
Approach Delay (s)		0.0			18.3				0.0		16.9	
Approach LOS		A			B				A		B	

Intersection Summary			
HCM Average Control Delay	17.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	230	492	11	18	242	20	16	24	30	68	50	45
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	242	518	12	19	255	21	17	25	32	72	53	47

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	242	529	295	74	172
Volume Left (vph)	242	0	19	17	72
Volume Right (vph)	0	12	21	32	47
Hadj (s)	0.53	0.02	0.00	-0.18	-0.05
Departure Headway (s)	6.3	5.8	5.8	6.6	6.4
Degree Utilization, x	0.42	0.85	0.47	0.14	0.31
Capacity (veh/h)	560	617	596	495	521
Control Delay (s)	12.6	31.1	13.9	10.7	12.3
Approach Delay (s)	25.3		13.9	10.7	12.3
Approach LOS	D		B	B	B

Intersection Summary			
Delay	20.2		
HCM Level of Service	C		
Intersection Capacity Utilization	67.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	192	170	1093	756	149	823
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frt	0.94		0.94		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1700		3322		1770	3539
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	1700		3322		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	202	179	1151	796	157	866
RTOR Reduction (vph)	44	0	105	0	0	0
Lane Group Flow (vph)	337	0	1842	0	157	866
Turn Type					Prot	
Protected Phases	4		6		5	2
Permitted Phases						
Actuated Green, G (s)	23.3		41.5		13.2	58.7
Effective Green, g (s)	23.3		41.5		13.2	58.7
Actuated g/C Ratio	0.26		0.46		0.15	0.65
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	440		1532		260	2308
v/s Ratio Prot	c0.20		c0.55		c0.09	0.24
v/s Ratio Perm						
v/c Ratio	0.76		1.20		0.60	0.38
Uniform Delay, d1	30.8		24.2		36.0	7.2
Progression Factor	1.00		1.00		0.98	0.36
Incremental Delay, d2	7.7		97.5		3.1	0.4
Delay (s)	38.6		121.8		38.4	3.0
Level of Service	D		F		D	A
Approach Delay (s)	38.6		121.8			8.4
Approach LOS	D		F			A

Intersection Summary			
HCM Average Control Delay	77.7	HCM Level of Service	E
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	254	299	247	109	385	447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3376		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3376		1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	267	315	260	115	405	471
RTOR Reduction (vph)	0	0	93	0	0	325
Lane Group Flow (vph)	267	315	282	0	405	146
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	12.1	25.5	9.4		15.1	15.1
Effective Green, g (s)	12.1	25.5	9.4		15.1	15.1
Actuated g/C Ratio	0.25	0.52	0.19		0.31	0.31
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	441	1857	653		550	492
v/s Ratio Prot	c0.15	0.09	c0.08		c0.23	
v/s Ratio Perm						0.09
v/c Ratio	0.61	0.17	0.43		0.74	0.30
Uniform Delay, d1	16.1	6.0	17.3		15.0	12.7
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.3	0.0	0.5		5.1	0.3
Delay (s)	18.5	6.1	17.7		20.1	13.1
Level of Service	B	A	B		C	B
Approach Delay (s)		11.8	17.7		16.3	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	15.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	48.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

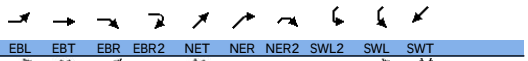
Cumulative Conditions AM Peak Hour



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	722	760	238	0	490	274	345	1367	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.98			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4931			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4931			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.98	0.98	0.98	0.92	0.98	0.98	0.98	0.98	0.92
Adj. Flow (vph)	0	0	737	776	243	0	500	280	352	1395	0
RTOR Reduction (vph)	0	0	0	22	0	0	0	158	0	0	0
Lane Group Flow (vph)	0	0	0	1734	0	0	500	122	352	1395	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				36.5			17.5	17.5	39.0	60.5	
Effective Green, g (s)				36.5			17.5	17.5	39.0	60.5	
Actuated g/C Ratio				0.34			0.17	0.17	0.37	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1698			584	261	651	2020	
v/s Ratio Prot				c0.35			c0.14		0.20	c0.39	
v/s Ratio Perm								0.08			
v/c Ratio				1.17dl			0.86	0.47	0.54	0.69	
Uniform Delay, d1				34.8			43.0	40.0	26.4	16.1	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				27.4			14.9	5.9	3.2	2.0	
Delay (s)				62.2			57.9	46.0	29.6	18.1	
Level of Service				E			E	D	C	B	
Approach Delay (s)	0.0			62.2			53.6			20.4	
Approach LOS	A			E			D			C	

Intersection Summary				
HCM Average Control Delay	43.6	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	13.0	
Intersection Capacity Utilization	84.9%	ICU Level of Service	E	
Analysis Period (min)	15			

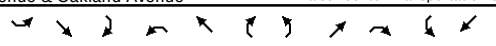
dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	291	539	239	228	398	208	24	372	50	496
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.97	0.85		0.94				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3097	1441		3344				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3097	1441		3344				1770	3539
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	297	550	244	233	406	212	24	380	51	506
RTOR Reduction (vph)	0	0	91	0	3	0	0	0	0	0
Lane Group Flow (vph)	267	734	232	0	639	0	0	0	431	506
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	30.9	30.9	30.9		33.6				29.0	66.1
Effective Green, g (s)	30.9	30.9	30.9		33.6				29.0	66.1
Actuated g/C Ratio	0.29	0.29	0.29		0.32				0.27	0.62
Clearance Time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	469	903	420		1060				484	2207
v/s Ratio Prot	0.17	c0.24	0.16		c0.19				c0.24	0.14
v/s Ratio Perm										
v/c Ratio	0.57	0.81	0.55		0.60				0.89	0.23
Uniform Delay, d1	31.9	34.9	31.7		30.6				37.0	8.8
Progression Factor	0.75	0.76	0.62		1.00				1.00	1.00
Incremental Delay, d2	0.8	3.1	0.8		2.5				18.2	0.2
Delay (s)	24.7	29.4	20.6		33.1				55.2	9.0
Level of Service	C	C	C		C				E	A
Approach Delay (s)		26.3			33.1					30.2
Approach LOS		C			C					C

Intersection Summary				
HCM Average Control Delay	29.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.76			
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.5	
Intersection Capacity Utilization	74.2%	ICU Level of Service	D	
Analysis Period (min)	15			

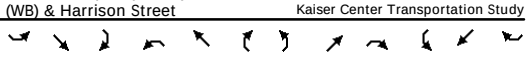
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	3040	149	551	481	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.86			0.91				
Frt					0.99			1.00				
Flt Protected					1.00			0.97				
Satd. Flow (prot)					6363			4953				
Flt Permitted					1.00			0.97				
Satd. Flow (perm)					6363			4953				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	3102	152	562	491	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	3246	0	0	1053	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					38.0			34.0				
Effective Green, g (s)					38.0			34.0				
Actuated g/C Ratio					0.48			0.42				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					3022			2105				
v/s Ratio Prot					c0.51							
v/s Ratio Perm								0.21				
v/c Ratio					1.07			0.50				
Uniform Delay, d1					21.0			16.8				
Progression Factor					1.00			1.08				
Incremental Delay, d2					40.4			0.5				
Delay (s)					61.4			18.7				
Level of Service					E			B				
Approach Delay (s)		0.0			61.4			18.7			0.0	
Approach LOS		A			E			B			A	

Intersection Summary				
HCM Average Control Delay	51.0	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	115.5%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	1406	2049	0	0	0	0	0	1431	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4755						3524	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4755						3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.98	0.92	0.92	0.92	0.92	0.92	0.98	0.98
Adj. Flow (vph)	0	0	0	1435	2091	0	0	0	0	0	1460	44
RTOR Reduction (vph)	0	0	0	1	1	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	860	2664	0	0	0	0	0	1501	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				46.0	46.0						26.0	
Effective Green, g (s)				46.0	46.0						26.0	
Actuated g/C Ratio				0.57	0.57						0.32	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				875	2734						1145	
v/s Ratio Prot											c0.43	
v/s Ratio Perm				c0.57	0.56							
v/c Ratio				0.98	0.97						1.31	
Uniform Delay, d1				16.6	16.4						27.0	
Progression Factor				1.38	1.37						1.00	
Incremental Delay, d2				11.8	4.6						146.4	
Delay (s)				34.8	27.0						173.4	
Level of Service				C	C						F	
Approach Delay (s)		0.0			28.9			0.0			173.4	
Approach LOS		A			C			A			F	

Intersection Summary				
HCM Average Control Delay	72.1	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.10			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	125.8%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	107	273	9	13	565	19	13	9	12	26	20	19
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	109	279	9	13	577	19	13	9	12	27	20	19

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	109	288	609	35	66
Volume Left (vph)	109	0	13	13	27
Volume Right (vph)	0	9	19	12	19
Hadj (s)	0.53	0.01	0.02	-0.10	-0.06
Departure Headway (s)	5.9	5.4	4.8	6.3	6.2
Degree Utilization, x	0.18	0.43	0.82	0.06	0.11
Capacity (veh/h)	594	651	738	520	525
Control Delay (s)	9.0	11.2	25.5	9.7	10.0
Approach Delay (s)	10.6		25.5	9.7	10.0
Approach LOS	B		D	A	B

Intersection Summary				
Delay	18.7			
HCM Level of Service	C			
Intersection Capacity Utilization	61.3%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	418	250	629	307	124	1229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frt	0.95		0.95		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1715		3365		1770	3539
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	1715		3365		1770	3539
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	427	255	642	313	127	1254
RTOR Reduction (vph)	37	0	98	0	0	0
Lane Group Flow (vph)	645	0	857	0	127	1254
Turn Type					Prot	
Protected Phases	4		6		5	2
Permitted Phases						
Actuated Green, G (s)	24.8		14.4		8.8	27.2
Effective Green, g (s)	24.8		14.4		8.8	27.2
Actuated g/C Ratio	0.41		0.24		0.15	0.45
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	709		808		260	1604
v/s Ratio Prot	c0.38		c0.25		0.07	c0.35
v/s Ratio Perm						
v/c Ratio	0.91		1.06		0.49	0.78
Uniform Delay, d1	16.5		22.8		23.5	13.9
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	15.6		49.0		6.4	3.9
Delay (s)	32.1		71.8		30.0	17.8
Level of Service	C		E		C	B
Approach Delay (s)	32.1		71.8			18.9
Approach LOS	C		E			B

Intersection Summary			
HCM Average Control Delay	38.6	HCM Level of Service	D
HCM Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	427	303	466	220	201	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3369		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3369		1770	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	436	309	476	224	205	218
RTOR Reduction (vph)	0	0	94	0	0	171
Lane Group Flow (vph)	436	309	606	0	205	47
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	15.7	33.5	13.8		11.3	11.3
Effective Green, g (s)	15.7	33.5	13.8		11.3	11.3
Actuated g/C Ratio	0.30	0.63	0.26		0.21	0.21
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	526	2245	881		379	339
v/s Ratio Prot	c0.25	0.09	c0.18		c0.12	
v/s Ratio Perm						0.03
v/c Ratio	0.83	0.14	0.69		0.54	0.14
Uniform Delay, d1	17.3	3.9	17.6		18.4	16.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	10.4	0.0	2.3		1.6	0.2
Delay (s)	27.7	3.9	19.8		20.0	17.0
Level of Service	C	A	B		C	B
Approach Delay (s)		17.8	19.8		18.5	
Approach LOS		B	B		B	

Intersection Summary				
HCM Average Control Delay	18.7	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	52.8	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	64.7%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

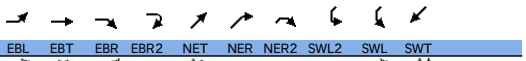
Cumulative Conditions PM Peak Hour



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	340	2180	153	0	615	642	738	1118	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.99			1.00	0.85	1.00	1.00	
Flt Protected				0.95			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4973			3539	1583	1770	3539	
Flt Permitted				0.95			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4973			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.98	0.98	0.98	0.92	0.98	0.98	0.98	0.98	0.92
Adj. Flow (vph)	0	0	347	2224	156	0	628	655	753	1141	0
RTOR Reduction (vph)	0	0	0	8	0	0	0	20	0	0	0
Lane Group Flow (vph)	0	0	0	2719	0	0	628	635	753	1141	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				30.0			17.5	17.5	29.5	51.0	
Effective Green, g (s)				30.0			17.5	17.5	29.5	51.0	
Actuated g/C Ratio				0.33			0.19	0.19	0.33	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1658			688	308	580	2005	
v/s Ratio Prot				c0.55			0.18		c0.43	0.32	
v/s Ratio Perm								c0.40			
v/c Ratio				1.64			0.91	2.06	1.30	0.57	
Uniform Delay, d1				30.0			35.5	36.2	30.3	12.5	
Progression Factor				1.00			1.27	1.23	1.00	1.00	
Incremental Delay, d2				290.7			2.3	478.6	146.6	0.4	
Delay (s)				320.7			47.3	523.3	176.8	12.8	
Level of Service				F			D	F	F	B	
Approach Delay (s)	0.0			320.7			290.3			78.0	
Approach LOS	A			F			F			E	

Intersection Summary			
HCM Average Control Delay	236.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	119.8%	ICU Level of Service	H
Analysis Period (min)	15		

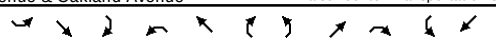
c Critical Lane Group



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	489	1581	881	183	372	511	76	354	26	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.98	0.85		0.91				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3137	1441		3214				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3137	1441		3214				1770	3539
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	499	1613	899	187	380	521	78	361	27	267
RTOR Reduction (vph)	0	0	12	0	7	0	0	0	0	0
Lane Group Flow (vph)	449	1915	822	0	972	0	0	0	388	267
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	28.0	28.0	28.0		37.0				12.0	53.0
Effective Green, g (s)	28.0	28.0	28.0		37.0				12.0	53.0
Actuated g/C Ratio	0.31	0.31	0.31		0.41				0.13	0.59
Clearance Time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	501	976	448		1321				236	2084
v/s Ratio Prot	0.28	c0.61	0.57		c0.30				c0.22	0.08
v/s Ratio Perm										
v/c Ratio	0.90	1.96	1.84		0.90dr				1.64	0.13
Uniform Delay, d1	29.6	31.0	31.0		22.4				39.0	8.2
Progression Factor	0.60	0.61	0.59		1.00				1.00	1.00
Incremental Delay, d2	2.6	433.3	376.8		3.7				308.1	0.1
Delay (s)	20.3	452.1	395.2		26.1				347.1	8.4
Level of Service	C	F	F		C				F	A
Approach Delay (s)		376.7			26.1					209.0
Approach LOS		F			C					F

Intersection Summary			
HCM Average Control Delay	282.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	107.2%	ICU Level of Service	G
Analysis Period (min)	15		

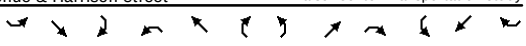
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	2086	296	416	1281	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.86			0.91				
Frt					0.98			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6288			5024				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6288			5024				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2129	302	424	1307	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	4	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2427	0	0	1729	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					30.0			22.0				
Effective Green, g (s)					30.0			22.0				
Actuated g/C Ratio					0.50			0.37				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					3144			1842				
v/s Ratio Prot					c0.39							
v/s Ratio Perm								0.34				
v/c Ratio					0.77			0.94				
Uniform Delay, d1					12.2			18.3				
Progression Factor					1.00			1.00				
Incremental Delay, d2					1.9			10.8				
Delay (s)					14.1			29.1				
Level of Service					B			C				
Approach Delay (s)		0.0			14.1			29.1			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM Average Control Delay	20.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	817	1734	0	0	0	0	0	905	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4782						3494	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4782						3494	
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.98	0.92	0.92	0.92	0.92	0.92	0.98	0.98
Adj. Flow (vph)	0	0	0	834	1769	0	0	0	0	0	923	85
RTOR Reduction (vph)	0	0	0	22	21	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	612	1948	0	0	0	0	0	1004	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				29.0	29.0						23.0	
Effective Green, g (s)				29.0	29.0						23.0	
Actuated g/C Ratio				0.48	0.48						0.38	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				736	2311						1339	
v/s Ratio Prot											c0.29	
v/s Ratio Perm				0.40	0.41							
v/c Ratio				0.83	0.84						0.75	
Uniform Delay, d1				13.4	13.5						16.0	
Progression Factor				1.34	1.33						1.00	
Incremental Delay, d2				6.6	2.4						3.9	
Delay (s)				24.6	20.4						19.9	
Level of Service				C	C						B	
Approach Delay (s)		0.0			21.4				0.0		19.9	
Approach LOS		A			C				A		B	

Intersection Summary			
HCM Average Control Delay	21.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	291	623	14	22	306	26	21	31	38	86	64	57
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	297	636	14	22	312	27	21	32	39	88	65	58

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	297	650	361	92	211
Volume Left (vph)	297	0	22	21	88
Volume Right (vph)	0	14	27	39	58
Hadj (s)	0.53	0.02	0.00	-0.17	-0.05
Departure Headway (s)	6.7	6.2	6.1	7.1	6.8
Degree Utilization, x	0.55	1.12	0.62	0.18	0.40
Capacity (veh/h)	526	584	565	449	499
Control Delay (s)	16.6	96.9	18.5	11.7	14.3
Approach Delay (s)	71.7		18.5	11.7	14.3
Approach LOS	F		C	B	B

Intersection Summary			
Delay	48.8		
HCM Level of Service	E		
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	207	182	1176	808	160	938
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frt	0.94		0.94		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1700		3323		1770	3539
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	1700		3323		1770	3539
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	211	186	1200	824	163	957
RTOR Reduction (vph)	44	0	106	0	0	0
Lane Group Flow (vph)	353	0	1918	0	163	957
Turn Type					Prot	
Protected Phases	4		6		5	2
Permitted Phases						
Actuated Green, G (s)	24.1		40.4		13.5	57.9
Effective Green, g (s)	24.1		40.4		13.5	57.9
Actuated g/C Ratio	0.27		0.45		0.15	0.64
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	455		1492		266	2277
v/s Ratio Prot	c0.21		c0.58		c0.09	0.27
v/s Ratio Perm						
v/c Ratio	0.78		1.29		0.61	0.42
Uniform Delay, d1	30.5		24.8		35.8	7.8
Progression Factor	1.00		1.00		0.97	0.39
Incremental Delay, d2	8.1		133.8		3.0	0.4
Delay (s)	38.5		158.6		37.7	3.5
Level of Service	D		F		D	A
Approach Delay (s)	38.5		158.6			8.4
Approach LOS	D		F			A

Intersection Summary			
HCM Average Control Delay	97.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	99.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	273	321	265	118	415	478
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3376		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3376		1770	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	279	328	270	120	423	488
RTOR Reduction (vph)	0	0	93	0	0	336
Lane Group Flow (vph)	279	328	297	0	423	152
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	12.4	26.1	9.7		15.4	15.4
Effective Green, g (s)	12.4	26.1	9.7		15.4	15.4
Actuated g/C Ratio	0.25	0.53	0.20		0.31	0.31
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	443	1866	662		551	492
v/s Ratio Prot	c0.16	0.09	c0.09		c0.24	
v/s Ratio Perm						0.10
v/c Ratio	0.63	0.18	0.45		0.77	0.31
Uniform Delay, d1	16.5	6.1	17.5		15.4	13.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.8	0.0	0.5		6.4	0.4
Delay (s)	19.3	6.1	18.0		21.8	13.4
Level of Service	B	A	B		C	B
Approach Delay (s)		12.2	18.0		17.3	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	49.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Existing plus Project (Phase I and Phase II) Conditions
AM Peak Hour

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	0	0	461	294	155	1316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0	4.0
Lane Util. Factor			0.95	1.00	1.00	0.95
Frt			1.00	0.85	1.00	1.00
Flt Protected			1.00	1.00	0.95	1.00
Satd. Flow (prot)			3539	1583	1770	3539
Flt Permitted			1.00	1.00	0.95	1.00
Satd. Flow (perm)			3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	501	320	168	1430
RTOR Reduction (vph)	0	0	0	180	0	0
Lane Group Flow (vph)	0	0	501	140	168	1430
Turn Type				Perm	Prot	
Protected Phases			2		1	2 4
Permitted Phases				2		2 4
Actuated Green, G (s)			35.1	35.1	11.9	60.1
Effective Green, g (s)			35.1	35.1	11.9	60.1
Actuated g/C Ratio			0.44	0.44	0.15	0.75
Clearance Time (s)			4.0	4.0	4.0	
Vehicle Extension (s)			3.0	3.0	3.0	
Lane Grp Cap (vph)			1553	695	263	2659
v/s Ratio Prot			0.14		c0.09	c0.40
v/s Ratio Perm				0.09		
v/c Ratio			0.32	0.20	0.64	0.54
Uniform Delay, d1			14.7	13.8	32.0	4.2
Progression Factor			1.00	1.00	1.27	0.06
Incremental Delay, d2			0.6	0.7	3.8	0.2
Delay (s)			15.2	14.5	44.5	0.4
Level of Service			B	B	D	A
Approach Delay (s)	0.0		14.9			5.0
Approach LOS	A		B			A

Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	182	261	0	1937	572	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	198	284	0	2105	622	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1674	311	622			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1674	311	622			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	59	100			
cM capacity (veh/h)	86	685	955			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	198	284	1053	1053	311	311
Volume Left	198	0	0	0	0	0
Volume Right	0	284	0	0	0	0
cSH	86	685	1700	1700	1700	1700
Volume to Capacity	2.29	0.41	0.62	0.62	0.18	0.18
Queue Length 95th (ft)	451	51	0	0	0	0
Control Delay (s)	694.4	13.9	0.0	0.0	0.0	0.0
Lane LOS	F	B				
Approach Delay (s)	293.5		0.0		0.0	
Approach LOS	F					

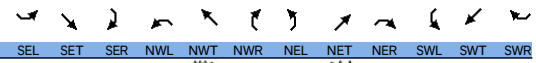
Intersection Summary			
Average Delay	44.0		
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	395	626	270	0	571	184	277	1208	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.97			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4895			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4895			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	429	680	293	0	621	200	301	1313	0
RTOR Reduction (vph)	0	0	0	34	0	0	0	167	0	0	0
Lane Group Flow (vph)	0	0	0	1368	0	0	621	33	301	1313	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				35.0			17.5	17.5	40.5	62.0	
Effective Green, g (s)				35.0			17.5	17.5	40.5	62.0	
Actuated g/C Ratio				0.33			0.17	0.17	0.38	0.58	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1616			584	261	676	2070	
v/s Ratio Prot				c0.28			c0.18		0.17	c0.37	
v/s Ratio Perm								0.02			
v/c Ratio				0.85			1.06	0.13	0.45	0.63	
Uniform Delay, d1				33.0			44.3	37.7	24.4	14.5	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				4.3			55.2	1.0	2.1	1.5	
Delay (s)				37.3			99.5	38.7	26.5	16.0	
Level of Service				D			F	D	C	B	
Approach Delay (s)	0.0			37.3			84.7			18.0	
Approach LOS	A			D			F			B	

Intersection Summary			
HCM Average Control Delay	39.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	260	445	196	184	340	259	32	229	31	654
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	4.0	4.0			3.5	4.0
Lane Util. Factor	0.91	0.86	0.91	1.00	0.95	1.00			1.00	0.95
Frt	1.00	0.99	0.85	0.85	1.00	0.85			1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00			0.95	1.00
Satd. Flow (prot)	1610	3177	1441	1583	3539	1583			1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00			0.95	1.00
Satd. Flow (perm)	1610	3177	1441	1583	3539	1583			1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	283	484	213	200	370	282	35	249	34	711
RTOR Reduction (vph)	0	0	0	76	0	4	0	0	0	0
Lane Group Flow (vph)	255	533	192	124	370	313	0	0	283	711
Turn Type	Split		Prot	Perm		Perm		Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases				4		2				
Actuated Green, G (s)	28.1	28.1	28.1	28.1	43.2	43.2			22.2	68.9
Effective Green, g (s)	28.1	28.1	28.1	28.1	43.2	43.2			22.2	68.9
Actuated g/C Ratio	0.27	0.27	0.27	0.27	0.41	0.41			0.21	0.65
Clearance Time (s)	5.0	5.0	5.0	5.0	4.0	4.0			3.5	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	427	842	382	420	1442	645			371	2300
v/s Ratio Prot	0.16	c0.17	0.13		0.10				c0.16	0.20
v/s Ratio Perm				0.08		c0.20				
v/c Ratio	0.60	0.63	0.50	0.30	0.26	0.49			0.76	0.31
Uniform Delay, d1	34.0	34.4	33.0	31.1	20.8	23.2			39.4	8.1
Progression Factor	0.74	0.74	0.74	0.58	1.00	1.00			1.00	1.00
Incremental Delay, d2	1.7	1.2	0.8	0.3	0.4	2.6			9.0	0.3
Delay (s)	26.9	26.7	25.2	18.3	21.2	25.8			48.4	8.5
Level of Service	C	C	C	B	C	C			D	A
Approach Delay (s)		25.1			23.3					19.8
Approach LOS		C			C					B

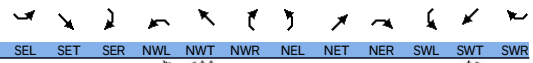
Intersection Summary			
HCM Average Control Delay	22.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	2273	103	381	340	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.86			0.91				
Frt					0.99			1.00				
Flt Protected					1.00			0.97				
Satd. Flow (prot)					6366			4954				
Flt Permitted					1.00			0.97				
Satd. Flow (perm)					6366			4954				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2471	112	414	370	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	1	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2575	0	0	783	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					38.0			34.0				
Effective Green, g (s)					38.0			34.0				
Actuated g/C Ratio					0.48			0.42				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					3024			2105				
v/s Ratio Prot					c0.40							
v/s Ratio Perm								0.16				
v/c Ratio					0.85			0.37				
Uniform Delay, d1					18.5			15.7				
Progression Factor					1.00			1.16				
Incremental Delay, d2					3.3			0.4				
Delay (s)					21.8			18.6				
Level of Service					C			B				
Approach Delay (s)		0.0			21.8			18.6			0.0	
Approach LOS		A			C			B			A	

Intersection Summary				
HCM Average Control Delay	21.0	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	74.5%	ICU Level of Service	D	
Analysis Period (min)	15			

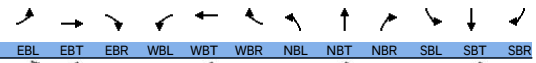
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	1142	1418	0	0	0	0	0	1032	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4743						3524	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4743						3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	1241	1541	0	0	0	0	0	1122	33
RTOR Reduction (vph)	0	0	0	4	4	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	679	2095	0	0	0	0	0	1152	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				46.0	46.0						26.0	
Effective Green, g (s)				46.0	46.0						26.0	
Actuated g/C Ratio				0.57	0.57						0.32	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				875	2727						1145	
v/s Ratio Prot											c0.33	
v/s Ratio Perm				c0.45	0.44							
v/c Ratio				0.78	0.77						1.01	
Uniform Delay, d1				13.0	12.9						27.0	
Progression Factor				1.41	1.42						1.00	
Incremental Delay, d2				4.1	1.3						28.2	
Delay (s)				22.5	19.7						55.2	
Level of Service				C	B						E	
Approach Delay (s)		0.0			20.4				0.0		55.2	
Approach LOS		A			C				A		E	

Intersection Summary				
HCM Average Control Delay	30.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	74.5%	ICU Level of Service	D	
Analysis Period (min)	15			

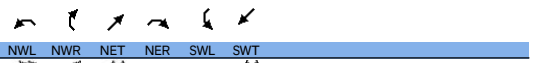
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	74	196	6	9	433	13	9	6	8	18	14	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	80	213	7	10	471	14	10	7	9	20	15	14

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	80	220	495	25	49
Volume Left (vph)	80	0	10	10	20
Volume Right (vph)	0	7	14	9	14
Hadj (s)	0.53	0.01	0.02	-0.10	-0.06
Departure Headway (s)	5.6	5.1	4.6	5.7	5.7
Degree Utilization, x	0.13	0.31	0.63	0.04	0.08
Capacity (veh/h)	622	683	771	538	552
Control Delay (s)	8.3	9.2	15.0	8.9	9.1
Approach Delay (s)	9.0		15.0	8.9	9.1
Approach LOS	A		C	A	A

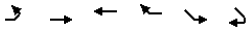
Intersection Summary				
Delay	12.4			
HCM Level of Service	B			
Intersection Capacity Utilization	48.1%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	443	302	461	0	0	1028
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	3539			3539
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	3539			3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	482	328	501	0	0	1117
RTOR Reduction (vph)	0	171	0	0	0	0
Lane Group Flow (vph)	482	157	501	0	0	1117
Turn Type		custom				
Protected Phases	4		2			2
Permitted Phases		2				
Actuated Green, G (s)	21.0	35.1	35.1			35.1
Effective Green, g (s)	21.0	35.1	35.1			35.1
Actuated g/C Ratio	0.26	0.44	0.44			0.44
Clearance Time (s)	4.0	4.0	4.0			4.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	901	695	1553			1553
v/s Ratio Prot	c0.14		0.14			c0.32
v/s Ratio Perm		0.10				
v/c Ratio	0.53	0.23	0.32			0.72
Uniform Delay, d1	25.3	14.0	14.7			18.4
Progression Factor	1.00	1.00	0.13			1.00
Incremental Delay, d2	0.6	0.8	0.5			2.9
Delay (s)	25.9	14.7	2.5			21.3
Level of Service	C	B	A			C
Approach Delay (s)	21.4		2.5			21.3
Approach LOS	C		A			C

Intersection Summary				
HCM Average Control Delay	17.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.65			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	23.9	
Intersection Capacity Utilization	75.3%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	471	0	572	262	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	512	0	622	285	0	0

Direction, Lane #	EB 1	WB 1	WB 2	WB 3
Volume Total (vph)	512	311	311	285
Volume Left (vph)	512	0	0	0
Volume Right (vph)	0	0	0	285
Hadj (s)	0.23	0.03	0.03	-0.67
Departure Headway (s)	4.8	4.9	4.9	3.2
Degree Utilization, x	0.68	0.42	0.42	0.25
Capacity (veh/h)	751	726	727	1112
Control Delay (s)	17.1	10.2	10.2	6.1
Approach Delay (s)	17.1	8.9		
Approach LOS	C	A		

Intersection Summary				
Delay		11.9		
HCM Level of Service		B		
Intersection Capacity Utilization	49.0%	ICU Level of Service	A	
Analysis Period (min)		15		

Existing plus Project (Phase I and Phase II) Conditions
PM Peak Hour

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	0	0	1069	772	235	770
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.0	4.0	4.0	4.0
Lane Util. Factor			0.95	1.00	1.00	0.95
Frt			1.00	0.85	1.00	1.00
Flt Protected			1.00	1.00	0.95	1.00
Satd. Flow (prot)			3539	1583	1770	3539
Flt Permitted			1.00	1.00	0.95	1.00
Satd. Flow (perm)			3539	1583	1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	1162	839	255	837
RTOR Reduction (vph)	0	0	0	284	0	0
Lane Group Flow (vph)	0	0	1162	556	255	837
Turn Type				Perm	Prot	
Protected Phases			2		1	2 4
Permitted Phases				2		
Actuated Green, G (s)			36.8	36.8	14.8	57.2
Effective Green, g (s)			36.8	36.8	14.8	57.2
Actuated g/C Ratio			0.46	0.46	0.18	0.72
Clearance Time (s)			4.0	4.0	4.0	
Vehicle Extension (s)			3.0	3.0	3.0	
Lane Grp Cap (vph)			1628	728	327	2530
v/s Ratio Prot			0.33		c0.14	c0.24
v/s Ratio Perm				c0.35		
v/c Ratio			0.71	0.76	0.78	0.33
Uniform Delay, d1			17.4	18.0	31.0	4.3
Progression Factor			1.00	1.00	1.34	0.08
Incremental Delay, d2			2.7	7.4	10.2	0.1
Delay (s)			20.1	25.4	51.8	0.4
Level of Service			C	C	D	A
Approach Delay (s)	0.0		22.3			12.4
Approach LOS	A		C			B

Intersection Summary			
HCM Average Control Delay	18.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	383	623	0	1937	466	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	416	677	0	2105	507	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1559	253	507			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1559	253	507			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	9	100			
cM capacity (veh/h)	103	746	1054			

Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	416	677	1053	1053	253	253
Volume Left	416	0	0	0	0	0
Volume Right	0	677	0	0	0	0
cSH	103	746	1700	1700	1700	1700
Volume to Capacity	4.04	0.91	0.62	0.62	0.15	0.15
Queue Length 95th (ft)	Err	305	0	0	0	0
Control Delay (s)	Err	38.0	0.0	0.0	0.0	0.0
Lane LOS	F	E				
Approach Delay (s)	3830.3		0.0		0.0	
Approach LOS	F					

Intersection Summary			
Average Delay	1130.3		
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	298	768	224	0	696	629	350	785	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.97			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4913			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4913			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	324	835	243	0	757	684	380	853	0
RTOR Reduction (vph)	0	0	0	38	0	0	0	106	0	0	0
Lane Group Flow (vph)	0	0	0	1364	0	0	757	578	380	853	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				29.4			21.0	21.0	26.6	51.6	
Effective Green, g (s)				29.4			21.0	21.0	26.6	51.6	
Actuated g/C Ratio				0.33			0.23	0.23	0.30	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1605			826	369	523	2029	
v/s Ratio Prot				c0.28			0.21		c0.21	0.24	
v/s Ratio Perm								c0.37			
v/c Ratio				0.85			0.92	1.57	0.73	0.42	
Uniform Delay, d1				28.2			33.6	34.5	28.4	10.8	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				4.4			16.6	268.0	5.0	0.1	
Delay (s)				32.7			50.2	302.5	33.4	10.9	
Level of Service				C			D	F	C	B	
Approach Delay (s)	0.0			32.7			170.0			17.9	
Approach LOS	A			C			F			B	

Intersection Summary			
HCM Average Control Delay	76.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	329	830	424	163	444	483	144	263	19	456
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	4.0	4.0			4.0	4.0
Lane Util. Factor	0.91	0.86	0.91	1.00	0.95	1.00			1.00	0.95
Frt	1.00	0.99	0.85	0.85	1.00	0.85			1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	1.00	1.00			0.95	1.00
Satd. Flow (prot)	1610	3176	1441	1583	3539	1583			1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	1.00	1.00			0.95	1.00
Satd. Flow (perm)	1610	3176	1441	1583	3539	1583			1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	358	902	461	177	483	525	157	286	21	496
RTOR Reduction (vph)	0	0	0	34	0	12	0	0	0	0
Lane Group Flow (vph)	322	984	415	143	483	670	0	0	307	496
Turn Type	Split		Prot	Perm		Perm		Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases				4		2				
Actuated Green, G (s)	28.0	28.0	28.0	28.0	37.0	37.0			12.0	53.0
Effective Green, g (s)	28.0	28.0	28.0	28.0	37.0	37.0			12.0	53.0
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.41	0.41			0.13	0.59
Clearance Time (s)	5.0	5.0	5.0	5.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	501	988	448	492	1455	651			236	2084
v/s Ratio Prot	0.20	c0.31	0.29		0.14				c0.17	0.14
v/s Ratio Perm				0.09		c0.42				
v/c Ratio	0.64	1.00	0.93	0.29	0.33	1.03			1.30	0.24
Uniform Delay, d1	26.7	30.9	30.0	23.5	18.1	26.5			39.0	8.8
Progression Factor	0.77	0.80	0.79	0.67	1.00	1.00			1.00	1.00
Incremental Delay, d2	0.6	7.7	4.1	0.1	0.6	43.0			162.8	0.3
Delay (s)	21.1	32.6	27.8	15.9	18.7	69.5			201.8	9.1
Level of Service	C	C	C	B	B	E			F	A
Approach Delay (s)		28.0			48.5					82.8
Approach LOS		C			D					F

Intersection Summary			
HCM Average Control Delay	45.6	HCM Level of Service	D
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	1240	172	242	820	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.86			0.91				
Frt					0.98			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6291			5028				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6291			5028				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1348	187	263	891	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	21	0	0	18	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1515	0	0	1136	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					30.0			22.0				
Effective Green, g (s)					30.0			22.0				
Actuated g/C Ratio					0.50			0.37				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					3146			1844				
v/s Ratio Prot					c0.24							
v/s Ratio Perm								0.23				
v/c Ratio					0.48			0.62				
Uniform Delay, d1					9.9			15.5				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.5			1.6				
Delay (s)					10.4			17.1				
Level of Service					B			B				
Approach Delay (s)		0.0			10.4			17.1			0.0	
Approach LOS		A			B			B			A	

Intersection Summary				
HCM Average Control Delay	13.3	HCM Level of Service		B
HCM Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	52.4%	ICU Level of Service		A
Analysis Period (min)	15			

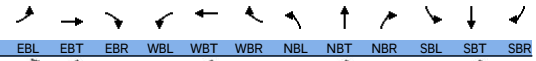
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	502	1008	0	0	0	0	0	533	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4778						3495	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4778						3495	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	546	1096	0	0	0	0	0	579	52
RTOR Reduction (vph)	0	0	0	78	26	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	322	1217	0	0	0	0	0	620	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				29.0	29.0						23.0	
Effective Green, g (s)				29.0	29.0						23.0	
Actuated g/C Ratio				0.48	0.48						0.38	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				736	2309						1340	
v/s Ratio Prot											c0.18	
v/s Ratio Perm				0.21	0.25							
v/c Ratio				0.44	0.53						0.46	
Uniform Delay, d1				10.2	10.7						13.9	
Progression Factor				1.88	1.47						1.00	
Incremental Delay, d2				1.7	0.8						1.2	
Delay (s)				20.7	16.5						15.0	
Level of Service				C	B						B	
Approach Delay (s)		0.0			17.5				0.0		15.0	
Approach LOS		A			B				A		B	

Intersection Summary				
HCM Average Control Delay	16.8	HCM Level of Service		B
HCM Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)		8.0
Intersection Capacity Utilization	52.4%	ICU Level of Service		A
Analysis Period (min)	15			

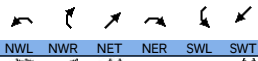
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	169	437	8	13	185	15	12	18	22	50	37	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	184	475	9	14	201	16	13	20	24	54	40	36

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	184	484	232	57	130
Volume Left (vph)	184	0	14	13	54
Volume Right (vph)	0	9	16	24	36
Hadj (s)	0.53	0.02	0.00	-0.17	-0.05
Departure Headway (s)	5.9	5.4	5.4	6.1	6.0
Degree Utilization, x	0.30	0.72	0.35	0.10	0.22
Capacity (veh/h)	593	653	640	528	543
Control Delay (s)	10.2	19.9	11.2	9.7	10.7
Approach Delay (s)	17.2		11.2	9.7	10.7
Approach LOS	C		B	A	B

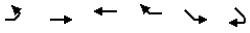
Intersection Summary				
Delay	14.8			
HCM Level of Service	B			
Intersection Capacity Utilization	56.7%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	245	255	1069	0	0	760
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0			4.0
Lane Util. Factor	0.97	1.00	0.95			0.95
Frt	1.00	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3433	1583	3539			3539
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3433	1583	3539			3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	266	277	1162	0	0	826
RTOR Reduction (vph)	0	150	0	0	0	0
Lane Group Flow (vph)	266	127	1162	0	0	826
Turn Type		custom				
Protected Phases	4		2			2
Permitted Phases		2				
Actuated Green, G (s)	16.4	36.8	36.8			36.8
Effective Green, g (s)	16.4	36.8	36.8			36.8
Actuated g/C Ratio	0.20	0.46	0.46			0.46
Clearance Time (s)	4.0	4.0	4.0			4.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	704	728	1628			1628
v/s Ratio Prot	c0.08		c0.33			0.23
v/s Ratio Perm		0.08				
v/c Ratio	0.38	0.18	0.71			0.51
Uniform Delay, d1	27.4	12.7	17.4			15.2
Progression Factor	1.00	1.00	0.22			1.00
Incremental Delay, d2	0.3	0.5	1.9			1.1
Delay (s)	27.7	13.2	5.6			16.3
Level of Service	C	B	A			B
Approach Delay (s)	20.3		5.6			16.3
Approach LOS	C		A			B

Intersection Summary				
HCM Average Control Delay	12.3	HCM Level of Service		B
HCM Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		26.8
Intersection Capacity Utilization	67.5%	ICU Level of Service		C
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Sign Control		Stop	Stop		Stop	
Volume (vph)	350	0	466	148	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	380	0	507	161	0	0

Direction, Lane #	EB 1	WB 1	WB 2	WB 3
Volume Total (vph)	380	253	253	161
Volume Left (vph)	380	0	0	0
Volume Right (vph)	0	0	0	161
Hadj (s)	0.23	0.03	0.03	-0.67
Departure Headway (s)	4.7	4.8	4.8	3.2
Degree Utilization, x	0.49	0.34	0.34	0.14
Capacity (veh/h)	761	739	740	1121
Control Delay (s)	12.2	9.0	9.0	5.5
Approach Delay (s)	12.2	8.2		
Approach LOS	B	A		

Intersection Summary				
Delay		9.6		
HCM Level of Service		A		
Intersection Capacity Utilization	38.9%	ICU Level of Service	A	
Analysis Period (min)		15		

Existing plus Project (Phase I and Phase II) Conditions Mitigated

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	395	626	270	0	571	184	277	1208	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	0.88	1.00	0.95	
Frt				0.97			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4895			3539	2787	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4895			3539	2787	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	429	680	293	0	621	200	301	1313	0
RTOR Reduction (vph)	0	0	0	34	0	0	0	167	0	0	0
Lane Group Flow (vph)	0	0	0	1368	0	0	621	33	301	1313	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				35.0			17.5	17.5	40.5	62.0	
Effective Green, g (s)				35.0			17.5	17.5	40.5	62.0	
Actuated g/C Ratio				0.33			0.17	0.17	0.38	0.58	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1616			584	460	676	2070	
v/s Ratio Prot				c0.28			c0.18		0.17	c0.37	
v/s Ratio Perm								0.01			
v/c Ratio				0.85			1.06	0.07	0.45	0.63	
Uniform Delay, d1				33.0			44.3	37.4	24.4	14.5	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				4.3			55.2	0.3	2.1	1.5	
Delay (s)				37.3			99.5	37.7	26.5	16.0	
Level of Service				D			F	D	C	B	
Approach Delay (s)	0.0			37.3			84.4			18.0	
Approach LOS	A			D			F			B	

Intersection Summary			
HCM Average Control Delay	39.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	298	768	224	0	696	629	350	785	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	0.88	1.00	0.95	
Frt				0.97			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4913			3539	2787	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4913			3539	2787	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	324	835	243	0	757	684	380	853	0
RTOR Reduction (vph)	0	0	0	38	0	0	0	186	0	0	0
Lane Group Flow (vph)	0	0	0	1364	0	0	757	498	380	853	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				29.4			21.0	21.0	26.6	51.6	
Effective Green, g (s)				29.4			21.0	21.0	26.6	51.6	
Actuated g/C Ratio				0.33			0.23	0.23	0.30	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1605			826	650	523	2029	
v/s Ratio Prot				c0.28			c0.21		c0.21	0.24	
v/s Ratio Perm								0.18			
v/c Ratio				0.85			0.92	0.77	0.73	0.42	
Uniform Delay, d1				28.2			33.6	32.2	28.4	10.8	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				4.4			16.6	8.4	5.0	0.1	
Delay (s)				32.7			50.2	40.6	33.4	10.9	
Level of Service				C			D	D	C	B	
Approach Delay (s)	0.0			32.7			45.7			17.9	
Approach LOS	A			C			D			B	

Intersection Summary			
HCM Average Control Delay	32.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

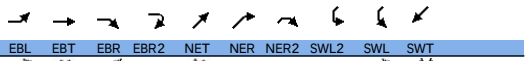
Near-Term (2015) plus Project (Phase I) Conditions
AM Peak Hour



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	671	706	221	0	424	213	282	1299	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.98			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4931			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4931			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.95	0.92
Adj. Flow (vph)	0	0	706	743	233	0	446	224	297	1367	0
RTOR Reduction (vph)	0	0	0	22	0	0	0	187	0	0	0
Lane Group Flow (vph)	0	0	0	1660	0	0	446	37	297	1367	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				36.5			17.5	17.5	39.0	60.5	
Effective Green, g (s)				36.5			17.5	17.5	39.0	60.5	
Actuated g/C Ratio				0.34			0.17	0.17	0.37	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1698			584	261	651	2020	
v/s Ratio Prot				c0.34			0.13		0.17	c0.39	
v/s Ratio Perm								0.02			
v/c Ratio				1.12dl			0.76	0.14	0.46	0.68	
Uniform Delay, d1				34.4			42.3	37.8	25.4	15.9	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				16.7			9.2	1.1	2.3	1.8	
Delay (s)				51.0			51.4	39.0	27.7	17.8	
Level of Service				D			D	D	C	B	
Approach Delay (s)	0.0			51.0			47.3			19.5	
Approach LOS	A			D			D			B	

Intersection Summary				
HCM Average Control Delay	37.3	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	8.5	
Intersection Capacity Utilization	80.2%	ICU Level of Service	D	
Analysis Period (min)	15			

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	261	490	217	198	341	178	21	345	47	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.97	0.85		0.94				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3101	1441		3343				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3101	1441		3343				1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.97	0.97	0.97	0.95	0.95	0.95
Adj. Flow (vph)	275	516	228	208	352	184	22	363	49	484
RTOR Reduction (vph)	0	0	81	0	3	0	0	0	0	0
Lane Group Flow (vph)	247	681	218	0	555	0	0	0	412	484
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	30.3	30.3	30.3		34.9				28.3	66.7
Effective Green, g (s)	30.3	30.3	30.3		34.9				28.3	66.7
Actuated g/C Ratio	0.29	0.29	0.29		0.33				0.27	0.63
Clearance Time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	460	886	412		1101				473	2227
v/s Ratio Prot	0.15	c0.22	0.15		c0.17				c0.23	0.14
v/s Ratio Perm										
v/c Ratio	0.54	0.77	0.53		0.50				0.87	0.22
Uniform Delay, d1	31.9	34.6	31.9		28.6				37.1	8.4
Progression Factor	0.70	0.71	0.56		1.00				1.00	1.00
Incremental Delay, d2	0.7	2.5	0.8		1.7				16.0	0.2
Delay (s)	23.2	27.1	18.6		30.2				53.1	8.7
Level of Service	C	C	B		C				D	A
Approach Delay (s)		24.2			30.2					29.1
Approach LOS		C			C					C

Intersection Summary				
HCM Average Control Delay	27.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.5	
Intersection Capacity Utilization	67.3%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	2615	126	466	409	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.86			0.91				
Frt					0.99			1.00				
Flt Protected					1.00			0.97				
Satd. Flow (prot)					6362			4952				
Flt Permitted					1.00			0.97				
Satd. Flow (perm)					6362			4952				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.98	0.95	0.95	0.97	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2668	133	491	422	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	9	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2792	0	0	913	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					38.0			34.0				
Effective Green, g (s)					38.0			34.0				
Actuated g/C Ratio					0.48			0.42				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					3022			2105				
v/s Ratio Prot					c0.44							
v/s Ratio Perm								0.18				
v/c Ratio					0.92			0.43				
Uniform Delay, d1					19.6			16.2				
Progression Factor					1.00			1.13				
Incremental Delay, d2					6.1			0.5				
Delay (s)					25.8			18.8				
Level of Service					C			B				
Approach Delay (s)		0.0			25.8			18.8			0.0	
Approach LOS		A			C			B			A	

Intersection Summary				
HCM Average Control Delay	24.1	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.69			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	85.7%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	1232	1734	0	0	0	0	0	1228	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4755						3524	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4755						3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.99	0.95	0.92	0.92	0.92	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	1244	1825	0	0	0	0	0	1293	39
RTOR Reduction (vph)	0	0	0	2	2	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	744	2321	0	0	0	0	0	1329	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				46.0	46.0						26.0	
Effective Green, g (s)				46.0	46.0						26.0	
Actuated g/C Ratio				0.57	0.57						0.32	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				875	2734						1145	
v/s Ratio Prot											c0.38	
v/s Ratio Perm				c0.49	0.49							
v/c Ratio				0.85	0.85						1.16	
Uniform Delay, d1				14.1	14.1						27.0	
Progression Factor				1.39	1.39						1.00	
Incremental Delay, d2				5.4	1.8						82.4	
Delay (s)				25.2	21.5						109.4	
Level of Service				C	C						F	
Approach Delay (s)		0.0			22.4				0.0		109.4	
Approach LOS		A			C				A		F	

Intersection Summary				
HCM Average Control Delay	48.7	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.96			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	85.7%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	90	233	7	11	496	16	11	7	10	22	17	16
Peak Hour Factor	0.98	0.98	0.98	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	92	238	7	12	522	17	12	7	11	23	18	17

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	92	245	551	29	58
Volume Left (vph)	92	0	12	12	23
Volume Right (vph)	0	7	17	11	17
Hadj (s)	0.53	0.01	0.02	-0.10	-0.06
Departure Headway (s)	5.8	5.2	4.7	6.0	5.9
Degree Utilization, x	0.15	0.36	0.72	0.05	0.10
Capacity (veh/h)	609	667	756	534	537
Control Delay (s)	8.6	9.9	18.6	9.3	9.5
Approach Delay (s)	9.6		18.6	9.3	9.5
Approach LOS	A		C	A	A

Intersection Summary				
Delay		14.7		
HCM Level of Service		B		
Intersection Capacity Utilization	54.4%	ICU Level of Service		A
Analysis Period (min)		15		

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	361	213	521	286	115	1223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frt	0.95		0.95		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1716		3351		1770	3539
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	1716		3351		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	380	224	548	301	121	1287
RTOR Reduction (vph)	38	0	122	0	0	0
Lane Group Flow (vph)	566	0	727	0	121	1287
Turn Type					Prot	
Protected Phases	4		6		5	2
Permitted Phases						
Actuated Green, G (s)	23.1		14.6		10.3	28.9
Effective Green, g (s)	23.1		14.6		10.3	28.9
Actuated g/C Ratio	0.38		0.24		0.17	0.48
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	661		815		304	1705
v/s Ratio Prot	c0.33		c0.22		0.07	c0.36
v/s Ratio Perm						
v/c Ratio	0.86		0.89		0.40	0.75
Uniform Delay, d1	16.9		21.9		22.1	12.7
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	10.6		14.2		3.9	3.2
Delay (s)	27.5		36.1		26.0	15.8
Level of Service	C		D		C	B
Approach Delay (s)	27.5		36.1			16.7
Approach LOS	C		D			B

Intersection Summary			
HCM Average Control Delay	24.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	350	233	416	206	187	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3363		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3363		1770	1583
Peak-hour factor, PHF	0.98	0.98	0.95	0.95	0.97	0.97
Adj. Flow (vph)	357	238	438	217	193	205
RTOR Reduction (vph)	0	0	102	0	0	160
Lane Group Flow (vph)	357	238	553	0	193	45
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	14.0	31.2	13.2		10.9	10.9
Effective Green, g (s)	14.0	31.2	13.2		10.9	10.9
Actuated g/C Ratio	0.28	0.62	0.26		0.22	0.22
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	495	2204	886		385	344
v/s Ratio Prot	c0.20	0.07	c0.16		c0.11	
v/s Ratio Perm						0.03
v/c Ratio	0.72	0.11	0.62		0.50	0.13
Uniform Delay, d1	16.3	3.8	16.3		17.2	15.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.1	0.0	1.4		1.0	0.2
Delay (s)	21.4	3.8	17.6		18.2	16.0
Level of Service	C	A	B		B	B
Approach Delay (s)		14.4	17.6		17.1	
Approach LOS		B	B		B	

Intersection Summary				
HCM Average Control Delay	16.3	HCM Level of Service		B
HCM Volume to Capacity ratio	0.62			
Actuated Cycle Length (s)	50.1	Sum of lost time (s)		12.0
Intersection Capacity Utilization	57.8%	ICU Level of Service		B
Analysis Period (min)	15			
c Critical Lane Group				

Near-Term (2015) plus Project (Phase I) Conditions
PM Peak Hour

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	316	1362	142	0	571	628	490	1062	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.99			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4963			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4963			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.92	0.97	0.97	0.95	0.95	0.92
Adj. Flow (vph)	0	0	333	1434	149	0	589	647	516	1118	0
RTOR Reduction (vph)	0	0	0	11	0	0	0	56	0	0	0
Lane Group Flow (vph)	0	0	0	1905	0	0	589	591	516	1118	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				30.0			17.5	17.5	29.5	51.0	
Effective Green, g (s)				30.0			17.5	17.5	29.5	51.0	
Actuated g/C Ratio				0.33			0.19	0.19	0.33	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1654			688	308	580	2005	
v/s Ratio Prot				c0.38			0.17		c0.29	0.32	
v/s Ratio Perm								c0.37			
v/c Ratio				1.15			0.86	1.92	0.89	0.56	
Uniform Delay, d1				30.0			35.0	36.2	28.7	12.4	
Progression Factor				1.00			1.24	1.23	1.00	1.00	
Incremental Delay, d2				75.7			1.4	415.2	15.4	0.3	
Delay (s)				105.7			45.0	459.8	44.1	12.7	
Level of Service				F			D	F	D	B	
Approach Delay (s)	0.0			105.7			262.1			22.6	
Approach LOS	A			F			F			C	

Intersection Summary			
HCM Average Control Delay	117.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.23		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	414	1123	609	169	346	475	102	329	24	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.98	0.85		0.91				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3132	1441		3207				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3132	1441		3207				1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	436	1182	641	178	364	500	107	346	25	256
RTOR Reduction (vph)	0	0	16	0	11	0	0	0	0	0
Lane Group Flow (vph)	392	1425	604	0	960	0	0	0	371	256
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	28.0	28.0	28.0		37.0				12.0	53.0
Effective Green, g (s)	28.0	28.0	28.0		37.0				12.0	53.0
Actuated g/C Ratio	0.31	0.31	0.31		0.41				0.13	0.59
Clearance Time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	501	974	448		1318				236	2084
v/s Ratio Prot	0.24	c0.45	0.42		c0.30				c0.21	0.07
v/s Ratio Perm										
v/c Ratio	0.78	1.46	1.35		0.90dr				1.57	0.12
Uniform Delay, d1	28.2	31.0	31.0		22.3				39.0	8.2
Progression Factor	0.64	0.66	0.64		1.00				1.00	1.00
Incremental Delay, d2	1.1	208.9	158.2		3.6				276.9	0.1
Delay (s)	19.2	229.3	178.0		25.8				315.9	8.3
Level of Service	B	F	F		C				F	A
Approach Delay (s)		182.4			25.8					190.3
Approach LOS		F			C					F

Intersection Summary			
HCM Average Control Delay	146.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	1658	234	329	1045	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.86			0.91				
Frt					0.98			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6286			5025				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6286			5025				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.98	0.95	0.95	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1692	246	346	1100	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	9	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1929	0	0	1440	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					30.0			22.0				
Effective Green, g (s)					30.0			22.0				
Actuated g/C Ratio					0.50			0.37				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					3143			1843				
v/s Ratio Prot					c0.31							
v/s Ratio Perm								0.29				
v/c Ratio					0.61			0.78				
Uniform Delay, d1					10.8			16.9				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.9			3.4				
Delay (s)					11.7			20.2				
Level of Service					B			C				
Approach Delay (s)		0.0			11.7			20.2			0.0	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM Average Control Delay	15.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	654	1371	0	0	0	0	0	718	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4778						3495	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4778						3495	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.99	0.92	0.92	0.92	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	688	1385	0	0	0	0	0	756	68
RTOR Reduction (vph)	0	0	0	41	26	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	461	1545	0	0	0	0	0	813	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				29.0	29.0						23.0	
Effective Green, g (s)				29.0	29.0						23.0	
Actuated g/C Ratio				0.48	0.48						0.38	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				736	2309						1340	
v/s Ratio Prot											c0.23	
v/s Ratio Perm				0.30	0.32							
v/c Ratio				0.63	0.67						0.61	
Uniform Delay, d1				11.5	11.8						14.9	
Progression Factor				1.47	1.41						1.00	
Incremental Delay, d2				3.1	1.2						2.0	
Delay (s)				20.1	17.9						16.9	
Level of Service				C	B						B	
Approach Delay (s)		0.0			18.4				0.0		16.9	
Approach LOS		A			B				A		B	

Intersection Summary			
HCM Average Control Delay	18.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	230	524	11	18	245	20	16	24	30	68	50	45
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	242	552	12	19	258	21	17	25	32	72	53	47

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	242	563	298	74	172
Volume Left (vph)	242	0	19	17	72
Volume Right (vph)	0	12	21	32	47
Hadj (s)	0.53	0.02	0.00	-0.18	-0.05
Departure Headway (s)	6.3	5.8	5.8	6.7	6.5
Degree Utilization, x	0.42	0.90	0.48	0.14	0.31
Capacity (veh/h)	559	618	582	494	522
Control Delay (s)	12.6	38.9	14.1	10.8	12.4
Approach Delay (s)	31.0		14.1	10.8	12.4
Approach LOS	D		B	B	B

Intersection Summary			
Delay	23.8		
HCM Level of Service	C		
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	192	170	1124	787	149	847
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frt	0.94		0.94		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1700		3321		1770	3539
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	1700		3321		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	202	179	1183	828	157	892
RTOR Reduction (vph)	44	0	106	0	0	0
Lane Group Flow (vph)	337	0	1905	0	157	892
Turn Type					Prot	
Protected Phases	4		6		5	2
Permitted Phases						
Actuated Green, G (s)	23.3		41.5		13.2	58.7
Effective Green, g (s)	23.3		41.5		13.2	58.7
Actuated g/C Ratio	0.26		0.46		0.15	0.65
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	440		1531		260	2308
v/s Ratio Prot	c0.20		c0.57		c0.09	0.25
v/s Ratio Perm						
v/c Ratio	0.76		1.24		0.60	0.39
Uniform Delay, d1	30.8		24.2		36.0	7.3
Progression Factor	1.00		1.00		1.00	0.36
Incremental Delay, d2	7.7		115.6		3.1	0.4
Delay (s)	38.6		139.8		39.1	3.0
Level of Service	D		F		D	A
Approach Delay (s)	38.6		139.8			8.4
Approach LOS	D		F			A

Intersection Summary			
HCM Average Control Delay	88.5	HCM Level of Service	F
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	254	299	247	109	416	447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3376		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3376		1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	267	315	260	115	438	471
RTOR Reduction (vph)	0	0	93	0	0	321
Lane Group Flow (vph)	267	315	282	0	438	150
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	12.2	25.5	9.3		15.6	15.6
Effective Green, g (s)	12.2	25.5	9.3		15.6	15.6
Actuated g/C Ratio	0.25	0.52	0.19		0.32	0.32
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	440	1838	639		562	503
v/s Ratio Prot	c0.15	0.09	c0.08		c0.25	
v/s Ratio Perm						0.09
v/c Ratio	0.61	0.17	0.44		0.78	0.30
Uniform Delay, d1	16.3	6.2	17.6		15.2	12.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.4	0.0	0.5		6.8	0.3
Delay (s)	18.7	6.3	18.1		21.9	13.0
Level of Service	B	A	B		C	B
Approach Delay (s)		12.0	18.1		17.3	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	49.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

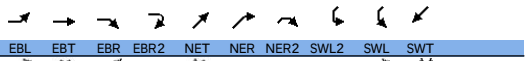
Near-Term (2015) plus Project (Phase I and Phase II) Conditions AM Peak Hour



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	671	706	221	0	424	215	282	1398	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.98			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4931			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4931			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.95	0.92
Adj. Flow (vph)	0	0	706	743	233	0	446	226	297	1472	0
RTOR Reduction (vph)	0	0	0	22	0	0	0	189	0	0	0
Lane Group Flow (vph)	0	0	0	1660	0	0	446	37	297	1472	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				36.5			17.5	17.5	39.0	60.5	
Effective Green, g (s)				36.5			17.5	17.5	39.0	60.5	
Actuated g/C Ratio				0.34			0.17	0.17	0.37	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1698			584	261	651	2020	
v/s Ratio Prot				c0.34			0.13		0.17	c0.42	
v/s Ratio Perm								0.02			
v/c Ratio				1.12dl			0.76	0.14	0.46	0.73	
Uniform Delay, d1				34.4			42.3	37.8	25.4	16.7	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				16.7			9.2	1.1	2.3	2.3	
Delay (s)				51.0			51.4	39.0	27.7	19.1	
Level of Service				D			D	D	C	B	
Approach Delay (s)	0.0			51.0			47.3			20.5	
Approach LOS	A			D			D			C	

Intersection Summary				
HCM Average Control Delay	37.3	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	8.5	
Intersection Capacity Utilization	82.9%	ICU Level of Service	E	
Analysis Period (min)	15			

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	261	492	217	198	341	178	23	345	47	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.97	0.85		0.94				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3101	1441		3342				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3101	1441		3342				1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.97	0.97	0.97	0.95	0.95	0.95
Adj. Flow (vph)	275	518	228	208	352	184	24	363	49	484
RTOR Reduction (vph)	0	0	81	0	3	0	0	0	0	0
Lane Group Flow (vph)	247	683	218	0	557	0	0	0	412	484
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	30.3	30.3	30.3		34.9				28.3	66.7
Effective Green, g (s)	30.3	30.3	30.3		34.9				28.3	66.7
Actuated g/C Ratio	0.29	0.29	0.29		0.33				0.27	0.63
Clearance Time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	460	886	412		1100				473	2227
v/s Ratio Prot	0.15	c0.22	0.15		c0.17				c0.23	0.14
v/s Ratio Perm										
v/c Ratio	0.54	0.77	0.53		0.51				0.87	0.22
Uniform Delay, d1	31.9	34.7	31.9		28.6				37.1	8.4
Progression Factor	0.70	0.71	0.56		1.00				1.00	1.00
Incremental Delay, d2	0.7	2.6	0.8		1.7				16.0	0.2
Delay (s)	23.2	27.2	18.6		30.3				53.1	8.7
Level of Service	C	C	B		C				D	A
Approach Delay (s)		24.3			30.3					29.1
Approach LOS		C			C					C

Intersection Summary				
HCM Average Control Delay	27.2	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.5	
Intersection Capacity Utilization	67.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	2741	126	466	414	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.86			0.91				
Frt					0.99			1.00				
Flt Protected					1.00			0.97				
Satd. Flow (prot)					6364			4953				
Flt Permitted					1.00			0.97				
Satd. Flow (perm)					6364			4953				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.98	0.95	0.95	0.97	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2797	133	491	427	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2922	0	0	918	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					38.0			34.0				
Effective Green, g (s)					38.0			34.0				
Actuated g/C Ratio					0.48			0.42				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					3023			2105				
v/s Ratio Prot					c0.46							
v/s Ratio Perm								0.19				
v/c Ratio					0.97			0.44				
Uniform Delay, d1					20.4			16.2				
Progression Factor					1.00			1.13				
Incremental Delay, d2					10.2			0.5				
Delay (s)					30.6			18.8				
Level of Service					C			B				
Approach Delay (s)		0.0			30.6			18.8			0.0	
Approach LOS		A			C			B			A	

Intersection Summary				
HCM Average Control Delay	27.8	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.72			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	88.3%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	1358	1734	0	0	0	0	0	1252	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4748						3524	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4748						3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.99	0.95	0.92	0.92	0.92	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	1372	1825	0	0	0	0	0	1318	39
RTOR Reduction (vph)	0	0	0	2	2	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	780	2413	0	0	0	0	0	1354	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				46.0	46.0						26.0	
Effective Green, g (s)				46.0	46.0						26.0	
Actuated g/C Ratio				0.57	0.57						0.32	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				875	2730						1145	
v/s Ratio Prot											c0.38	
v/s Ratio Perm				c0.51	0.51							
v/c Ratio				0.89	0.88						1.18	
Uniform Delay, d1				14.8	14.7						27.0	
Progression Factor				1.40	1.40						1.00	
Incremental Delay, d2				6.5	2.1						91.4	
Delay (s)				27.3	22.7						118.4	
Level of Service				C	C						F	
Approach Delay (s)		0.0			23.8			0.0			118.4	
Approach LOS		A			C			A			F	

Intersection Summary				
HCM Average Control Delay	52.0	HCM Level of Service	D	
HCM Volume to Capacity ratio	1.00			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	88.3%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	90	238	7	11	520	16	11	7	10	22	17	16
Peak Hour Factor	0.98	0.98	0.98	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	92	243	7	12	547	17	12	7	11	23	18	17

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	92	250	576	29	58
Volume Left (vph)	92	0	12	12	23
Volume Right (vph)	0	7	17	11	17
Hadj (s)	0.53	0.01	0.02	-0.10	-0.06
Departure Headway (s)	5.8	5.3	4.7	6.0	6.0
Degree Utilization, x	0.15	0.37	0.75	0.05	0.10
Capacity (veh/h)	606	663	755	533	535
Control Delay (s)	8.6	10.1	20.5	9.3	9.6
Approach Delay (s)	9.7		20.5	9.3	9.6
Approach LOS	A		C	A	A

Intersection Summary				
Delay		15.9		
HCM Level of Service		C		
Intersection Capacity Utilization		55.9%	ICU Level of Service	B
Analysis Period (min)		15		

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	361	213	523	288	115	1322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frt	0.95		0.95		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1716		3351		1770	3539
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	1716		3351		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	380	224	551	303	121	1392
RTOR Reduction (vph)	38	0	123	0	0	0
Lane Group Flow (vph)	566	0	731	0	121	1392
Turn Type					Prot	
Protected Phases	4		6		5	2
Permitted Phases						
Actuated Green, G (s)	23.1		14.6		10.3	28.9
Effective Green, g (s)	23.1		14.6		10.3	28.9
Actuated g/C Ratio	0.38		0.24		0.17	0.48
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	661		815		304	1705
v/s Ratio Prot	c0.33		0.22		0.07	c0.39
v/s Ratio Perm						
v/c Ratio	0.86		0.90		0.40	0.82
Uniform Delay, d1	16.9		22.0		22.1	13.3
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	10.6		14.7		3.9	4.5
Delay (s)	27.5		36.6		26.0	17.7
Level of Service	C		D		C	B
Approach Delay (s)	27.5		36.6			18.4
Approach LOS	C		D			B

Intersection Summary			
HCM Average Control Delay	25.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	350	233	416	206	189	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3363		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3363		1770	1583
Peak-hour factor, PHF	0.98	0.98	0.95	0.95	0.97	0.97
Adj. Flow (vph)	357	238	438	217	195	205
RTOR Reduction (vph)	0	0	102	0	0	160
Lane Group Flow (vph)	357	238	553	0	195	45
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	14.0	31.2	13.2		11.0	11.0
Effective Green, g (s)	14.0	31.2	13.2		11.0	11.0
Actuated g/C Ratio	0.28	0.62	0.26		0.22	0.22
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	494	2200	884		388	347
v/s Ratio Prot	c0.20	0.07	c0.16		c0.11	
v/s Ratio Perm						0.03
v/c Ratio	0.72	0.11	0.63		0.50	0.13
Uniform Delay, d1	16.3	3.9	16.3		17.2	15.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	5.2	0.0	1.4		1.0	0.2
Delay (s)	21.5	3.9	17.7		18.2	15.9
Level of Service	C	A	B		B	B
Approach Delay (s)		14.5	17.7		17.0	
Approach LOS		B	B		B	

Intersection Summary				
HCM Average Control Delay	16.4	HCM Level of Service		B
HCM Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	50.2	Sum of lost time (s)		12.0
Intersection Capacity Utilization	58.0%	ICU Level of Service		B
Analysis Period (min)	15			
c Critical Lane Group				

Near-Term (2015) plus Project (Phase I and Phase II) Conditions PM Peak Hour

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	316	1362	142	0	571	666	490	1085	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.99			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4963			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4963			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.92	0.97	0.97	0.95	0.95	0.92
Adj. Flow (vph)	0	0	333	1434	149	0	589	687	516	1142	0
RTOR Reduction (vph)	0	0	0	11	0	0	0	56	0	0	0
Lane Group Flow (vph)	0	0	0	1905	0	0	589	631	516	1142	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				30.0			17.5	17.5	29.5	51.0	
Effective Green, g (s)				30.0			17.5	17.5	29.5	51.0	
Actuated g/C Ratio				0.33			0.19	0.19	0.33	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1654			688	308	580	2005	
v/s Ratio Prot				c0.38			0.17		c0.29	0.32	
v/s Ratio Perm								c0.40			
v/c Ratio				1.15			0.86	2.05	0.89	0.57	
Uniform Delay, d1				30.0			35.0	36.2	28.7	12.5	
Progression Factor				1.00			1.25	1.25	1.00	1.00	
Incremental Delay, d2				75.7			1.4	473.5	15.4	0.4	
Delay (s)				105.7			45.2	518.7	44.1	12.9	
Level of Service				F			D	F	D	B	
Approach Delay (s)	0.0			105.7			300.1			22.6	
Approach LOS	A			F			F			C	

Intersection Summary			
HCM Average Control Delay	128.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	414	1161	609	169	346	475	143	329	24	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.98	0.85		0.90				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3138	1441		3199				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3138	1441		3199				1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	436	1222	641	178	364	500	151	346	25	256
RTOR Reduction (vph)	0	0	16	0	16	0	0	0	0	0
Lane Group Flow (vph)	392	1452	617	0	999	0	0	0	371	256
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	28.0	28.0	28.0		37.0				12.0	53.0
Effective Green, g (s)	28.0	28.0	28.0		37.0				12.0	53.0
Actuated g/C Ratio	0.31	0.31	0.31		0.41				0.13	0.59
Clearance Time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	501	976	448		1315				236	2084
v/s Ratio Prot	0.24	c0.46	0.43		c0.31				c0.21	0.07
v/s Ratio Perm										
v/c Ratio	0.78	1.49	1.38		0.96dr				1.57	0.12
Uniform Delay, d1	28.2	31.0	31.0		22.7				39.0	8.2
Progression Factor	0.65	0.66	0.64		1.00				1.00	1.00
Incremental Delay, d2	1.1	220.0	171.2		4.2				276.9	0.1
Delay (s)	19.4	240.5	191.1		26.9				315.9	8.3
Level of Service	B	F	F		C				F	A
Approach Delay (s)		192.9			26.9					190.3
Approach LOS		F			C					F

Intersection Summary			
HCM Average Control Delay	151.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	1677	234	329	1088	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.86			0.91				
Frt					0.98			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6287			5027				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6287			5027				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.98	0.95	0.95	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1711	246	346	1145	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	6	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1950	0	0	1485	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					30.0			22.0				
Effective Green, g (s)					30.0			22.0				
Actuated g/C Ratio					0.50			0.37				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					3144			1843				
v/s Ratio Prot					c0.31							
v/s Ratio Perm								0.30				
v/c Ratio					0.62			0.81				
Uniform Delay, d1					10.9			17.1				
Progression Factor					1.00			1.00				
Incremental Delay, d2					0.9			3.9				
Delay (s)					11.8			21.0				
Level of Service					B			C				
Approach Delay (s)		0.0			11.8			21.0			0.0	
Approach LOS		A			B			C			A	

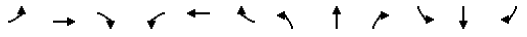
Intersection Summary			
HCM Average Control Delay	15.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	673	1371	0	0	0	0	0	722	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4776						3496	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4776						3496	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.99	0.92	0.92	0.92	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	0	0	708	1385	0	0	0	0	0	760	68
RTOR Reduction (vph)	0	0	0	40	28	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	470	1555	0	0	0	0	0	817	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				29.0	29.0						23.0	
Effective Green, g (s)				29.0	29.0						23.0	
Actuated g/C Ratio				0.48	0.48						0.38	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				736	2308						1340	
v/s Ratio Prot											c0.23	
v/s Ratio Perm				0.31	0.33							
v/c Ratio				0.64	0.67						0.61	
Uniform Delay, d1				11.6	11.9						14.9	
Progression Factor				1.48	1.42						1.00	
Incremental Delay, d2				3.2	1.2						2.1	
Delay (s)				20.3	18.1						17.0	
Level of Service				C	B						B	
Approach Delay (s)		0.0			18.6				0.0		17.0	
Approach LOS		A			B				A		B	

Intersection Summary			
HCM Average Control Delay	18.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	230	567	11	18	249	20	16	24	30	68	50	45
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	242	597	12	19	262	21	17	25	32	72	53	47

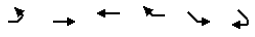
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	242	608	302	74	172
Volume Left (vph)	242	0	19	17	72
Volume Right (vph)	0	12	21	32	47
Hadj (s)	0.53	0.02	0.00	-0.18	-0.05
Departure Headway (s)	6.3	5.8	5.9	6.8	6.6
Degree Utilization, x	0.42	0.98	0.49	0.14	0.32
Capacity (veh/h)	558	608	601	492	521
Control Delay (s)	12.7	53.9	14.5	10.9	12.6
Approach Delay (s)	42.1		14.5	10.9	12.6
Approach LOS	E		B	B	B

Intersection Summary			
Delay	30.9		
HCM Level of Service	D		
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	192	170	1162	828	149	870
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frt	0.94		0.94		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1700		3318		1770	3539
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	1700		3318		1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	202	179	1223	872	157	916
RTOR Reduction (vph)	44	0	108	0	0	0
Lane Group Flow (vph)	337	0	1987	0	157	916
Turn Type					Prot	
Protected Phases	4		6		5	2
Permitted Phases						
Actuated Green, G (s)	23.3		41.5		13.2	58.7
Effective Green, g (s)	23.3		41.5		13.2	58.7
Actuated g/C Ratio	0.26		0.46		0.15	0.65
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	440		1530		260	2308
v/s Ratio Prot	c0.20		c0.60		c0.09	0.26
v/s Ratio Perm						
v/c Ratio	0.76		1.30		0.60	0.40
Uniform Delay, d1	30.8		24.2		36.0	7.3
Progression Factor	1.00		1.00		1.02	0.35
Incremental Delay, d2	7.7		139.3		3.0	0.4
Delay (s)	38.6		163.5		39.7	3.0
Level of Service	D		F		D	A
Approach Delay (s)	38.6		163.5			8.3
Approach LOS	D		F			A

Intersection Summary			
HCM Average Control Delay	103.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	98.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	254	299	247	109	457	447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3376		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3376		1770	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	267	315	260	115	481	471
RTOR Reduction (vph)	0	0	93	0	0	317
Lane Group Flow (vph)	267	315	282	0	481	154
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	12.2	25.5	9.3		16.2	16.2
Effective Green, g (s)	12.2	25.5	9.3		16.2	16.2
Actuated g/C Ratio	0.25	0.51	0.19		0.33	0.33
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	434	1816	632		577	516
v/s Ratio Prot	c0.15	0.09	c0.08		c0.27	
v/s Ratio Perm						0.10
v/c Ratio	0.62	0.17	0.45		0.83	0.30
Uniform Delay, d1	16.7	6.5	17.9		15.5	12.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.6	0.0	0.5		10.0	0.3
Delay (s)	19.3	6.5	18.4		25.5	12.8
Level of Service	B	A	B		C	B
Approach Delay (s)		12.4	18.4		19.2	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	17.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	49.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Near-Term (2015) plus Project (Phase I and Phase II) Conditions Mitigated

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	671	706	221	0	424	215	282	1398	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.98			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4931			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4931			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.95	0.92
Adj. Flow (vph)	0	0	706	743	233	0	446	226	297	1472	0
RTOR Reduction (vph)	0	0	0	22	0	0	0	189	0	0	0
Lane Group Flow (vph)	0	0	0	1660	0	0	446	37	297	1472	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				36.5			17.5	17.5	39.0	60.5	
Effective Green, g (s)				36.5			17.5	17.5	39.0	60.5	
Actuated g/C Ratio				0.34			0.17	0.17	0.37	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1698			584	261	651	2020	
v/s Ratio Prot				c0.34			0.13		0.17	c0.42	
v/s Ratio Perm								0.02			
v/c Ratio				1.12dl			0.76	0.14	0.46	0.73	
Uniform Delay, d1				34.4			42.3	37.8	25.4	16.7	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				16.7			9.2	1.1	2.3	2.3	
Delay (s)				51.0			51.4	39.0	27.7	19.1	
Level of Service				D			D	D	C	B	
Approach Delay (s)	0.0			51.0			47.3			20.5	
Approach LOS	A			D			D			C	

Intersection Summary			
HCM Average Control Delay	37.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	261	492	217	198	341	178	23	345	47	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.97	0.85		0.94				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3101	1441		3342				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3101	1441		3342				1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.97	0.97	0.97	0.95	0.95	0.95
Adj. Flow (vph)	275	518	228	208	352	184	24	363	49	484
RTOR Reduction (vph)	0	0	81	0	3	0	0	0	0	0
Lane Group Flow (vph)	247	683	218	0	557	0	0	0	412	484
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	30.3	30.3	30.3		34.9				28.3	66.7
Effective Green, g (s)	30.3	30.3	30.3		34.9				28.3	66.7
Actuated g/C Ratio	0.29	0.29	0.29		0.33				0.27	0.63
Clearance Time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	460	886	412		1100				473	2227
v/s Ratio Prot	0.15	c0.22	0.15		c0.17				c0.23	0.14
v/s Ratio Perm										
v/c Ratio	0.54	0.77	0.53		0.51				0.87	0.22
Uniform Delay, d1	31.9	34.7	31.9		28.6				37.1	8.4
Progression Factor	0.70	0.71	0.56		1.00				1.00	1.00
Incremental Delay, d2	0.7	2.6	0.8		1.7				16.0	0.2
Delay (s)	23.2	27.2	18.6		30.3				53.1	8.7
Level of Service	C	C	B		C				D	A
Approach Delay (s)		24.3			30.3					29.1
Approach LOS		C			C					C

Intersection Summary			
HCM Average Control Delay	27.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	316	1362	142	0	571	666	490	1085	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	0.88	1.00	0.95	
Frt				0.99			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4963			3539	2787	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4963			3539	2787	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.95	0.92	0.97	0.97	0.95	0.95	0.92
Adj. Flow (vph)	0	0	333	1434	149	0	589	687	516	1142	0
RTOR Reduction (vph)	0	0	0	11	0	0	0	98	0	0	0
Lane Group Flow (vph)	0	0	0	1905	0	0	589	589	516	1142	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				30.0			17.5	17.5	29.5	51.0	
Effective Green, g (s)				30.0			17.5	17.5	29.5	51.0	
Actuated g/C Ratio				0.33			0.19	0.19	0.33	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1654			688	542	580	2005	
v/s Ratio Prot				c0.38			0.17		c0.29	0.32	
v/s Ratio Perm								c0.21			
v/c Ratio				1.15			0.86	1.09	0.89	0.57	
Uniform Delay, d1				30.0			35.0	36.2	28.7	12.5	
Progression Factor				1.00			1.21	1.22	1.00	1.00	
Incremental Delay, d2				75.7			6.9	53.6	15.4	0.4	
Delay (s)				105.7			49.3	97.9	44.1	12.9	
Level of Service				F			D	F	D	B	
Approach Delay (s)	0.0			105.7			75.5			22.6	
Approach LOS	A			F			E			C	

Intersection Summary			
HCM Average Control Delay	69.3	HCM Level of Service	E
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	414	1161	609	169	346	475	143	329	24	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.98	0.85		0.90				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3138	1441		3199				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3138	1441		3199				1770	3539
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	436	1222	641	178	364	500	151	346	25	256
RTOR Reduction (vph)	0	0	16	0	16	0	0	0	0	0
Lane Group Flow (vph)	392	1452	617	0	999	0	0	0	371	256
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	37.0	37.0	37.0		24.0				16.0	44.0
Effective Green, g (s)	37.0	37.0	37.0		24.0				16.0	44.0
Actuated g/C Ratio	0.41	0.41	0.41		0.27				0.18	0.49
Clearance Time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	662	1290	592		853				315	1730
v/s Ratio Prot	0.24	c0.46	0.43		c0.31				c0.21	0.07
v/s Ratio Perm										
v/c Ratio	0.59	1.13	1.04		1.46dr				1.18	0.15
Uniform Delay, d1	20.6	26.5	26.5		33.0				37.0	12.7
Progression Factor	0.71	0.77	0.75		1.00				1.00	1.00
Incremental Delay, d2	0.4	57.6	24.4		89.4				108.0	0.2
Delay (s)	15.0	78.1	44.3		122.4				145.0	12.9
Level of Service	B	E	D		F				F	B
Approach Delay (s)		59.5			122.4					91.1
Approach LOS		E			F					F

Intersection Summary			
HCM Average Control Delay	79.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

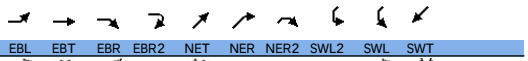
Cumulative (2030) plus Project (Phase I and Phase II) Conditions AM Peak Hour



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	722	760	238	0	490	276	345	1595	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.98			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4931			3539	1583	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4931			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.98	0.98	0.98	0.92	0.98	0.98	0.98	0.98	0.92
Adj. Flow (vph)	0	0	737	776	243	0	500	282	352	1628	0
RTOR Reduction (vph)	0	0	0	15	0	0	0	158	0	0	0
Lane Group Flow (vph)	0	0	0	1741	0	0	500	124	352	1628	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				36.5			17.5	17.5	39.0	60.5	
Effective Green, g (s)				36.5			17.5	17.5	39.0	60.5	
Actuated g/C Ratio				0.34			0.17	0.17	0.37	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1698			584	261	651	2020	
v/s Ratio Prot				c0.35			0.14		0.20	c0.46	
v/s Ratio Perm								0.08			
v/c Ratio				1.18dl			0.86	0.48	0.54	0.81	
Uniform Delay, d1				34.8			43.0	40.1	26.4	18.1	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				28.5			14.9	6.1	3.2	3.6	
Delay (s)				63.3			57.9	46.2	29.6	21.6	
Level of Service				E			E	D	C	C	
Approach Delay (s)	0.0			63.3			53.7			23.1	
Approach LOS	A			E			D			C	

Intersection Summary				
HCM Average Control Delay	44.0	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.88			
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	8.5	
Intersection Capacity Utilization	91.2%	ICU Level of Service	F	
Analysis Period (min)	15			

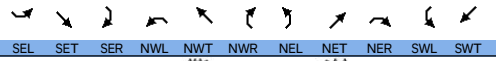
dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	291	541	239	228	398	208	26	372	50	496
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.97	0.85		0.94				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3097	1441		3343				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3097	1441		3343				1770	3539
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	297	552	244	233	406	212	27	380	51	506
RTOR Reduction (vph)	0	0	91	0	3	0	0	0	0	0
Lane Group Flow (vph)	267	736	232	0	642	0	0	0	431	506
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	31.0	31.0	31.0		33.5				29.0	66.0
Effective Green, g (s)	31.0	31.0	31.0		33.5				29.0	66.0
Actuated g/C Ratio	0.29	0.29	0.29		0.32				0.27	0.62
Clearance Time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	471	906	421		1057				484	2204
v/s Ratio Prot	0.17	c0.24	0.16		c0.19				c0.24	0.14
v/s Ratio Perm										
v/c Ratio	0.57	0.81	0.55		0.61				0.89	0.23
Uniform Delay, d1	31.8	34.8	31.6		30.7				37.0	8.8
Progression Factor	0.74	0.75	0.62		1.00				1.00	1.00
Incremental Delay, d2	0.8	3.0	0.8		2.6				18.2	0.2
Delay (s)	24.5	29.2	20.4		33.3				55.2	9.0
Level of Service	C	C	C		C				E	A
Approach Delay (s)		26.1			33.3					30.3
Approach LOS		C			C					C

Intersection Summary				
HCM Average Control Delay	29.0	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.76			
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.5	
Intersection Capacity Utilization	74.2%	ICU Level of Service	D	
Analysis Period (min)	15			

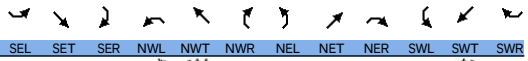
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	3209	149	551	488	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.86			0.91				
Frt					0.99			1.00				
Flt Protected					1.00			0.97				
Satd. Flow (prot)					6365			4954				
Flt Permitted					1.00			0.97				
Satd. Flow (perm)					6365			4954				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	3274	152	562	498	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	3418	0	0	1060	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					38.0			34.0				
Effective Green, g (s)					38.0			34.0				
Actuated g/C Ratio					0.48			0.42				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					3023			2105				
v/s Ratio Prot					c0.54							
v/s Ratio Perm								0.21				
v/c Ratio					1.13			0.50				
Uniform Delay, d1					21.0			16.8				
Progression Factor					1.00			1.08				
Incremental Delay, d2					63.6			0.5				
Delay (s)					84.6			18.7				
Level of Service					F			B				
Approach Delay (s)		0.0			84.6			18.7			0.0	
Approach LOS		A			F			B			A	

Intersection Summary				
HCM Average Control Delay	69.0	HCM Level of Service	E	
HCM Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	119.1%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	1575	2049	0	0	0	0	0	1473	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4746						3524	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4746						3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.98	0.92	0.92	0.92	0.92	0.92	0.98	0.98
Adj. Flow (vph)	0	0	0	1607	2091	0	0	0	0	0	1503	44
RTOR Reduction (vph)	0	0	0	1	1	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	899	2797	0	0	0	0	0	1544	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				46.0	46.0						26.0	
Effective Green, g (s)				46.0	46.0						26.0	
Actuated g/C Ratio				0.57	0.57						0.32	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				875	2729						1145	
v/s Ratio Prot											c0.44	
v/s Ratio Perm				c0.59	0.59							
v/c Ratio				1.03	1.02						1.35	
Uniform Delay, d1				17.0	17.0						27.0	
Progression Factor				1.39	1.37						1.00	
Incremental Delay, d2				17.4	13.3						162.8	
Delay (s)				41.0	36.6						189.8	
Level of Service				D	D						F	
Approach Delay (s)		0.0			37.7				0.0		189.8	
Approach LOS		A			D				A		F	

Intersection Summary				
HCM Average Control Delay	82.5	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.14			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	129.4%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	107	280	9	13	607	19	13	9	12	26	20	19
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	109	286	9	13	619	19	13	9	12	27	20	19

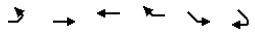
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	109	295	652	35	66
Volume Left (vph)	109	0	13	13	27
Volume Right (vph)	0	9	19	12	19
Hadj (s)	0.53	0.01	0.02	-0.10	-0.06
Departure Headway (s)	6.0	5.4	4.8	6.4	6.3
Degree Utilization, x	0.18	0.45	0.88	0.06	0.12
Capacity (veh/h)	580	645	737	518	524
Control Delay (s)	9.1	11.5	32.0	9.8	10.2
Approach Delay (s)	10.9		32.0	9.8	10.2
Approach LOS	B		D	A	B

Intersection Summary			
Delay	22.7		
HCM Level of Service	C		
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	418	250	631	309	124	1457
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frt	0.95		0.95		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1715		3365		1770	3539
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	1715		3365		1770	3539
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	427	255	644	315	127	1487
RTOR Reduction (vph)	37	0	99	0	0	0
Lane Group Flow (vph)	645	0	860	0	127	1487
Turn Type					Prot	
Protected Phases	4		6		5	2
Permitted Phases						
Actuated Green, G (s)	24.8		14.4		8.8	27.2
Effective Green, g (s)	24.8		14.4		8.8	27.2
Actuated g/C Ratio	0.41		0.24		0.15	0.45
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	709		808		260	1604
v/s Ratio Prot	c0.38		0.26		0.07	c0.42
v/s Ratio Perm						
v/c Ratio	0.91		1.06		0.49	0.93
Uniform Delay, d1	16.5		22.8		23.5	15.5
Progression Factor	1.00		1.00		1.00	1.00
Incremental Delay, d2	15.6		50.3		6.4	10.7
Delay (s)	32.1		73.1		30.0	26.2
Level of Service	C		E		C	C
Approach Delay (s)	32.1		73.1			26.5
Approach LOS	C		E			C

Intersection Summary			
HCM Average Control Delay	41.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	427	303	466	220	203	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3369		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3369		1770	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	436	309	476	224	207	218
RTOR Reduction (vph)	0	0	94	0	0	171
Lane Group Flow (vph)	436	309	606	0	207	47
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	15.7	33.5	13.8		11.3	11.3
Effective Green, g (s)	15.7	33.5	13.8		11.3	11.3
Actuated g/C Ratio	0.30	0.63	0.26		0.21	0.21
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	526	2245	881		379	339
v/s Ratio Prot	c0.25	0.09	c0.18		c0.12	
v/s Ratio Perm						0.03
v/c Ratio	0.83	0.14	0.69		0.55	0.14
Uniform Delay, d1	17.3	3.9	17.6		18.5	16.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	10.4	0.0	2.3		1.6	0.2
Delay (s)	27.7	3.9	19.8		20.1	17.0
Level of Service	C	A	B		C	B
Approach Delay (s)		17.8	19.8		18.5	
Approach LOS		B	B		B	

Intersection Summary			
HCM Average Control Delay	18.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	52.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

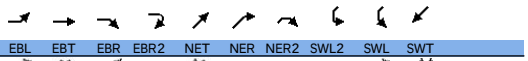
Cumulative (2030) plus Project (Phase I and Phase II) Conditions PM Peak Hour



Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	340	2180	153	0	615	711	738	1165	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.94			0.95	1.00	1.00	0.95	
Frt				0.99			1.00	0.85	1.00	1.00	
Flt Protected				0.95			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				4973			3539	1583	1770	3539	
Flt Permitted				0.95			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				4973			3539	1583	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.98	0.98	0.98	0.92	0.98	0.98	0.98	0.98	0.92
Adj. Flow (vph)	0	0	347	2224	156	0	628	726	753	1189	0
RTOR Reduction (vph)	0	0	0	8	0	0	0	20	0	0	0
Lane Group Flow (vph)	0	0	0	2719	0	0	628	706	753	1189	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				30.0			17.5	17.5	29.5	51.0	
Effective Green, g (s)				30.0			17.5	17.5	29.5	51.0	
Actuated g/C Ratio				0.33			0.19	0.19	0.33	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				1658			688	308	580	2005	
v/s Ratio Prot				c0.55			0.18		c0.43	0.34	
v/s Ratio Perm								c0.45			
v/c Ratio				1.64			0.91	2.29	1.30	0.59	
Uniform Delay, d1				30.0			35.5	36.2	30.3	12.7	
Progression Factor				1.00			1.28	1.25	1.00	1.00	
Incremental Delay, d2				290.7			2.3	582.2	146.6	0.5	
Delay (s)				320.7			47.6	627.6	176.8	13.2	
Level of Service				F			D	F	F	B	
Approach Delay (s)	0.0			320.7			358.6			76.7	
Approach LOS	A			F			F			E	

Intersection Summary			
HCM Average Control Delay	250.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.66		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	119.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	489	1650	881	183	372	511	148	354	26	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.98	0.85		0.90				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3143	1441		3200				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3143	1441		3200				1770	3539
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	499	1684	899	187	380	521	151	361	27	267
RTOR Reduction (vph)	0	0	11	0	15	0	0	0	0	0
Lane Group Flow (vph)	449	1968	841	0	1037	0	0	0	388	267
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	28.0	28.0	28.0		37.0				12.0	53.0
Effective Green, g (s)	28.0	28.0	28.0		37.0				12.0	53.0
Actuated g/C Ratio	0.31	0.31	0.31		0.41				0.13	0.59
Clearance Time (s)	5.0	5.0	5.0		4.0				4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	501	978	448		1316				236	2084
v/s Ratio Prot	0.28	c0.63	0.58		c0.32				c0.22	0.08
v/s Ratio Perm										
v/c Ratio	0.90	2.01	1.88		0.99dr				1.64	0.13
Uniform Delay, d1	29.6	31.0	31.0		23.1				39.0	8.2
Progression Factor	0.60	0.61	0.60		1.00				1.00	1.00
Incremental Delay, d2	2.6	455.9	395.5		4.8				308.1	0.1
Delay (s)	20.5	474.9	414.1		27.9				347.1	8.4
Level of Service	C	F	F		C				F	A
Approach Delay (s)		396.7			27.9					209.0
Approach LOS		F			C					F

Intersection Summary			
HCM Average Control Delay	294.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.37		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	110.8%	ICU Level of Service	H
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	2113	296	416	1356	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.86			0.91				
Frt					0.98			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6290			5026				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6290			5026				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2156	302	424	1384	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2455	0	0	1806	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					30.0			22.0				
Effective Green, g (s)					30.0			22.0				
Actuated g/C Ratio					0.50			0.37				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					3145			1843				
v/s Ratio Prot					c0.39							
v/s Ratio Perm								0.36				
v/c Ratio					0.78			0.98				
Uniform Delay, d1					12.3			18.8				
Progression Factor					1.00			1.00				
Incremental Delay, d2					2.0			16.7				
Delay (s)					14.3			35.5				
Level of Service					B			D				
Approach Delay (s)		0.0			14.3			35.5			0.0	
Approach LOS		A			B			D			A	

Intersection Summary			
HCM Average Control Delay	23.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	844	1734	0	0	0	0	0	912	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.95	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4779						3495	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4779						3495	
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.98	0.92	0.92	0.92	0.92	0.92	0.98	0.98
Adj. Flow (vph)	0	0	0	861	1769	0	0	0	0	0	931	85
RTOR Reduction (vph)	0	0	0	22	22	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	615	1971	0	0	0	0	0	1012	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				29.0	29.0						23.0	
Effective Green, g (s)				29.0	29.0						23.0	
Actuated g/C Ratio				0.48	0.48						0.38	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				736	2310						1340	
v/s Ratio Prot											c0.29	
v/s Ratio Perm				0.40	0.41							
v/c Ratio				0.84	0.85						0.75	
Uniform Delay, d1				13.4	13.6						16.1	
Progression Factor				1.35	1.34						1.00	
Incremental Delay, d2				6.6	2.5						4.0	
Delay (s)				24.7	20.8						20.0	
Level of Service				C	C						C	
Approach Delay (s)		0.0			21.7				0.0		20.0	
Approach LOS		A			C				A		C	

Intersection Summary			
HCM Average Control Delay	21.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	291	698	14	22	313	26	21	31	38	86	64	57
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	297	712	14	22	319	27	21	32	39	88	65	58

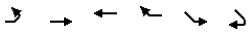
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	297	727	368	92	211
Volume Left (vph)	297	0	22	21	88
Volume Right (vph)	0	14	27	39	58
Hadj (s)	0.53	0.02	0.00	-0.17	-0.05
Departure Headway (s)	6.7	6.2	6.1	7.2	6.8
Degree Utilization, x	0.56	1.25	0.63	0.18	0.40
Capacity (veh/h)	525	588	565	447	497
Control Delay (s)	16.6	147.7	19.0	11.8	14.3
Approach Delay (s)	109.7		19.0	11.8	14.3
Approach LOS	F		C	B	B

Intersection Summary				
Delay		72.8		
HCM Level of Service		F		
Intersection Capacity Utilization	85.1%	ICU Level of Service		E
Analysis Period (min)		15		



Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	207	182	1245	880	160	985
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		0.95		1.00	0.95
Frt	0.94		0.94		1.00	1.00
Flt Protected	0.97		1.00		0.95	1.00
Satd. Flow (prot)	1700		3319		1770	3539
Flt Permitted	0.97		1.00		0.95	1.00
Satd. Flow (perm)	1700		3319		1770	3539
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	211	186	1270	898	163	1005
RTOR Reduction (vph)	44	0	110	0	0	0
Lane Group Flow (vph)	353	0	2058	0	163	1005
Turn Type					Prot	
Protected Phases	4		6		5	2
Permitted Phases						
Actuated Green, G (s)	24.1		40.4		13.5	57.9
Effective Green, g (s)	24.1		40.4		13.5	57.9
Actuated g/C Ratio	0.27		0.45		0.15	0.64
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	455		1490		266	2277
v/s Ratio Prot	c0.21		c0.62		c0.09	0.28
v/s Ratio Perm						
v/c Ratio	0.78		1.38		0.61	0.44
Uniform Delay, d1	30.5		24.8		35.8	8.0
Progression Factor	1.00		1.00		1.00	0.37
Incremental Delay, d2	8.1		175.9		2.9	0.4
Delay (s)	38.5		200.7		38.7	3.4
Level of Service	D		F		D	A
Approach Delay (s)	38.5		200.7			8.3
Approach LOS	D		F			A

Intersection Summary			
HCM Average Control Delay	123.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	104.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Volume (vph)	273	321	265	118	487	478
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	4.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3376		1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1770	3539	3376		1770	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	279	328	270	120	497	488
RTOR Reduction (vph)	0	0	94	0	0	331
Lane Group Flow (vph)	279	328	296	0	497	157
Turn Type	Prot					Perm
Protected Phases	7	4	8		6	
Permitted Phases						6
Actuated Green, G (s)	12.5	26.1	9.6		16.2	16.2
Effective Green, g (s)	12.5	26.1	9.6		16.2	16.2
Actuated g/C Ratio	0.25	0.52	0.19		0.32	0.32
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	440	1836	644		570	510
v/s Ratio Prot	c0.16	0.09	c0.09		c0.28	
v/s Ratio Perm						0.10
v/c Ratio	0.63	0.18	0.46		0.87	0.31
Uniform Delay, d1	16.9	6.4	18.1		16.1	12.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.0	0.0	0.5		13.7	0.3
Delay (s)	19.8	6.5	18.6		29.8	13.2
Level of Service	B	A	B		C	B
Approach Delay (s)		12.6	18.6		21.6	
Approach LOS		B	B		C	

Intersection Summary				
HCM Average Control Delay	18.2	HCM Level of Service		B
HCM Volume to Capacity ratio	0.69			
Actuated Cycle Length (s)	50.3	Sum of lost time (s)		12.0
Intersection Capacity Utilization	63.2%	ICU Level of Service		B
Analysis Period (min)	15			
c Critical Lane Group				

Cumulative (2030) plus Project (Phase I and Phase II) Conditions Mitigated

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	722	760	238	0	490	276	345	1595	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.91			0.95	0.88	1.00	0.95	
Frt				0.98			1.00	0.85	1.00	1.00	
Flt Protected				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				6365			3539	2787	1770	3539	
Flt Permitted				0.96			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				6365			3539	2787	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.98	0.98	0.98	0.92	0.98	0.98	0.98	0.98	0.92
Adj. Flow (vph)	0	0	737	776	243	0	500	282	352	1628	0
RTOR Reduction (vph)	0	0	0	15	0	0	0	235	0	0	0
Lane Group Flow (vph)	0	0	0	1741	0	0	500	47	352	1628	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				35.9			17.5	17.5	39.6	61.1	
Effective Green, g (s)				35.9			17.5	17.5	39.6	61.1	
Actuated g/C Ratio				0.34			0.17	0.17	0.37	0.58	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				2156			584	460	661	2040	
v/s Ratio Prot				c0.27			0.14		0.20	c0.46	
v/s Ratio Perm								0.02			
v/c Ratio				1.20dl			0.86	0.10	0.53	0.80	
Uniform Delay, d1				31.9			43.0	37.6	26.0	17.6	
Progression Factor				1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2				2.3			14.9	0.4	3.1	3.4	
Delay (s)				34.2			57.9	38.0	29.0	21.0	
Level of Service				C			E	D	C	C	
Approach Delay (s)	0.0			34.2			50.8			22.4	
Approach LOS	A			C			D			C	

Intersection Summary				
HCM Average Control Delay	31.9	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	8.5	
Intersection Capacity Utilization	91.2%	ICU Level of Service	F	
Analysis Period (min)	15			

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	291	541	239	228	398	208	26	372	50	496
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Lane Util. Factor	0.91	0.86	0.91		0.95				1.00	0.95
Frt	1.00	0.97	0.85		0.94				1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (prot)	1610	3097	1441		3343				1770	3539
Flt Permitted	0.95	1.00	1.00		1.00				0.95	1.00
Satd. Flow (perm)	1610	3097	1441		3343				1770	3539
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	297	552	244	233	406	212	27	380	51	506
RTOR Reduction (vph)	0	0	91	0	3	0	0	0	0	0
Lane Group Flow (vph)	267	736	232	0	642	0	0	0	431	506
Turn Type	Split		Prot					Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases										
Actuated Green, G (s)	31.0	31.0	31.0		33.5				29.0	66.0
Effective Green, g (s)	31.0	31.0	31.0		33.5				29.0	66.0
Actuated g/C Ratio	0.29	0.29	0.29		0.32				0.27	0.62
Clearance Time (s)	5.0	5.0	5.0		4.0				3.5	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0				3.0	3.0
Lane Grp Cap (vph)	471	906	421		1057				484	2204
v/s Ratio Prot	0.17	c0.24	0.16		c0.19				c0.24	0.14
v/s Ratio Perm										
v/c Ratio	0.57	0.81	0.55		0.61				0.89	0.23
Uniform Delay, d1	31.8	34.8	31.6		30.7				37.0	8.8
Progression Factor	0.76	0.78	0.64		1.00				1.00	1.00
Incremental Delay, d2	1.2	4.3	1.2		2.6				18.2	0.2
Delay (s)	25.4	31.6	21.4		33.3				55.2	9.0
Level of Service	C	C	C		C				E	A
Approach Delay (s)		27.9			33.3					30.3
Approach LOS		C			C					C

Intersection Summary				
HCM Average Control Delay	29.8	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.76			
Actuated Cycle Length (s)	106.0	Sum of lost time (s)	12.5	
Intersection Capacity Utilization	74.2%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	3209	149	551	488	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.86			0.91				
Frt					0.99			1.00				
Flt Protected					1.00			0.97				
Satd. Flow (prot)					6365			4954				
Flt Permitted					1.00			0.97				
Satd. Flow (perm)					6365			4954				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	3274	152	562	498	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	3418	0	0	1060	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					44.0			28.0				
Effective Green, g (s)					44.0			28.0				
Actuated g/C Ratio					0.55			0.35				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					3501			1734				
v/s Ratio Prot					c0.54							
v/s Ratio Perm								0.21				
v/c Ratio					0.98			0.91dl				
Uniform Delay, d1					17.5			21.5				
Progression Factor					1.00			0.89				
Incremental Delay, d2					10.6			1.0				
Delay (s)					28.1			20.1				
Level of Service					C			C				
Approach Delay (s)		0.0			28.1			20.1			0.0	
Approach LOS		A			C			C			A	

Intersection Summary				
HCM Average Control Delay	26.2	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	106.4%	ICU Level of Service	G	
Analysis Period (min)	15			

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	1575	2049	0	0	0	0	0	1473	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.91	
Frt				1.00	1.00						1.00	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4746						5064	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4746						5064	
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.98	0.92	0.92	0.92	0.92	0.92	0.98	0.98
Adj. Flow (vph)	0	0	0	1607	2091	0	0	0	0	0	1503	44
RTOR Reduction (vph)	0	0	0	1	1	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	899	2797	0	0	0	0	0	1543	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				46.0	46.0						26.0	
Effective Green, g (s)				46.0	46.0						26.0	
Actuated g/C Ratio				0.57	0.57						0.32	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				875	2729						1646	
v/s Ratio Prot											c0.30	
v/s Ratio Perm				c0.59	0.59							
v/c Ratio				1.03	1.02						0.94	
Uniform Delay, d1				17.0	17.0						26.2	
Progression Factor				1.11	1.09						1.00	
Incremental Delay, d2				26.0	17.7						11.6	
Delay (s)				44.9	36.2						37.8	
Level of Service				D	D						D	
Approach Delay (s)		0.0			38.3				0.0		37.8	
Approach LOS		A			D				A		D	

Intersection Summary				
HCM Average Control Delay	38.2	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.99			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	116.7%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	280	9	13	607	19	13	9	12	26	20	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	1.00			1.00			0.95			0.96	
Flt Protected	0.95	1.00			1.00			0.98			0.98	
Satd. Flow (prot)	1770	1854			1854			1741			1754	
Flt Permitted	0.31	1.00			0.99			0.93			0.91	
Satd. Flow (perm)	582	1854			1840			1644			1636	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	109	286	9	13	619	19	13	9	12	27	20	19
RTOR Reduction (vph)	0	3	0	0	3	0	0	7	0	0	11	0
Lane Group Flow (vph)	109	292	0	0	648	0	0	27	0	0	55	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	16.0	16.0			16.0			16.0			16.0	
Effective Green, g (s)	16.0	16.0			16.0			16.0			16.0	
Actuated g/C Ratio	0.40	0.40			0.40			0.40			0.40	
Clearance Time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)	233	742			736			658			654	
v/s Ratio Prot		0.16										
v/s Ratio Perm	0.19				c0.35			0.02			c0.03	
v/c Ratio	0.47	0.39			0.88			0.04			0.08	
Uniform Delay, d1	8.9	8.5			11.1			7.3			7.4	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	6.6	1.6			14.2			0.1			0.3	
Delay (s)	15.5	10.1			25.4			7.4			7.7	
Level of Service	B	B			C			A			A	
Approach Delay (s)		11.6			25.4			7.4			7.7	
Approach LOS		B			C			A			A	

Intersection Summary				
HCM Average Control Delay	19.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	63.9%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	SEL2	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Volume (vph)	0	0	340	2180	153	0	615	711	738	1165	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5			4.5	4.5	4.0	4.0	
Lane Util. Factor				0.91			0.95	0.88	1.00	0.95	
Frt				0.99			1.00	0.85	1.00	1.00	
Flt Protected				0.95			1.00	1.00	0.95	1.00	
Satd. Flow (prot)				6420			3539	2787	1770	3539	
Flt Permitted				0.95			1.00	1.00	0.95	1.00	
Satd. Flow (perm)				6420			3539	2787	1770	3539	
Peak-hour factor, PHF	0.92	0.92	0.98	0.98	0.98	0.92	0.98	0.98	0.98	0.98	0.92
Adj. Flow (vph)	0	0	347	2224	156	0	628	726	753	1189	0
RTOR Reduction (vph)	0	0	0	11	0	0	0	35	0	0	0
Lane Group Flow (vph)	0	0	0	2716	0	0	628	691	753	1189	0
Turn Type			Split					Perm	Prot		
Protected Phases			4	4			2		1	1 2	
Permitted Phases								2			
Actuated Green, G (s)				30.0			17.5	17.5	29.5	51.0	
Effective Green, g (s)				30.0			17.5	17.5	29.5	51.0	
Actuated g/C Ratio				0.33			0.19	0.19	0.33	0.57	
Clearance Time (s)				4.5			4.5	4.5	4.0		
Vehicle Extension (s)				3.0			3.0	3.0	3.0		
Lane Grp Cap (vph)				2140			688	542	580	2005	
v/s Ratio Prot				c0.42			0.18		c0.43	0.34	
v/s Ratio Perm								c0.25			
v/c Ratio				1.27			0.91	1.27	1.30	0.59	
Uniform Delay, d1				30.0			35.5	36.2	30.3	12.7	
Progression Factor				1.00			1.24	1.22	1.00	1.00	
Incremental Delay, d2				125.0			8.9	129.2	146.6	0.5	
Delay (s)				155.0			53.0	173.4	176.8	13.2	
Level of Service				F			D	F	F	B	
Approach Delay (s)	0.0			155.0			117.6			76.7	
Approach LOS	A			F			F			E	

Intersection Summary				
HCM Average Control Delay	121.3	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.28			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0	
Intersection Capacity Utilization	107.1%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	EBR2	NET	NER	NER2	SWL2	SWL	SWT
Lane Configurations										
Volume (vph)	489	1650	881	183	372	511	148	354	26	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		4.0	4.0			4.0	4.0
Lane Util. Factor	0.91	0.86	0.91		1.00	0.88			0.97	1.00
Frt	1.00	0.98	0.85		1.00	0.85			1.00	1.00
Flt Protected	0.95	1.00	1.00		1.00	1.00			0.95	1.00
Satd. Flow (prot)	1610	3143	1441		1863	2787			3433	1863
Flt Permitted	0.95	1.00	1.00		1.00	1.00			0.95	1.00
Satd. Flow (perm)	1610	3143	1441		1863	2787			3433	1863
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	499	1684	899	187	380	521	151	361	27	267
RTOR Reduction (vph)	0	0	11	0	0	26	0	0	0	0
Lane Group Flow (vph)	449	1968	841	0	380	646	0	0	388	267
Turn Type	Split		Prot			Perm		Prot	Prot	
Protected Phases	4	4	4		2			1	1	6
Permitted Phases						2				
Actuated Green, G (s)	39.0	39.0	39.0		23.5	23.5			14.5	42.0
Effective Green, g (s)	39.0	39.0	39.0		23.5	23.5			14.5	42.0
Actuated g/C Ratio	0.43	0.43	0.43		0.26	0.26			0.16	0.47
Clearance Time (s)	5.0	5.0	5.0		4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	698	1362	624		486	728			553	869
v/s Ratio Prot	0.28	c0.63	0.58		0.20				c0.11	0.14
v/s Ratio Perm						c0.23				
v/c Ratio	0.64	1.44	1.35		0.78	0.89			1.27dl	0.31
Uniform Delay, d1	20.0	25.5	25.5		30.9	32.0			35.7	14.9
Progression Factor	0.67	0.74	0.73		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.4	200.6	157.3		11.8	15.0			4.0	0.9
Delay (s)	13.8	219.5	175.9		42.7	47.0			39.7	15.9
Level of Service	B	F	F		D	D			D	B
Approach Delay (s)		179.9			45.5					30.0
Approach LOS		F			D					C

Intersection Summary				
HCM Average Control Delay	131.7	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.13			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.0	
Intersection Capacity Utilization	92.1%	ICU Level of Service	F	
Analysis Period (min)	15			

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	0	2113	296	416	1356	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.0			4.0				
Lane Util. Factor					0.86			0.91				
Frt					0.98			1.00				
Flt Protected					1.00			0.99				
Satd. Flow (prot)					6290			5026				
Flt Permitted					1.00			0.99				
Satd. Flow (perm)					6290			5026				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	2156	302	424	1384	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	2455	0	0	1806	0	0	0	0
Turn Type							Perm					
Protected Phases					2			4				
Permitted Phases							4					
Actuated Green, G (s)					30.0			22.0				
Effective Green, g (s)					30.0			22.0				
Actuated g/C Ratio					0.50			0.37				
Clearance Time (s)					4.0			4.0				
Lane Grp Cap (vph)					3145			1843				
v/s Ratio Prot					c0.39							
v/s Ratio Perm								0.36				
v/c Ratio					0.78			0.98				
Uniform Delay, d1					12.3			18.8				
Progression Factor					1.00			1.00				
Incremental Delay, d2					2.0			16.7				
Delay (s)					14.3			35.5				
Level of Service					B			D				
Approach Delay (s)		0.0			14.3			35.5			0.0	
Approach LOS		A			B			D			A	

Intersection Summary				
HCM Average Control Delay	23.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	76.9%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group



Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	0	844	1734	0	0	0	0	0	912	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.0	4.0						4.0	
Lane Util. Factor				0.86	0.86						0.91	
Frt				1.00	1.00						0.99	
Flt Protected				0.95	0.99						1.00	
Satd. Flow (prot)				1522	4779						5021	
Flt Permitted				0.95	0.99						1.00	
Satd. Flow (perm)				1522	4779						5021	
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.98	0.92	0.92	0.92	0.92	0.92	0.98	0.98
Adj. Flow (vph)	0	0	0	861	1769	0	0	0	0	0	931	85
RTOR Reduction (vph)	0	0	0	22	22	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	615	1971	0	0	0	0	0	1012	0
Turn Type				Perm								
Protected Phases					2						8	
Permitted Phases				2								
Actuated Green, G (s)				29.0	29.0						23.0	
Effective Green, g (s)				29.0	29.0						23.0	
Actuated g/C Ratio				0.48	0.48						0.38	
Clearance Time (s)				4.0	4.0						4.0	
Lane Grp Cap (vph)				736	2310						1925	
v/s Ratio Prot											c0.20	
v/s Ratio Perm				0.40	0.41							
v/c Ratio				0.84	0.85						0.53	
Uniform Delay, d1				13.4	13.6						14.3	
Progression Factor				1.35	1.34						1.00	
Incremental Delay, d2				6.6	2.5						1.0	
Delay (s)				24.7	20.8						15.3	
Level of Service				C	C						B	
Approach Delay (s)		0.0			21.7			0.0			15.3	
Approach LOS		A			C			A			B	

Intersection Summary				
HCM Average Control Delay	19.9	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.71			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	76.9%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	291	698	14	22	313	26	21	31	38	86	64	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	
Frt	1.00	1.00			0.99			0.94			0.96	
Flt Protected	0.95	1.00			1.00			0.99			0.98	
Satd. Flow (prot)	1770	1857			1839			1736			1757	
Flt Permitted	0.56	1.00			0.91			0.92			0.84	
Satd. Flow (perm)	1035	1857			1674			1608			1514	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	297	712	14	22	319	27	21	32	39	88	65	58
RTOR Reduction (vph)	0	2	0	0	7	0	0	26	0	0	34	0
Lane Group Flow (vph)	297	724	0	0	361	0	0	66	0	0	177	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	19.0	19.0			19.0			13.0			13.0	
Effective Green, g (s)	19.0	19.0			19.0			13.0			13.0	
Actuated g/C Ratio	0.48	0.48			0.48			0.32			0.32	
Clearance Time (s)	4.0	4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)	492	882			795			523			492	
v/s Ratio Prot		c0.39										
v/s Ratio Perm	0.29				0.22			0.04			c0.12	
v/c Ratio	0.60	0.82			0.45			0.13			0.36	
Uniform Delay, d1	7.7	9.0			7.0			9.5			10.3	
Progression Factor	1.00	1.00			1.00			1.00			1.00	
Incremental Delay, d2	5.4	8.5			1.9			0.5			2.0	
Delay (s)	13.1	17.5			8.9			10.0			12.3	
Level of Service	B	B			A			A			B	
Approach Delay (s)		16.3			8.9			10.0			12.3	
Approach LOS		B			A			A			B	

Intersection Summary				
HCM Average Control Delay	13.8	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	40.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	85.1%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Appendix D

Queue Calculation Worksheets

Existing Conditions

Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1402	621	198	301	1065
v/c Ratio	0.85	1.06	0.46	0.44	0.51
Control Delay	36.8	98.2	9.5	27.5	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.8	98.2	9.5	27.5	14.1
Queue Length 50th (ft)	290	~245	0	154	217
Queue Length 95th (ft)	348	#359	63	234	272
Internal Link Dist (ft)	1105	413			511
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1731	584	427	678	2090
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.81	1.06	0.46	0.44	0.51

Intersection Summary

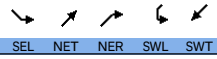
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1402	757	609	380	802
v/c Ratio	0.85	0.92	1.28	0.73	0.39
Control Delay	33.2	53.4	168.1	36.8	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	53.4	168.1	36.8	11.1
Queue Length 50th (ft)	248	~260	~413	183	123
Queue Length 95th (ft)	306	#374	#621	283	162
Internal Link Dist (ft)	1276	429			958
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1675	826	475	580	2049
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.84	0.92	1.28	0.66	0.39

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

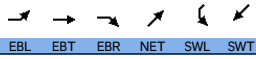
Near-Term (2015) Conditions



Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1682	446	224	297	1232
v/c Ratio	1.12dl	0.76	0.50	0.46	0.60
Control Delay	51.3	51.9	9.5	28.3	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	51.3	51.9	9.5	28.3	16.2
Queue Length 50th (ft)	390	153	0	151	269
Queue Length 95th (ft)	#502	210	65	230	334
Internal Link Dist (ft)	1105	413			511
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1720	584	448	651	2037
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.98	0.76	0.50	0.46	0.60

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	247	681	299	558	412	484
v/c Ratio	0.54	0.77	0.61	0.50	0.87	0.22
Control Delay	25.2	28.5	14.4	31.8	56.7	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	28.5	14.4	31.8	56.7	9.1
Queue Length 50th (ft)	100	176	39	164	261	70
Queue Length 95th (ft)	m131	m212	m79	230	#401	100
Internal Link Dist (ft)		774		703		185
Turn Bay Length (ft)						
Base Capacity (vph)	501	966	526	1106	526	2228
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.70	0.57	0.50	0.78	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	NWL	NET	SWL	SWT
Lane Group Flow (vph)	604	849	121	1152
v/c Ratio	0.86	0.91	0.40	0.68
Control Delay	29.0	34.7	28.0	15.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	29.0	34.7	28.0	15.3
Queue Length 50th (ft)	165	130	41	168
Queue Length 95th (ft)	#326	#240	87	244
Internal Link Dist (ft)	513	307		413
Turn Bay Length (ft)			100	
Base Capacity (vph)	779	934	305	1702
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.78	0.91	0.40	0.68

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1916	589	615	516	1093
v/c Ratio	1.15	0.85	1.68	0.89	0.54
Control Delay	104.7	45.2	336.4	49.0	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	104.7	45.2	336.4	49.0	13.2
Queue Length 50th (ft)	~459	147	~477	275	187
Queue Length 95th (ft)	#553	m167	m#420	#462	242
Internal Link Dist (ft)	1276	429			958
Turn Bay Length (ft)				200	150
Base Capacity (vph)	1665	693	365	580	1998
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.15	0.85	1.68	0.89	0.55

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	392	1405	607	939	371	256
v/c Ratio	0.78	1.45	1.31	0.86dr	1.57	0.12
Control Delay	20.5	223.5	161.0	25.3	306.7	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	223.5	161.0	25.3	306.7	8.4
Queue Length 50th (ft)	162	~629	~471	224	~302	31
Queue Length 95th (ft)	m126	m#487	m#354	296	#473	48
Internal Link Dist (ft)		1206		1205		1978
Turn Bay Length (ft)						
Base Capacity (vph)	501	972	465	1328	236	2084
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	1.45	1.31	0.71	1.57	0.12

Intersection Summary

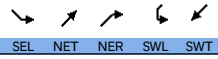
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Lane Group	NWL	NET	SWL	SWT
Lane Group Flow (vph)	381	1947	157	866
v/c Ratio	0.79	1.19	0.61	0.37
Control Delay	37.3	114.6	42.7	3.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	37.3	114.6	42.7	3.4
Queue Length 50th (ft)	171	~679	69	0
Queue Length 95th (ft)	241	#964	m85	m0
Internal Link Dist (ft)	560	322		429
Turn Bay Length (ft)			100	
Base Capacity (vph)	734	1640	308	2310
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.52	1.19	0.51	0.37

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

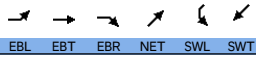
Cumulative (2030) Conditions



Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1756	500	280	352	1395
v/c Ratio	1.17dl	0.86	0.67	0.54	0.68
Control Delay	61.5	58.5	22.8	30.2	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	61.5	58.5	22.8	30.2	18.0
Queue Length 50th (ft)	~445	175	55	186	327
Queue Length 95th (ft)	#540	#261	148	278	406
Internal Link Dist (ft)	1105	413			511
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1720	584	419	651	2037
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.02	0.86	0.67	0.54	0.68

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	267	734	323	642	431	506
v/c Ratio	0.57	0.81	0.63	0.61	0.89	0.23
Control Delay	26.5	30.6	15.0	34.7	58.1	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	30.6	15.0	34.7	58.1	9.4
Queue Length 50th (ft)	120	211	41	204	271	77
Queue Length 95th (ft)	m157	m249	m100	270	#431	104
Internal Link Dist (ft)		774		703		185
Turn Bay Length (ft)						
Base Capacity (vph)	501	964	537	1060	526	2206
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.76	0.60	0.61	0.82	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	NWT	NET
Lane Group Flow (vph)	3254	1053
v/c Ratio	1.07	0.50
Control Delay	62.5	18.9
Queue Delay	111.8	0.3
Total Delay	174.4	19.2
Queue Length 50th (ft)	~534	179
Queue Length 95th (ft)	#610	m204
Internal Link Dist (ft)	378	334
Turn Bay Length (ft)		
Base Capacity (vph)	3031	2105
Starvation Cap Reductn	0	0
Spillback Cap Reductn	576	448
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.33	0.64

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	NWL	NWT	SWT
Lane Group Flow (vph)	861	2665	1504
v/c Ratio	0.98	0.97	1.31
Control Delay	36.2	27.7	172.4
Queue Delay	127.4	145.2	0.0
Total Delay	163.6	172.9	172.4
Queue Length 50th (ft)	384	396	~521
Queue Length 95th (ft)	m375	m379	#655
Internal Link Dist (ft)		191	1680
Turn Bay Length (ft)			
Base Capacity (vph)	876	2734	1148
Starvation Cap Reductn	216	733	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.30	1.33	1.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	NWL	NET	SWL	SWT
Lane Group Flow (vph)	682	955	127	1254
v/c Ratio	0.91	1.05	0.49	0.78
Control Delay	34.6	68.0	31.4	18.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	34.6	68.0	31.4	18.9
Queue Length 50th (ft)	196	~189	44	198
Queue Length 95th (ft)	#397	#299	#94	#278
Internal Link Dist (ft)	513	307		413
Turn Bay Length (ft)			100	
Base Capacity (vph)	780	907	260	1607
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.87	1.05	0.49	0.78

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	2727	628	655	753	1141
v/c Ratio	1.64	0.91	2.00	1.30	0.56
Control Delay	315.1	47.8	475.0	175.3	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	315.1	47.8	475.0	175.3	13.5
Queue Length 50th (ft)	~811	160	~567	~553	200
Queue Length 95th (ft)	#904	m173	m#477	#770	257
Internal Link Dist (ft)	1276	429			958
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1665	688	328	580	2025
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.64	0.91	2.00	1.30	0.56

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	449	1915	834	979	388	267
v/c Ratio	0.90	1.96	1.81	0.90dr	1.64	0.13
Control Delay	22.9	453.2	386.9	26.2	336.9	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.9	453.2	386.9	26.2	336.9	8.4
Queue Length 50th (ft)	193	~980	~775	238	~323	32
Queue Length 95th (ft)	m86	m#478	m#309	314	#497	50
Internal Link Dist (ft)		1206		1205		1978
Turn Bay Length (ft)						
Base Capacity (vph)	501	976	460	1328	236	2084
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.90	1.96	1.81	0.74	1.64	0.13

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Lane Group	NWT	NET
Lane Group Flow (vph)	2431	1731
v/c Ratio	0.77	0.94
Control Delay	14.3	30.6
Queue Delay	0.6	32.0
Total Delay	14.9	62.5
Queue Length 50th (ft)	191	214
Queue Length 95th (ft)	237	#319
Internal Link Dist (ft)	566	394
Turn Bay Length (ft)		
Base Capacity (vph)	3147	1844
Starvation Cap Reductn	0	0
Spillback Cap Reductn	323	226
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.86	1.07

Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	NWL	NWT	SWT
Lane Group Flow (vph)	634	1969	1008
v/c Ratio	0.84	0.84	0.75
Control Delay	25.4	20.7	20.2
Queue Delay	31.7	49.8	0.0
Total Delay	57.1	70.5	20.2
Queue Length 50th (ft)	261	279	159
Queue Length 95th (ft)	m#383	m334	225
Internal Link Dist (ft)		236	402
Turn Bay Length (ft)			
Base Capacity (vph)	758	2332	1343
Starvation Cap Reductn	155	553	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.05	1.11	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	NWL	NET	SWL	SWT
Lane Group Flow (vph)	397	2024	163	957
v/c Ratio	0.79	1.27	0.62	0.42
Control Delay	37.1	149.1	41.4	3.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	37.1	149.1	41.4	3.9
Queue Length 50th (ft)	179	~744	69	0
Queue Length 95th (ft)	249	#1031	m89	m0
Internal Link Dist (ft)	560	322		429
Turn Bay Length (ft)			100	
Base Capacity (vph)	734	1598	311	2275
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.54	1.27	0.52	0.42

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Existing plus Project (Phase I and Phase II) Conditions

Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1402	621	200	301	1313
v/c Ratio	0.85	1.06	0.47	0.45	0.63
Control Delay	37.4	98.2	9.5	27.5	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	98.2	9.5	27.5	16.2
Queue Length 50th (ft)	295	~245	0	154	297
Queue Length 95th (ft)	353	#359	63	234	368
Internal Link Dist (ft)	1105	413			511
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1720	584	428	676	2086
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.82	1.06	0.47	0.45	0.63

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1402	757	684	380	853
v/c Ratio	0.85	0.92	1.44	0.73	0.42
Control Delay	33.2	53.4	234.2	36.8	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	53.4	234.2	36.8	11.4
Queue Length 50th (ft)	248	~260	~505	183	133
Queue Length 95th (ft)	306	#374	#720	283	175
Internal Link Dist (ft)	1276	429			958
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1675	826	475	580	2049
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.84	0.92	1.44	0.66	0.42

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Existing plus Project (Phase I and Phase II) Conditions Mitigated

Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1402	757	684	380	853
v/c Ratio	0.85	0.92	0.82	0.73	0.42
Control Delay	33.2	53.4	31.6	36.8	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	53.4	31.6	36.8	11.4
Queue Length 50th (ft)	248	~260	146	183	133
Queue Length 95th (ft)	306	#374	#265	283	175
Internal Link Dist (ft)	1276	429			958
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1675	826	837	580	2049
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.84	0.92	0.82	0.66	0.42

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Near-Term (2015) plus Project (Phase I) Conditions

Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1682	446	224	297	1367
v/c Ratio	1.12dl	0.76	0.50	0.46	0.67
Control Delay	51.3	51.9	9.5	28.3	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	51.3	51.9	9.5	28.3	17.6
Queue Length 50th (ft)	390	153	0	151	317
Queue Length 95th (ft)	#502	210	65	230	393
Internal Link Dist (ft)	1105	413			511
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1720	584	448	651	2037
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.98	0.76	0.50	0.46	0.67

Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	247	681	299	558	412	484
v/c Ratio	0.54	0.77	0.61	0.50	0.87	0.22
Control Delay	25.2	28.5	14.4	31.8	56.7	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	28.5	14.4	31.8	56.7	9.1
Queue Length 50th (ft)	100	176	39	164	261	70
Queue Length 95th (ft)	m131	m212	m79	230	#401	100
Internal Link Dist (ft)		774		703		185
Turn Bay Length (ft)						
Base Capacity (vph)	501	966	526	1106	526	2228
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.70	0.57	0.50	0.78	0.22

Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	NWL	NET	SWL	SWT
Lane Group Flow (vph)	604	849	121	1287
v/c Ratio	0.86	0.91	0.40	0.76
Control Delay	29.0	34.7	28.0	17.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	29.0	34.7	28.0	17.7
Queue Length 50th (ft)	165	130	41	199
Queue Length 95th (ft)	#326	#240	87	#301
Internal Link Dist (ft)	513	307		413
Turn Bay Length (ft)			100	
Base Capacity (vph)	779	934	305	1702
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.78	0.91	0.40	0.76

Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1916	589	647	516	1118
v/c Ratio	1.15	0.86	1.78	0.89	0.55
Control Delay	104.7	45.6	379.2	48.5	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	104.7	45.6	379.2	48.5	13.3
Queue Length 50th (ft)	~459	147	~515	275	194
Queue Length 95th (ft)	#553	m162	m#435	#462	250
Internal Link Dist (ft)	1276	429			958
Turn Bay Length (ft)				200	150
Base Capacity (vph)	1665	688	363	580	2025
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.15	0.86	1.78	0.89	0.55

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	392	1425	620	971	371	256
v/c Ratio	0.78	1.46	1.34	0.90dr	1.57	0.12
Control Delay	20.6	231.4	174.8	25.8	306.7	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	231.4	174.8	25.8	306.7	8.4
Queue Length 50th (ft)	164	~643	~490	234	~302	31
Queue Length 95th (ft)	m126	m#487	m#363	309	#473	48
Internal Link Dist (ft)		1206		1205		1978
Turn Bay Length (ft)						
Base Capacity (vph)	501	974	464	1329	236	2084
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	1.46	1.34	0.73	1.57	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Lane Group	NWL	NET	SWL	SWT
Lane Group Flow (vph)	381	2011	157	892
v/c Ratio	0.79	1.23	0.61	0.39
Control Delay	37.3	131.1	43.3	3.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	37.3	131.1	43.3	3.4
Queue Length 50th (ft)	171	~720	69	0
Queue Length 95th (ft)	241	#1005	m88	m0
Internal Link Dist (ft)	560	322		429
Turn Bay Length (ft)			100	
Base Capacity (vph)	734	1640	308	2310
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.52	1.23	0.51	0.39

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Near-Term (2015) plus Project (Phase I and Phase II) Conditions

Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1682	446	226	297	1472
v/c Ratio	1.12dl	0.76	0.50	0.46	0.72
Control Delay	51.3	51.9	9.5	28.3	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	51.3	51.9	9.5	28.3	19.0
Queue Length 50th (ft)	390	153	0	151	359
Queue Length 95th (ft)	#502	210	66	230	443
Internal Link Dist (ft)	1105	413			511
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1720	584	450	651	2037
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.98	0.76	0.50	0.46	0.72

Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	247	683	299	560	412	484
v/c Ratio	0.54	0.77	0.61	0.51	0.87	0.22
Control Delay	25.2	28.5	14.4	31.8	56.7	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	28.5	14.4	31.8	56.7	9.1
Queue Length 50th (ft)	98	176	39	165	261	70
Queue Length 95th (ft)	m131	m214	m78	231	#401	100
Internal Link Dist (ft)		774		703		185
Turn Bay Length (ft)						
Base Capacity (vph)	501	966	526	1103	526	2226
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.71	0.57	0.51	0.78	0.22

Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	NWL	NET	SWL	SWT
Lane Group Flow (vph)	604	854	121	1392
v/c Ratio	0.86	0.91	0.40	0.82
Control Delay	29.0	35.4	28.0	20.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	29.0	35.4	28.0	20.1
Queue Length 50th (ft)	165	131	41	226
Queue Length 95th (ft)	#326	#242	87	#374
Internal Link Dist (ft)	513	307		413
Turn Bay Length (ft)			100	
Base Capacity (vph)	779	934	305	1702
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.78	0.91	0.40	0.82

Intersection Summary
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1916	589	687	516	1142
v/c Ratio	1.15	0.86	1.89	0.89	0.56
Control Delay	104.7	45.8	427.7	48.5	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	104.7	45.8	427.7	48.5	13.5
Queue Length 50th (ft)	~459	147	~563	275	200
Queue Length 95th (ft)	#553	m157	m#452	#462	258
Internal Link Dist (ft)	1276	429			958
Turn Bay Length (ft)				200	150
Base Capacity (vph)	1665	688	363	580	2025
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.15	0.86	1.89	0.89	0.56

Intersection Summary
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	392	1452	633	1015	371	256
v/c Ratio	0.78	1.49	1.36	0.96dr	1.57	0.12
Control Delay	20.7	242.5	187.3	26.7	306.7	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.7	242.5	187.3	26.7	306.7	8.4
Queue Length 50th (ft)	167	~661	~507	247	~302	31
Queue Length 95th (ft)	m124	m#488	m#364	326	#473	48
Internal Link Dist (ft)		1206		1205		1978
Turn Bay Length (ft)						
Base Capacity (vph)	501	976	464	1331	236	2084
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	1.49	1.36	0.76	1.57	0.12

Intersection Summary

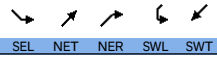
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Lane Group	NWL	NET	SWL	SWT
Lane Group Flow (vph)	381	2095	157	916
v/c Ratio	0.79	1.28	0.61	0.40
Control Delay	37.3	152.4	43.8	3.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	37.3	152.4	43.8	3.3
Queue Length 50th (ft)	171	~773	70	0
Queue Length 95th (ft)	241	#1057	m89	m0
Internal Link Dist (ft)	560	322		429
Turn Bay Length (ft)			100	
Base Capacity (vph)	734	1642	308	2310
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.52	1.28	0.51	0.40

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

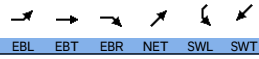
Cumulative (2030) plus Project (Phase I and Phase II) Conditions



Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1756	500	282	352	1628
v/c Ratio	1.18dl	0.86	0.67	0.54	0.80
Control Delay	62.8	58.5	23.1	30.2	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	62.8	58.5	23.1	30.2	21.5
Queue Length 50th (ft)	~448	175	57	186	430
Queue Length 95th (ft)	#543	#261	150	278	530
Internal Link Dist (ft)	1105	413			511
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1713	584	419	651	2037
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.03	0.86	0.67	0.54	0.80

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	267	736	323	645	431	506
v/c Ratio	0.57	0.81	0.63	0.61	0.89	0.23
Control Delay	26.3	30.5	14.9	34.8	58.1	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.3	30.5	14.9	34.8	58.1	9.4
Queue Length 50th (ft)	120	212	34	206	271	77
Queue Length 95th (ft)	m156	m250	m98	271	#431	104
Internal Link Dist (ft)		774		703		185
Turn Bay Length (ft)						
Base Capacity (vph)	501	964	537	1059	526	2205
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.76	0.60	0.61	0.82	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	NWT	NET
Lane Group Flow (vph)	3426	1060
v/c Ratio	1.13	0.50
Control Delay	86.1	18.9
Queue Delay	144.0	0.3
Total Delay	230.1	19.2
Queue Length 50th (ft)	~588	180
Queue Length 95th (ft)	#663	m205
Internal Link Dist (ft)	378	334
Turn Bay Length (ft)		
Base Capacity (vph)	3030	2105
Starvation Cap Reductn	0	0
Spillback Cap Reductn	671	448
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.45	0.64

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	NWL	NWT	SWT
Lane Group Flow (vph)	900	2798	1547
v/c Ratio	1.03	1.02	1.35
Control Delay	42.3	37.1	188.5
Queue Delay	143.4	163.3	0.0
Total Delay	185.7	200.5	188.5
Queue Length 50th (ft)	~416	~430	~545
Queue Length 95th (ft)	m373	m379	#680
Internal Link Dist (ft)		191	1680
Turn Bay Length (ft)			
Base Capacity (vph)	876	2731	1148
Starvation Cap Reductn	217	729	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.37	1.40	1.35

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	NWL	NET	SWL	SWT
Lane Group Flow (vph)	682	959	127	1487
v/c Ratio	0.91	1.06	0.49	0.93
Control Delay	34.6	69.1	31.4	28.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	34.6	69.1	31.4	28.6
Queue Length 50th (ft)	196	~191	44	262
Queue Length 95th (ft)	#397	#301	#94	#415
Internal Link Dist (ft)	513	307		413
Turn Bay Length (ft)			100	
Base Capacity (vph)	780	908	260	1607
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.87	1.06	0.49	0.93

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	2727	628	726	753	1189
v/c Ratio	1.64	0.91	2.21	1.30	0.59
Control Delay	315.1	48.2	570.3	175.3	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	315.1	48.2	570.3	175.3	13.9
Queue Length 50th (ft)	~811	159	~653	~553	212
Queue Length 95th (ft)	#904	m163	m#508	#770	273
Internal Link Dist (ft)	1276	429			958
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	1665	688	328	580	2025
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.64	0.91	2.21	1.30	0.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	449	1968	852	1052	388	267
v/c Ratio	0.90	2.01	1.86	0.99dr	1.64	0.13
Control Delay	23.0	475.6	406.2	27.9	336.9	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.0	475.6	406.2	27.9	336.9	8.4
Queue Length 50th (ft)	197	~1018	~801	262	~323	32
Queue Length 95th (ft)	m86	m#484	m#320	344	#497	50
Internal Link Dist (ft)		1206		1205		1978
Turn Bay Length (ft)						
Base Capacity (vph)	501	978	459	1330	236	2084
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.90	2.01	1.86	0.79	1.64	0.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Lane Group	NWT	NET
Lane Group Flow (vph)	2458	1808
v/c Ratio	0.78	0.98
Control Delay	14.5	37.5
Queue Delay	0.9	48.1
Total Delay	15.4	85.6
Queue Length 50th (ft)	194	230
Queue Length 95th (ft)	241	#342
Internal Link Dist (ft)	566	394
Turn Bay Length (ft)		
Base Capacity (vph)	3150	1844
Starvation Cap Reductn	0	0
Spillback Cap Reductn	386	226
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.89	1.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	NWL	NWT	SWT
Lane Group Flow (vph)	637	1993	1016
v/c Ratio	0.84	0.85	0.76
Control Delay	25.7	21.1	20.4
Queue Delay	35.2	56.9	0.0
Total Delay	60.9	77.9	20.4
Queue Length 50th (ft)	266	286	161
Queue Length 95th (ft)	m#376	m337	227
Internal Link Dist (ft)		236	402
Turn Bay Length (ft)			
Base Capacity (vph)	757	2331	1343
Starvation Cap Reductn	157	557	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.06	1.12	0.76

Intersection Summary

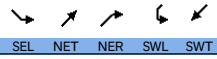
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	NWL	NET	SWL	SWT
Lane Group Flow (vph)	397	2168	163	1005
v/c Ratio	0.79	1.36	0.62	0.44
Control Delay	37.1	187.3	42.3	3.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	37.1	187.3	42.3	3.9
Queue Length 50th (ft)	179	~834	70	0
Queue Length 95th (ft)	249	#1121	m92	m0
Internal Link Dist (ft)	560	322		429
Turn Bay Length (ft)			100	
Base Capacity (vph)	734	1600	311	2275
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.54	1.36	0.52	0.44

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

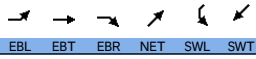
Cumulative (2030) plus Project (Phase I and Phase II) Conditions Mitigated



Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	1756	500	282	352	1628
v/c Ratio	1.20dl	0.86	0.41	0.53	0.79
Control Delay	35.0	58.5	6.6	29.8	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.0	58.5	6.6	29.8	21.0
Queue Length 50th (ft)	289	175	0	186	430
Queue Length 95th (ft)	334	#261	39	278	530
Internal Link Dist (ft)	1105	413			511
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	2207	584	696	661	2057
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.80	0.86	0.41	0.53	0.79

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	EBL	EBT	EBR	NET	SWL	SWT
Lane Group Flow (vph)	267	736	323	645	431	506
v/c Ratio	0.57	0.81	0.63	0.61	0.89	0.23
Control Delay	27.9	33.4	16.6	34.8	58.1	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	33.4	16.6	34.8	58.1	9.4
Queue Length 50th (ft)	126	245	47	206	271	77
Queue Length 95th (ft)	m191	323	m143	271	#431	104
Internal Link Dist (ft)		774		703		185
Turn Bay Length (ft)						
Base Capacity (vph)	501	964	537	1059	526	2205
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.76	0.60	0.61	0.82	0.23

Intersection Summary

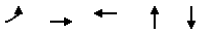
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	NWT	NET
Lane Group Flow (vph)	3426	1060
v/c Ratio	0.98	0.91dl
Control Delay	29.0	20.3
Queue Delay	58.6	1.4
Total Delay	87.6	21.8
Queue Length 50th (ft)	447	184
Queue Length 95th (ft)	#586	m209
Internal Link Dist (ft)	378	334
Turn Bay Length (ft)		
Base Capacity (vph)	3508	1734
Starvation Cap Reductn	0	0
Spillback Cap Reductn	495	448
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.14	0.82

Intersection Summary

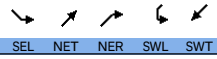
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	109	295	651	34	66
v/c Ratio	0.47	0.40	0.88	0.05	0.10
Control Delay	17.2	10.4	29.2	6.2	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	10.4	29.2	6.2	6.4
Queue Length 50th (ft)	17	43	125	3	6
Queue Length 95th (ft)	#58	86	#292	13	21
Internal Link Dist (ft)		613	231	516	579
Turn Bay Length (ft)	50				
Base Capacity (vph)	233	744	739	665	666
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.47	0.40	0.88	0.05	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	SEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	2727	628	726	753	1189
v/c Ratio	1.27	0.91	1.26	1.30	0.59
Control Delay	153.1	53.6	157.6	175.3	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	153.1	53.6	157.6	175.3	13.9
Queue Length 50th (ft)	~545	155	~276	~553	212
Queue Length 95th (ft)	#617	m218	m#330	#770	273
Internal Link Dist (ft)	1276	429			958
Turn Bay Length (ft)			200	150	
Base Capacity (vph)	2150	688	577	580	2025
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.27	0.91	1.26	1.30	0.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	NET	NER	SWL	SWT
Lane Group Flow (vph)	449	1968	852	380	672	388	267
v/c Ratio	0.64	1.44	1.34	0.78	0.89	1.27dl	0.31
Control Delay	14.3	222.4	175.3	44.4	47.0	43.0	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.3	222.4	175.3	44.4	47.0	43.0	16.2
Queue Length 50th (ft)	158	~915	~707	203	201	107	91
Queue Length 95th (ft)	m102	m#613	m#457	#355	#328	154	145
Internal Link Dist (ft)		1206		1205			1978
Turn Bay Length (ft)					75		
Base Capacity (vph)	698	1362	636	487	755	610	869
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	1.44	1.34	0.78	0.89	0.64	0.31

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.
dl Defacto Left Lane. Recode with 1 though lane as a left lane.



Lane Group	NWT	NET
Lane Group Flow (vph)	2458	1808
v/c Ratio	0.78	0.98
Control Delay	14.5	37.5
Queue Delay	0.9	48.1
Total Delay	15.4	85.6
Queue Length 50th (ft)	194	230
Queue Length 95th (ft)	241	#342
Internal Link Dist (ft)	566	394
Turn Bay Length (ft)		
Base Capacity (vph)	3150	1844
Starvation Cap Reductn	0	0
Spillback Cap Reductn	386	226
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.89	1.12

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	297	726	368	92	211
v/c Ratio	0.60	0.82	0.46	0.17	0.40
Control Delay	14.7	20.1	9.1	7.4	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	20.1	9.1	7.4	10.8
Queue Length 50th (ft)	43	124	47	8	26
Queue Length 95th (ft)	#112	#299	94	29	65
Internal Link Dist (ft)		614	268	355	512
Turn Bay Length (ft)	50				
Base Capacity (vph)	491	884	803	549	526
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.82	0.46	0.17	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX G.12

Harrison Street-Oakland Avenue Study

Harrison-Oakland Avenue Community-Based Transportation Plan (CBTP) Study Comparison

The Harrison-Oakland Avenue Community-Based Transportation Plan (CBTP) Study is a planning effort that proposes a series of multi-modal improvements (bulbouts, sidewalks, improved crossings), bicycle improvements, transit improvements (bus bulbouts, bus stop relocations), as well as possible roadway closures and road diets. . However, the Harrison-Oakland Avenue Study was not included in the DEIR's assumptions of planned transportation network changes. The Harrison-Oakland couplet has not undergone environmental review, has not been approved by the City, is not a funded project, and did not have final designs at the time of preparation of the DEIR. Consistent with City practice, this study was therefore not assumed as part of the planned transportation network changes and was not assumed in the analysis.

However, the City has examined the potential effects of the Kaiser Center Office Project on a street network that would include the Harrison-Oakland couplet scheme. Those results and conclusions are as follows:

The DEIR evaluated seven intersections that were also evaluated in the CBTP Study. These intersections include[1]:

1. Harrison Street / Stanley Place / I-580 Eastbound Off-Ramp (*unsignalized*) (CBTP Study #4)
2. Oakland Avenue / Perry Place / I-580 Eastbound Ramps (CBTP Study #5)
3. Harrison Street / 27th Street / 24th Street / Bay Place (CBTP Study #10)
12. Harrison Street / Grand Avenue (within Downtown Oakland) (CBTP Study #11)
49. Oakland Avenue / MacArthur Boulevard (Westbound) / Santa Clara Avenue / I-580 Westbound Off-Ramp (CBTP Study #3)
50. Harrison Street / MacArthur Boulevard (Westbound) / Santa Clara Avenue (CBTP Study #2)
51. Oakland Avenue / Monte Vista Avenue / Vernon Street (*unsignalized*) (CBTP Study #1)

The findings from this DEIR and the CBTP Study are summarized below and in Table 1.

Reasons for Different Findings

There are several reasons that the two studies would have different results:

- This DEIR analyzes future forecasted conditions based on ACCMA Model year 2030. The CBTP Study analyzed future forecasted conditions based on ACCMA Model year 2035.
- The Harrison-Oakland Avenue Study has assumed fundamental shifts in traffic patterns by converting one-directional traffic flow on Harrison Street and Oakland Avenue to two-way traffic flow north of I-580 and reduced travel lane capacity on these streets south of I-580.

[1] Numbers shown (e.g., 1. Harrison Street / Stanley Place / I-580 Eastbound Off-Ramp) identify the location of the intersection on Figure IV.L-2 in Chapter IV.L, Transportation and Circulation, in this~~e~~ DEIR. Numbers of the corresponding intersections in the CBTP Study are shown in parentheses. All intersection on located in Downtown Oakland unless otherwise noted.

- The two studies collected existing traffic data at different times. The existing traffic data is used as the basis for developing the 2030 traffic forecasts. So, using different existing traffic assumptions will result in different forecasts.
- The signal timing parameters between the two studies were different in the 2030 and 2035 scenarios. This EIR analysis held existing signal timing unchanged under future scenarios (as is proper), whereas the Harrison-Oakland corridor study optimized the timing for their future scenarios. The technical analyst doing the intersection analyses must make determinations regarding several signal timing parameters such as green time allocation to each traffic movement. These parameters are different between the two studies but both are within standard engineering practice.

However, even with these differences the intersection analysis results are similar, indicating that conclusions drawn from the CBTP Study would also be applicable to this DEIR analysis.

Summary of Findings

#1. Harrison Street / Stanley Place / I-580 Eastbound Off-Ramp (*unsignalized*) (CBTP Intersection #4)

The CBTP Study recommended changes at this intersection to include realigning the off-I-580 Off-Ramp as a "hard" right-turn onto Harrison Street, signalization, and addition of a travel lane along the off-ramp. Southbound Harrison Street would be modified from three travel lanes to two travel lanes and a bike lane, with a new crosswalk across the north leg of the intersection. The Stanley Place approach at the intersection would be closed off, with bollards providing fire truck access in case of emergency.

This DEIR identifies that Project-generated traffic, when added to other cumulative traffic by year 2030, would not adversely impact this intersection. Although the side-street service level at this unsignalized intersection would operate at LOS F during the AM peak hour, the intersection would not satisfy the California MUTCD peak-hour signal warrant. As a result, no mitigation measures were explored for this intersection.

The LOS results presented in the CBTP Study are not directly comparable to those presented in this DEIR because the CBTP Study assumes major changes which would substantially improve the operations of this intersection, including the following items:

- **Signalization of the intersection.** Signalizing the intersection would provide a dedicated gap in southbound Harrison Street traffic, improving off-ramp serviceability.
- **Additional off-ramp lane.** The additional off-ramp lane would increase vehicle storage capacity and off-ramp serviceability.
- **Stanley Place closure.** The closure of Stanley Place would eliminate conflicts with off-ramp traffic,

As a result, the LOS presented in the CBTP is substantially better than for the DEIR, as shown in **Table 1**.

#2. Oakland Avenue / Perry Place / I-580 Eastbound Ramps (CBTP Study Intersection #5)

The CBTP Study recommended changes at this intersection to include reducing the one-directional northbound travel lanes on Oakland Avenue from three lanes to two lanes by converting a current through lane to a right-turn only lane. Other recommended improvements include construction of a new pedestrian staircase connecting Harrison Street to Oakland Avenue and a new pedestrian refuge island on Perry Place. The Study also recommended increasing the signal cycle length at this intersection from 80 seconds to 120 seconds, which would improve the delay time in the PM.

Impact TRANS-7a in this DEIR identifies that Project-generated traffic, when added to other cumulative traffic by year 2030, would adversely impact this intersection. Recommended mitigation measures include optimizing the signal timing for the PM peak hour, and coordinating the signal timing change with the adjacent intersections that are in the same signal coordination group. However, improvements considered would have adverse effects on pedestrian and bicyclist safety, remove existing bicycle lanes, or are precluded by physical constraints, and therefore, the DEIR concluded that there are no feasible mitigation measures to completely mitigate the Project's impacts and the Project impacts at this intersection are significant and unavoidable.

The LOS results presented in the CBTP Study are not directly comparable to those presented in this DEIR because the CBTP Study assumes signal optimization and a longer cycle length (100 seconds compared to 90 seconds), which generally improves intersection operations when all other variables such as traffic volumes and lane geometry are held constant.

#3. Harrison Street / 27th Street / 24th Street / Bay Place (CBTP Study Intersection #10)

The CBTP Study recommended removal of the existing channelized right-turn lane at the northeast corner of the intersection and closure of the 24th Street leg (access only provided via right-turns from 27th Street. The additional space freed up by these modifications would be converted to pedestrian plaza and street landscaping.

Impact TRANS-7b in this DEIR identifies that Project-generated traffic, when added to other cumulative traffic by year 2030, would adversely impact this intersection. Recommended mitigation measures include optimizing the signal timing for the PM peak hour, coordinating the signal timing change with the adjacent intersections that are in the same signal coordination group, and prohibiting westbound left turns during the AM and PM peak hours.

After implementation of the mitigation measueres, this intersection would operate at an acceptable LOS D in the AM peak hour. In the PM peak hour, this intersection would operate at an unacceptable LOS E, but the average delay for the overall intersection and for critical movements would be reduced to a level that would mitigate the Project's impacts at this intersection in 2030.

Although the changes proposed under the CBTP Study would generally improve pedestrian conditions at this intersection, they would generally not improve traffic operations, as removal of the channelized right-turn from southbound Harrison Street to westbound 27th Street and closure of the 24th Street leg would restrict available vehicle movements at the intersection and increase delay. An additional reason for the difference in LOS presented in this DEIR is the proposed mitigation measure of prohibition of westbound left turns

during the AM and PM peak hours—without mitigation, this DEIR indicates the intersection would operate similar to the CBTP Study (LOS F with over 120 seconds of intersection average delay).

#12. Harrison Street / Grand Avenue (CBTP Study Intersection #11)

The CBTP Study recommended only minor changes at this intersection, including addition of a bulbout on the northeast corner of the intersection and relocation of the nearside bus stop on the west side of Harrison Street to a farside location.

Impact TRANS-7d in this DEIR identifies that Project-generated traffic, when added to other cumulative traffic by year 2030, would increase the average intersection delay by more than two seconds during AM peak hour, which currently operates at LOS F under cumulative conditions without the Project. During the PM peak hour, the intersection would operate at LOS F under cumulative conditions without the Project, and the addition of Project-generated traffic would increase the v/c ratio by more than three percent.

Recommended mitigation measures include optimizing the signal timing for the PM peak hour, coordinating the signal timing change with the adjacent intersections that are in the same signal coordination group, and prohibiting southbound left turns during the AM peak hours (this movement is already prohibited in the PM peak period) with extinguishable message signs installed on the northbound and southbound approaches to enforce this prohibition.

After implementation of the mitigation measures, the intersection would operate at LOS E during the AM peak hour and LOS F during the PM peak hour. As a result, the impact would still remain significant because these measures alone would not be sufficient to completely mitigate the Project's impacts in 2030.

The difference in LOS and delay between the DEIR and the CBTP Study is primarily due to different volumes as a result of the use of different ACCMA travel demand models. In particular, there are substantial differences in baseline volumes on the northbound left-turn, eastbound right-turn, and westbound left-turn and through movements which stem from the use of different versions of the ACCMA model.

#49. Oakland Avenue/West MacArthur Boulevard/Santa Clara Avenue (CBTP Study Intersection #3)

The CBTP Study recommended changes at this intersection to include converting Oakland Avenue north of the West MacArthur Boulevard - Santa Clara Avenue intersection from one-way northbound to two-way travel. The two-way conversion requires a median on Oakland Avenue north of the intersection to facilitate the 1-way to 2-way conversion, widening of Oakland Avenue under the I-580 overpass to accommodate the 2-way conversion and bicycle lanes, and improved sidewalks. The Study also recommends a split-phase intersection signal to direct the new traffic movements. These modifications would degrade intersection operations to LOS D during both peak hours in 2035.

Impact TRANS-7k in this DEIR identifies that Project-generated traffic, when added to other cumulative traffic by year 2030, would adversely impact in the PM peak hour because the maximum increase in v/c ratio would exceed the three percent threshold of significance. Recommended mitigation measures include optimizing the signal timing for the PM peak hour, coordinating the signal timing change with the adjacent intersections that are in the same signal coordination group, and restriping the northeast Oakland Avenue approach from the current configuration of one shared through-left lane and two through lanes to one exclusive left-turn lane, one shared through-left lane, and one through lane.

After implementation of the mitigation measures, in the AM peak hour, this intersection would operate at an unacceptable LOS E, but the average delay for the overall intersection and for critical movements would be reduced to a level that would mitigate the Project's impacts at this intersection in 2030. During the PM peak hour, the intersection would operate at LOS D after implementation of the mitigation measure.

The LOS results presented in the CBTP Study are not directly comparable to those presented in this DEIR because the CBTP Study proposed substantial changes for this intersection, including conversion to two-way traffic along Oakland Avenue and fundamental shifts in traffic patterns to accommodate these changes in the roadway network. In particular, there would only be one northbound through lane along Oakland Avenue, and two new southbound right-turn lanes at this intersection. As a result, although the PM peak hour LOS results in the CBTP Study are similar to those presented in this DEIR, there are differences in AM peak hour LOS results.

#50. Harrison Street/ MacArthur Boulevard (Westbound) /Santa Clara Avenue (CBTP Study Intersection #2)

The CBTP Study recommended changes at this intersection to include converting Harrison Street north of the West MacArthur Boulevard - Santa Clara Avenue intersection from one-way southbound to two-way travel. The two-way conversion allows for a center median island with a pedestrian refuge at the Santa Clara intersection. The Study also recommended increasing the signal cycle length at this intersection to 100 seconds, which would improve the LOS in the AM from LOS E to LOS D. The CBTP Study concluded that in 2035 the intersection could operate at an acceptable LOS C during the PM peak hour,

Impact TRANS-7l in this DEIR identifies that Project-generated traffic, when added to other cumulative traffic by year 2030, would increase the average intersection delay by more than two seconds during AM peak hour, which currently operates at LOS F under cumulative conditions without the Project.

After implementation of the mitigation measures, the intersection would continue to operate at LOS F during the AM peak hour. As a result, the impact would still remain significant because these measures alone would not be sufficient to completely mitigate the Project's impacts in 2030.

The LOS results presented in the CBTP Study are not directly comparable to those presented in this DEIR because the CBTP Study proposed substantial changes for this intersection, including conversion to two-way traffic along Oakland Avenue and fundamental shifts in traffic patterns to accommodate these changes in the roadway network. In particular, there would be a new northbound travel lane along Harrison Street north of the intersection. As a result, although the PM peak hour LOS results in the CBTP Study are similar to those presented in this DEIR, there are some differences in AM peak hour LOS results.

#51. Oakland Avenue / Monte Vista Avenue (unsignalized) (CBTP Study Intersection #1)

The CBTP Study recommended changes at this intersection to including conversion of the westbound Oakland Avenue approach from a single all-movement lane to one exclusive left-turn lane, one exclusive through-lane, and one exclusive right-turn lane, which would result in LOS C during the AM peak hour and LOS F during the PM peak hour.

This DEIR identifies that the intersection would operate at LOS D during the AM peak hour and LOS F during the PM peak hour under cumulative conditions in 2030 with the Project. However, because the intersection would already meet peak hour traffic signal warrants under baseline conditions without the Project, the Project would not result in an impact at this intersection.

The difference in LOS between the CBTP Study and this DEIR is primarily a result of changes proposed by the CBTP Study to the westbound Oakland Avenue approach at this intersection. The DEIR assumes that the existing configuration of only one lane would remain in 2030, restricting the serviceability of this approach, but the CBTP Study stripes additional lanes on the approach, improving serviceability and reducing overall intersection average delay.

TABLE 1

PROPOSED PROJECT YEAR 2030 (WITH MITIGATION) AND HARRISON/OAKLAND CORRIDOR YEAR 2035 (WITH IMPROVEMENTS) LOS COMPARISON

Intersection	Traffic Control	Peak Hour	Kaiser Center Cumulative LOS (2030)		Harrison/Oakland Cumulative LOS (2035)	
			Delay(s)[1]	LOS[1]	Delay(s)[1]	LOS[1]
1. Harrison Street / Stanley Place / I-580 Eastbound Off-Ramp	TWSC	AM	>120	F	20	C
		PM	22	C	10	B
2. Oakland Avenue / Perry Place / I-580 Eastbound Ramps	Signal	AM	84	F	32	C
		PM	>120	F	138	F
3. Harrison Street / 27th Street / 24th Street / Bay Place	Signal	AM	54	D	137	F
		PM	66	E	248	F
12. Harrison Street / Grand Avenue	Signal	AM	80	E	46	D
		PM	>120	F	95	F
49. Oakland Avenue/ MacArthur Boulevard (WB) /Santa Clara Avenue	Signal	AM	70	E	49	D
		PM	36	D	37	D
50. Harrison Street/ MacArthur Boulevard/Santa Clara Avenue	Signal	AM	99	F	44	D
		PM	22	C	22	C
51. Oakland Avenue / Monte Vista Avenue	AWSC	AM	29	D	19	C
		PM	89	F	85	F

NOTES:

[1] LOS assuming optimized signal timing.

[2] The Harrison/Oakland Study assumed that the right turn movement onto Perry Place was a slow speed right turn.

SOURCES: Dowling Associates, Harrison Street/Oakland Avenue Corridor CBTP (P08-090) Concept Plan Analysis Memorandum, September 2009;; Design, Community and Environment, Harrison Street/Oakland Avenue Corridor CTP, February 2010; AECOM, 2010.

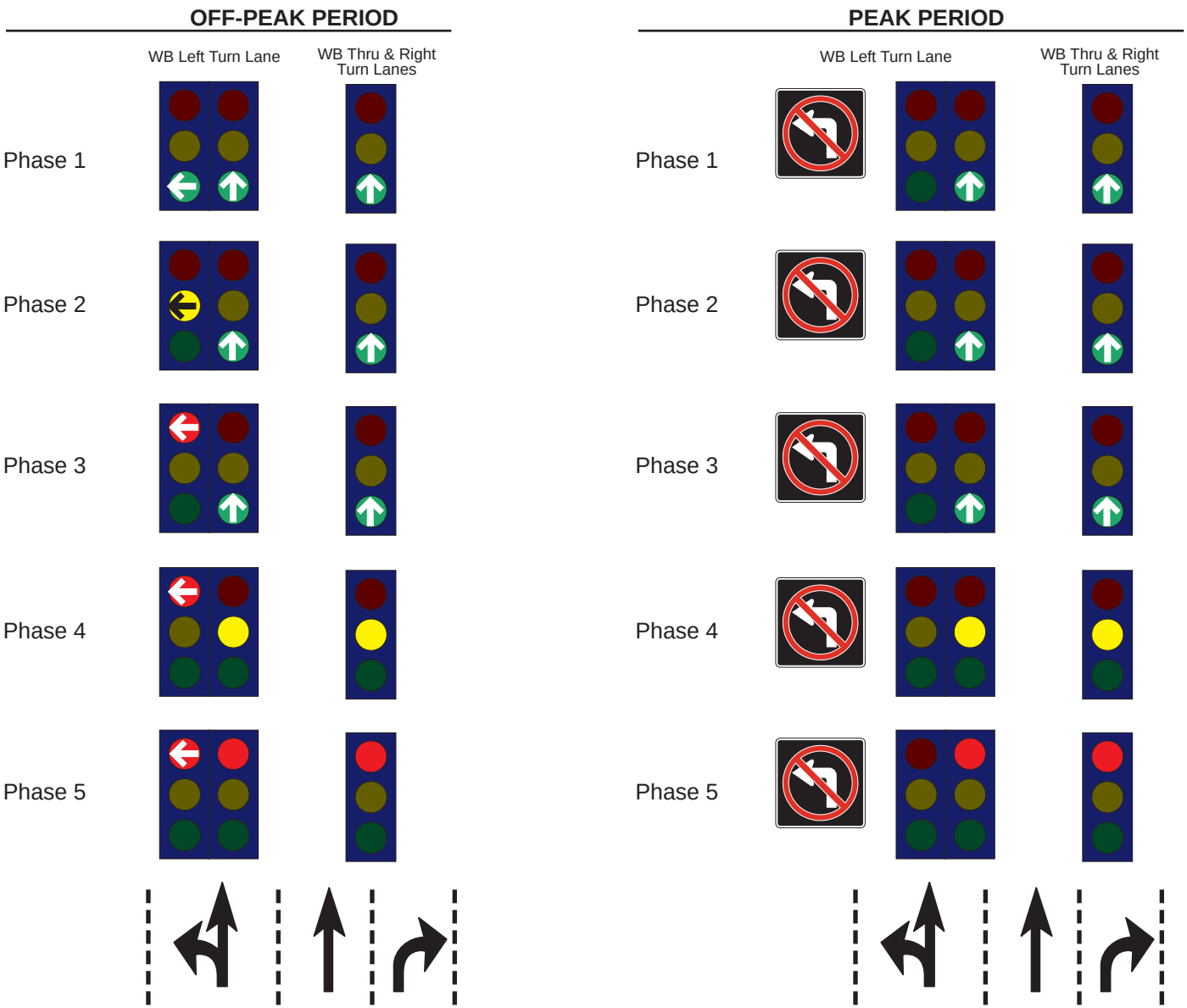
Conclusion

In conclusion, while the two studies utilized different model years and have different intersection analysis results, traffic generated by the proposed project would not substantially change the characterization of traffic operations in Year 2030 as presented in this DEIR, or in Year 2035 as presented in the CBTP Study. Furthermore, this project is not responsible for implementing any of the Harrison/Oakland Avenue Study improvements for the reasons stated above.

APPENDIX G.13

Proposed Westbound Signal Phase Sequence for Intersection #3 (Harrison Street / 27th Street / 24th Street)

AECOM



PROPOSED WESTBOUND SIGNAL PHASE SEQUENCE

APPENDIX H

Phase 1 (South Tower Only) Transportation Analysis

Phase 1 (South Tower) Only Analysis

The Phase 1 (South Tower) Only analysis in this appendix has been prepared to analyze the potential environmental transportation impacts that would occur if only Phase 1 of the Proposed Project was developed.

Existing plus South Tower Conditions

Intersection Impacts

Impact TRANS-12: Phase I of the proposed Project, when added to existing traffic levels, would worsen level of service at area intersections. (Significant at intersections described below under Impacts TRANS-12a through TRANS-12d)

Existing plus South Tower Conditions traffic volumes are illustrated in **Figure 1a** through **Figure 1d**. **Table 1** summarizes the peak-hour LOS at the 51 study intersections under Existing plus Phase South Tower Conditions.

Average delay at some intersections would decrease under Existing plus South Tower Conditions due to greater growth on movements that are under capacity (non-critical movements) and underutilizing the green time allotted by the signal, thereby resulting in a higher vehicle throughput and reduced overall intersection average delay.

As shown in **Table 1**, the following intersections would operate at unacceptable conditions under Existing plus South Tower Conditions:

Outside Downtown Area

2. Oakland Avenue / Perry Place / I-580 Eastbound Ramps (LOS F in PM peak hour)
3. Harrison Street / 27th Street / 24th Street (LOS E in PM peak hour)
45. Grand Avenue / El Embarcadero (LOS F in PM peak hour)
47. Grand Avenue / MacArthur Boulevard (Eastbound) (LOS F in PM peak hour)

Within Downtown Area

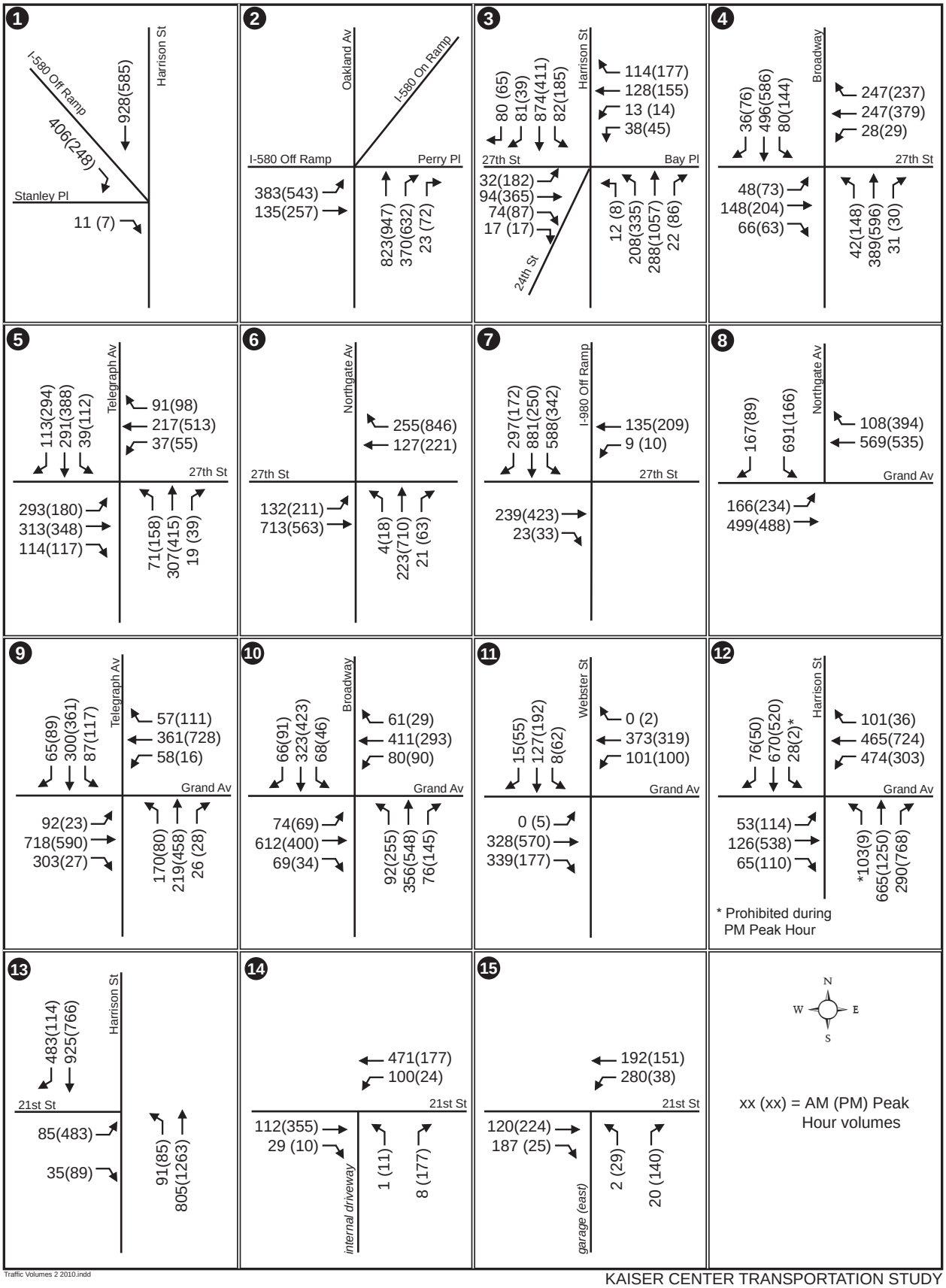
42. Jackson Street / 6th Street / I-880 Northbound On-Ramp (LOS F in AM and PM peak hours)
44. Oak Street / 5th Street / I-880 Southbound On-Ramp (LOS F in PM peak hour)

The Project would not result in a significant impact at the following intersection:

- *#42: Jackson Street / 6th Street / I-880 NB On-Ramp (AM / PM).* Although the intersection would operate at LOS F during both the AM and PM peak hours under both Existing Conditions and Existing plus South Tower Conditions, the addition of South Tower-generated traffic would cause an increase in v/c ratio not above the three percent threshold.

- *#44: Oak Street / 5th Street / I-880 SB On-Ramp (PM).* Although the intersection would operate at LOS F during the PM peak hour under both Existing Conditions and Existing plus South Tower Conditions, the addition of South Tower-generated traffic would not cause an increase in v/c ratio above the three percent threshold.

Impacts due to the South Tower at the remaining intersections above are discussed below.



Traffic Volumes 2 2010.indd

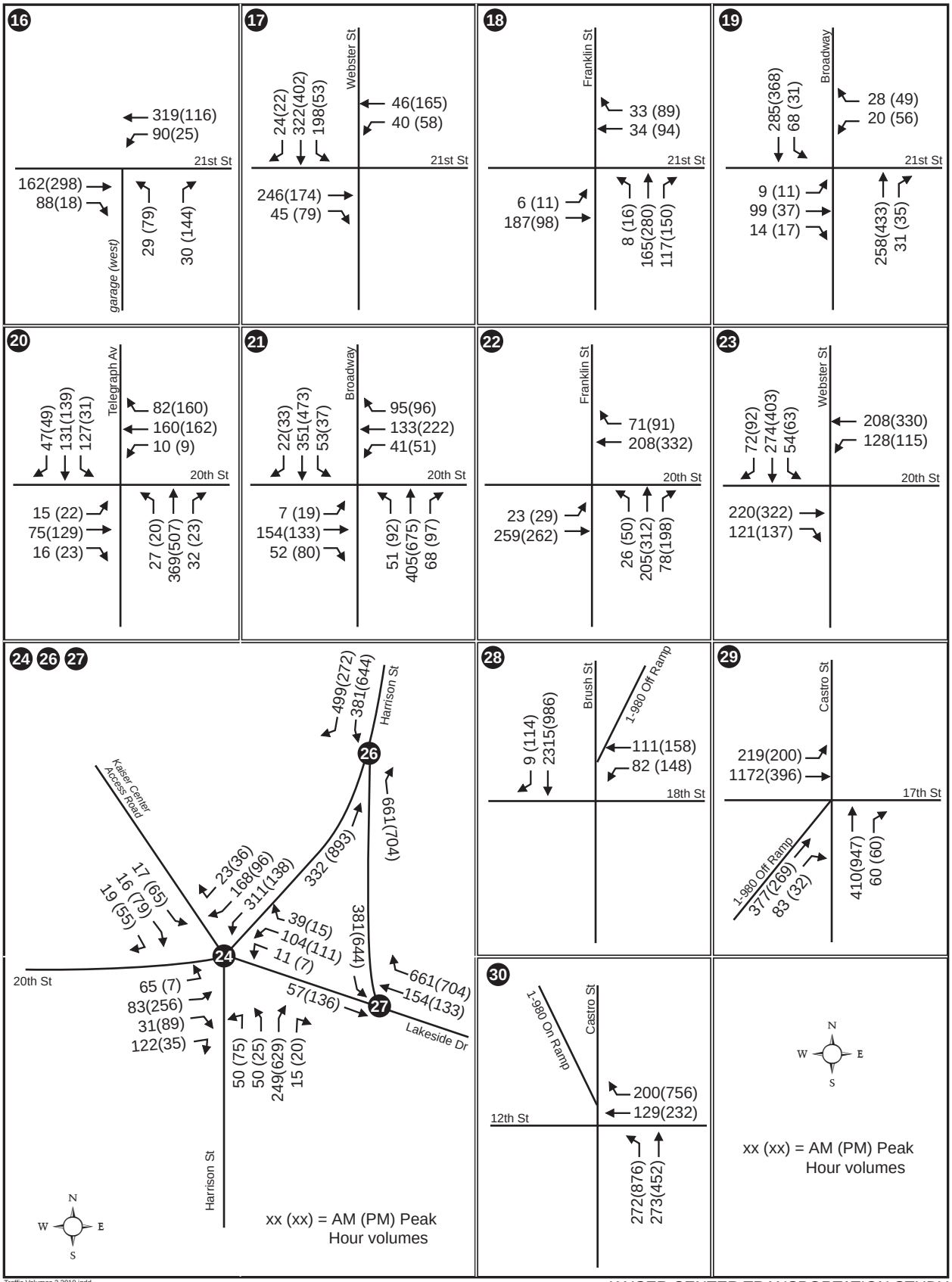
KAISER CENTER TRANSPORTATION STUDY

Figure 1a

EXISTING PLUS SOUTH TOWER TRAFFIC VOLUMES

AM (PM) Peak Hour

AECOM



Traffic Volumes 2 2010.indd

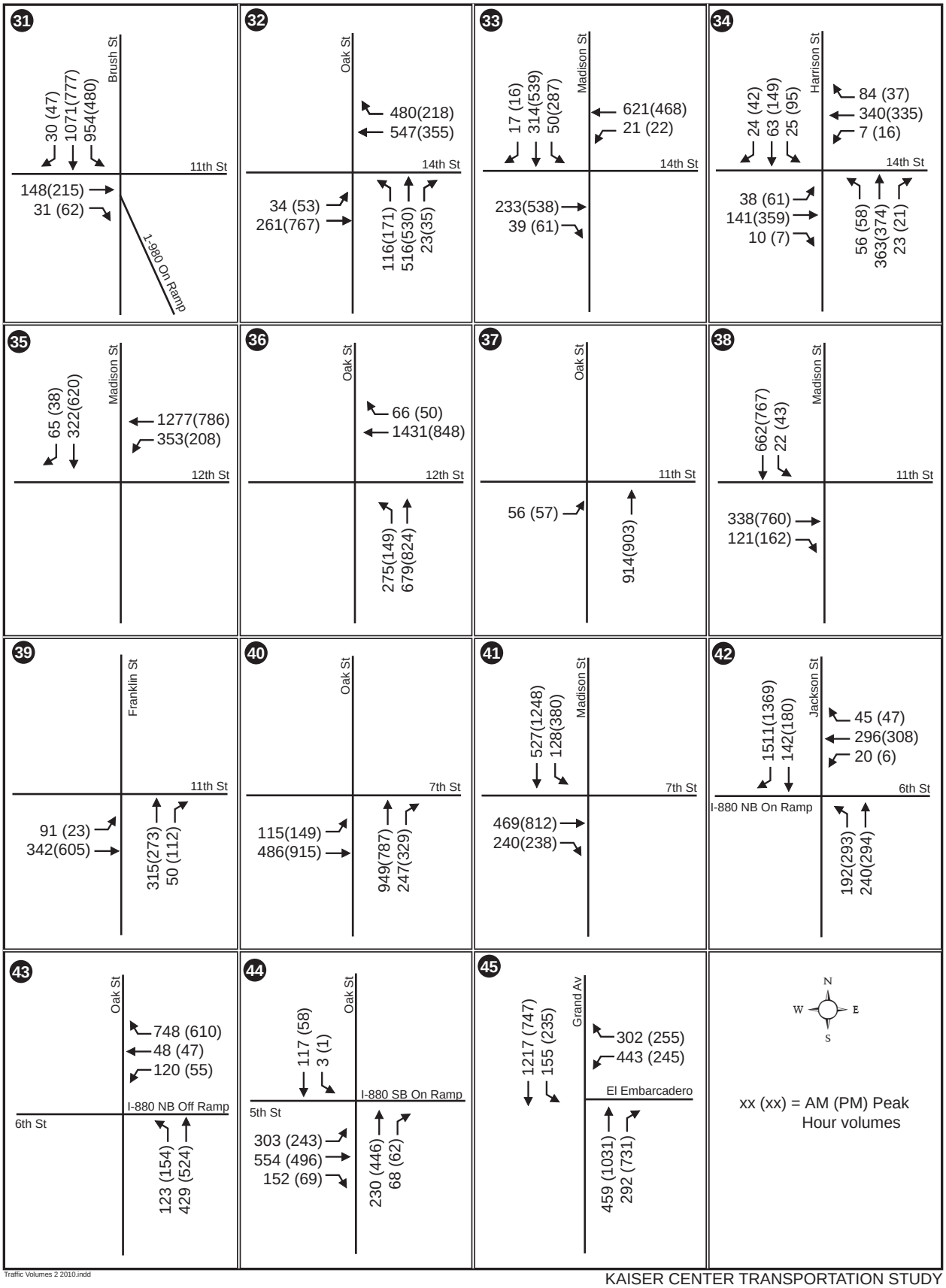
KAISER CENTER TRANSPORTATION STUDY

Figure 1b

EXISTING PLUS SOUTH TOWER TRAFFIC VOLUMES

AM (PM) Peak Hour

AECOM



Traffic Volumes 2 2010.indd

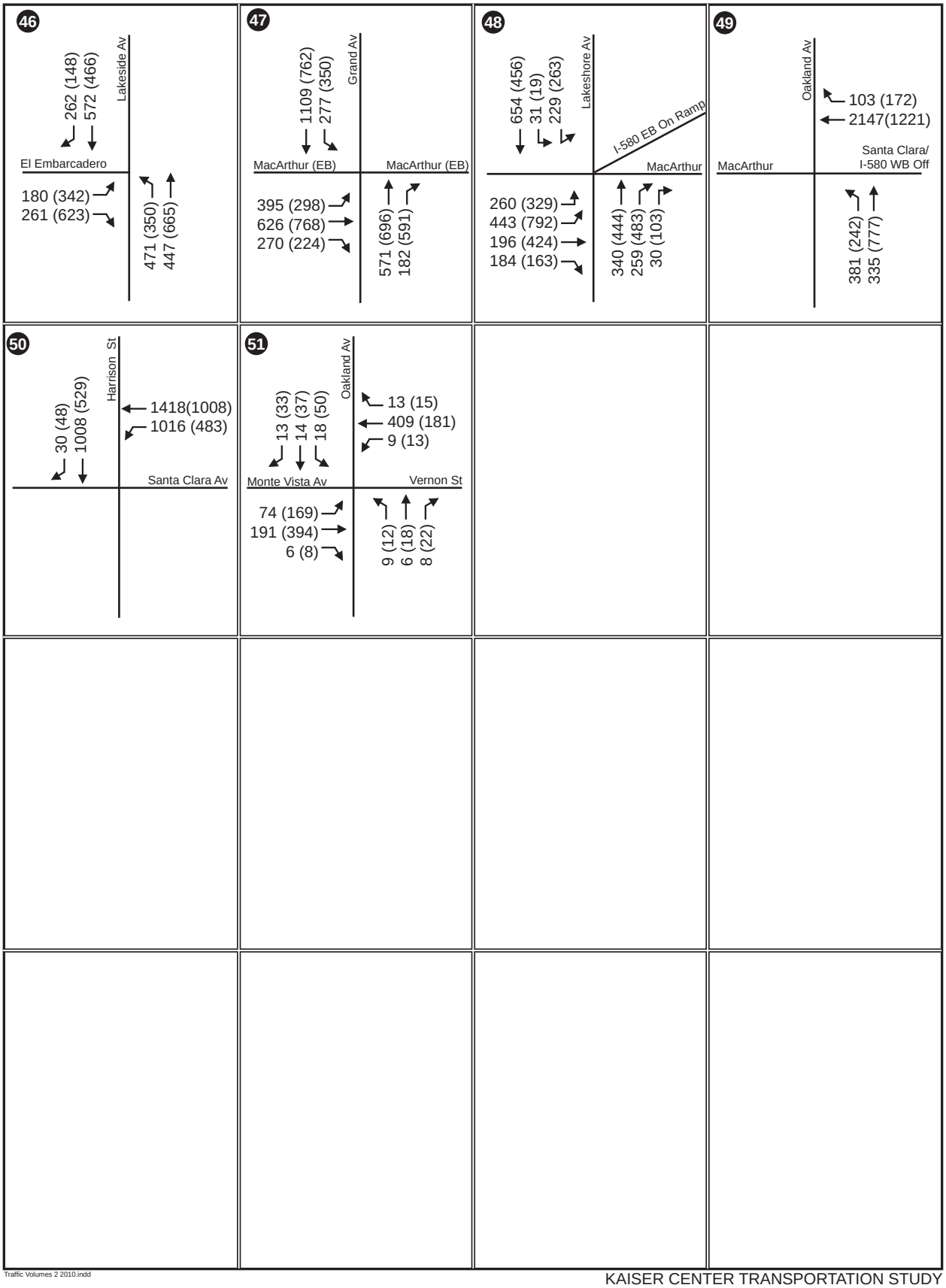
KAISER CENTER TRANSPORTATION STUDY

Figure 1c

EXISTING PLUS SOUTH TOWER TRAFFIC VOLUMES

AM (PM) Peak Hour

AECOM



Traffic Volumes 2 2010.indd

KAISER CENTER TRANSPORTATION STUDY

Figure 1d

EXISTING PLUS SOUTH TOWER TRAFFIC VOLUMES

AM (PM) Peak Hour

TABLE 1
EXISTING WITHOUT AND WITH SOUTH TOWER INTERSECTION LEVELS OF SERVICE (LOS)

			Existing Conditions				Existing plus South Tower Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
No.	Intersection	Traffic Control[a]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]
Outside Downtown										
1	Harrison St. / Stanley Pl. / I-580 EB Off-Ramp	SSSC	C	16.9	B	11.9	C	18.5	B	12.0
2	Oakland Ave. / Perry Pl. / I-580 EB Ramps	Signal	B	18.1	F	>120	C	21.1	**F**	**>120**
3	Harrison Street / 27th Street / 24th Street	Signal	C	27.6	D	49.2	C	28.3	**E**	**65.8**
4	Broadway / 27th Street	Signal	B	15.3	B	18.0	B	15.4	B	18.4
5	Telegraph Ave. / 27th St.	Signal	B	18.8	C	25.0	B	18.8	C	25.7
6	Northgate Ave. / 27th St. / I-980 EB On-Ramp	Signal	A	8.9	B	10.9	A	9.0	B	11.6
7	Northgate Ave. / 27th St. / I-980 WB Off-Ramp	Signal	B	12.0	B	11.0	B	12.2	B	11.0
45	Grand Avenue / El Embarcadero	Signal	C	25.7	F	90.9	C	25.5	**F**	**103.4**
46	Lakeshore Avenue / El Embarcadero	Signal	C	32.5	C	24.5	C	32.5	C	25.5
47	Grand Avenue / MacArthur Blvd. (EB)	Signal	D	41.9	E	76.2	D	41.8	**F**	**85.1**
48	Lakeshore Avenue / MacArthur Blvd. (EB)	Signal	C	23.9	D	49.2	C	23.8	D	48.2
49	Oakland Avenue / MacArthur Blvd. (WB)	Signal	C	22.8	B	12.1	C	23.9	B	14.9
50	Harrison Street / MacArthur Blvd. (WB)	Signal	C	26.1	B	16.5	C	27.1	B	16.4
51	Oakland Avenue / Monte Vista Avenue	AWSC	B	12.7	B	12.8	B	13.3	B	13.8
Within Downtown										
8	Northgate Avenue / West Grand Avenue	Signal	C	21.3	B	17.7	C	21.7	B	17.9
9	Telegraph Avenue / West Grand Avenue	Signal	C	24.9	C	27.1	D	47.4	C	30.0
10	Broadway / Grand Ave.	Signal	C	20.9	B	17.0	C	21.1	B	17.3
11	Webster St. / Grand Ave.	Signal	C	29.2	C	23.7	C	31.6	C	24.0
12	Harrison St. / Grand Ave.	Signal	C	27.8	D	39.0	C	32.9	D	49.2
13	Harrison St. / 21st Street	Signal	A	6.9	B	13.7	A	8.4	C	20.7
14	Kaiser Ctr. Access Rd. / 21st Street	SSSC	B	11.6	B	10.9	B	10.5	B	14.3
15	Kaiser Ctr. Garage (NE) / 21st Street	SSSC	B	12.5	B	11.4	B	12.3	B	14.3
16	Kaiser Ctr. Garage (NW) / 21st Street	SSSC	B	11.5	B	10.8	B	13.6	B	11.7
17	Webster St. / 21st Street	Signal	B	13.8	B	18.2	B	14.4	B	18.5
18	Franklin St. / 21st Street	Signal	B	10.1	B	10.8	A	9.8	B	10.5

See next page for table footnotes.

TABLE 1 (*continued*)
EXISTING WITHOUT AND WITH SOUTH TOWER INTERSECTION LEVELS OF SERVICE (LOS)

			Existing Conditions				Existing plus South Tower Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
No.	Intersection	Traffic Control[a]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]
Within Downtown										
19	Broadway / 21st Street	Signal	A	10.0	B	10.6	B	10.3	B	10.6
20	Telegraph Ave. / 20th St.	Signal	B	11.6	B	12.5	B	11.8	B	12.4
21	Broadway / 20th St.	Signal	B	13.3	B	17.0	B	13.4	B	17.1
22	Franklin St. / 20th St.	Signal	B	13.0	B	15.1	B	14.2	B	14.4
23	Webster St. / 20th St.	Signal	C	20.8	C	21.0	C	22.9	C	22.4
24	Harrison St. / 20th St. / Kaiser Ctr. Access Rd.	Signal	C	24.2	C	27.2	D	36.9	E	68.2
25	Kaiser Ctr. Access Rd. / 20th St.[c]	SSSC	B	14.7	B	14.8	--	--	--	--
26	Harrison St. / Lakeside Dr.	Signal	A	6.2	B	13.8	A	9.2	C	20.1
27	Lakeside Dr. / 20th St.	Signal	B	11.6	B	10.1	B	11.6	B	15.2
28	Brush St. / 18th St. / I-980 WB Off-Ramp	Signal	A	5.9	A	9.5	A	5.9	A	9.6
29	Castro St. / 17th St. / I-980 EB Off-Ramp	Signal	C	21.0	C	23.8	C	21.1	C	23.8
30	Castro St. / 12th St. / I-980 EB On-Ramp	Signal	C	21.4	B	16.7	C	21.4	B	16.7
31	Brush St. / 11th St. / I-980 WB On-Ramp	Signal	C	32.9	B	15.9	C	32.8	B	15.9
32	Oak Street / 14th Street	Signal	B	17.4	C	34.6	B	17.5	C	34.5
33	Madison St. / 14th St.	Signal	A	9.6	B	10.1	A	9.6	B	10.2
34	Harrison St. / 14th St.	Signal	A	9.3	A	9.7	A	9.3	A	9.7
35	Madison St. / 12th St.	Signal	A	7.7	A	7.8	A	7.7	A	8.1
36	Oak Street / 12th Street	Signal	B	12.8	B	12.8	B	12.8	B	12.8
37	Oak Street / 11th Street	OWSC	B	10.5	B	10.7	B	10.5	B	10.7
38	Madison St. / 11th St.	Signal	B	12.2	A	9.7	B	12.1	A	9.6
39	Franklin St. / 11th St.	Signal	B	13.3	B	14.9	B	13.1	B	14.8
40	Oak Street / 7th Street	Signal	A	9.4	B	14.2	A	9.4	B	14.2
41	Madison St. / 7th St.	Signal	A	8.8	B	11.8	A	8.8	B	12.1
42	Jackson St. / 6th St. / I-880 NB On-Ramp	Signal	F	>120	F	>120	F	>120	F	>120
43	Oak St. / 6th St. / I-880 NB Off-Ramp	Signal	B	14.9	B	11.2	B	15.1	B	11.2
44	Oak St. / 5th St. / I-880 SB On-Ramp	Signal	E	65.3	F	>120	E	66.3	F	>120

Bold indicates significant impact.

[a] SSSC = Side street stop controlled intersection; AWSC = All-way stop controlled intersection

[b] The LOS and delay for side street stop controlled intersections represent the worst traffic movement or approach. The LOS and delay for signalized intersections and all-way stop controlled intersections represent the average delay for all traffic movements.

[c] The Project would eliminate this intersection.

SOURCE: AECOM, 2010.

Impact TRANS-12a: Phase I of the proposed Project, when added to existing traffic levels, would increase the v/c ratio by more than three percent during the PM peak hour at *Intersection #2 (Oakland Avenue / Perry Place / I-580 Eastbound Ramps)* (Existing), which currently operates at an unacceptable LOS F during the PM peak hour under Existing Conditions. (Significant)

Because delay values over 120 seconds tend to increase exponentially and are thus generally considered unreliable, the increase in v/c ratio as a result of Project traffic was used to evaluate the impact. The intersection operates with a v/c ratio of 0.98 under Existing Conditions and would operate with a v/c ratio of 1.16 under Existing plus South Tower Conditions for the PM peak hour. Because the increase in v/c ratio would be 18 percent, which is greater than the three percent threshold of significance, the Project would result in a significant impact at this intersection.

Mitigation Measure TRANS-12a: Implement the following measures at the Oakland Avenue / Perry Place / I-580 Eastbound Ramps intersection:

- Optimize the traffic signal (to include determination of allocation of green time for each intersection approach) for the PM peak period in tune with the relative traffic volumes on those approaches.

- Coordinate the signal timing changes at this intersection with the adjacent intersections (e.g., Oakland Avenue / MacArthur Boulevard) that are in the same signal coordination group.

To implement this measure, the Project Applicant shall submit the following to City of Oakland's Transportation Services Division (TSD) for review and approval:

- Plans, Specifications, and Estimates (PS&E) to modify the intersection. All elements shall be designed to City standards in effect at the time of construction, and all new or upgraded signals should include these enhancements. All other facilities supporting vehicle travel and alternative modes through the intersection should be brought up to both City standards and ADA standards (according to Federal and State Access Board guidelines) at the time of construction. Current City Standards call for the elements listed below:
  - 2070L Type Controller
  - GPS communication (clock)
  - Accessible pedestrian crosswalks according to Federal and State Access Board guidelines
  - Full actuation (video detection, pedestrian push buttons, bicycle detection)
  - Accessible Pedestrian Signals, audible and tactile according to Federal Access Board guidelines
  - Countdown Pedestrian Signals
  - Fiber signal interconnect and communication to City Traffic Management Center for corridors identified in the City's ITS Master Plan for a maximum of 600 feet
  - Signal timing plans for the signals in the coordination group.

The project sponsor shall fund, prepare, and install the approved plans and improvements.

Because the delays at this intersection are primarily on the northbound right turn to the I-580 Eastbound On-Ramp and Perry Place, the existing crosswalk on the southeast side of the intersection (across I-580 Eastbound On-Ramp / Perry Place) could be repositioned to the northwest side of the intersection (across the I-580 Eastbound Off-Ramp), providing more green time to the northbound right-turn. However, this would require pedestrians to cross the I-580 Westbound Off-Ramp on the north side of Oakland Avenue between Perry Place and MacArthur Boulevard. Because this on-ramp is uncontrolled and visibility can be poor, this configuration would likely present more safety issues than the existing crosswalk across the eastbound on-ramp at this intersection, which is a signalized crossing.

Geometric modifications to increase capacity on the northbound right-turn would also be infeasible. The I-580 Eastbound On-Ramp is restricted to one lane, precluding the provision of an additional turn lane onto the on-ramp. A Class 2 bicycle lane has also been recently striped on Oakland Avenue, and adding an additional exclusive right-turn lane could require the removal of the bicycle lane or a reduction to its attractiveness, or could present safety issues for bicycles. Substantial capacity improvements such as additional travel lanes would also conflict with the goals of the Harrison Street / Oakland Avenue CTP.

In addition, signal optimization at this location would require approval of the change by Caltrans, making implementation of the proposed mitigation measure uncertain. Given these considerations, there are no feasible measures to completely mitigate the South Tower's impacts. Therefore, the South Tower impact at this intersection would be significant and unavoidable.

Significance after Implementation of Mitigation: Significant and Unavoidable.

If both Phase I and Phase II of the Project were built, this intersection would also be a significant and unavoidable impact under Existing plus Project (Phase I and Phase II) Conditions.

Impact TRANS-12b: Phase I of the proposed Project, when added to existing traffic levels, would degrade the vehicle level of service from an acceptable LOS D to an unacceptable LOS F during the PM peak hour at *Intersection #3 (Harrison Street / 27th Street / 24th Street)* (Existing). (Significant)

Mitigation Measure TRANS-12b: Implement the following measures at the Harrison Street / 27th Street / 24th Street intersection:

- Prohibit westbound left turns from Bay Place (to Harrison Street and 24th Street) during the PM peak period.

- Optimize the traffic signal (to include determination of allocation of green time for each intersection approach) for the PM peak period in tune with the relative traffic volumes on those approaches.

- Coordinate the signal timing at this intersection with the adjacent intersections (e.g., Harrison Street / Grand Avenue and Harrison Street / Westlake Middle School Driveway) that are in the same signal coordination group.

To implement this measure, the Project Applicant shall submit the following to TSD for review and approval:

- PS&E to modify the intersection. All elements shall be designed to City standards in effect at the time of construction, and all new or upgraded signals should include these enhancements. All other facilities supporting vehicle travel and alternative modes through the intersection should be brought up to both City standards and ADA standards (according to Federal and State Access Board guidelines) at the time of construction. Current City Standards call for the elements listed below:
  - 2070L Type Controller
  - GPS communication (clock)
  - Accessible pedestrian crosswalks according to Federal and State Access Board guidelines
  - City Standard ADA wheelchair ramps
  - Full actuation (video detection, pedestrian push buttons, bicycle detection)
  - Accessible Pedestrian Signals, audible and tactile according to Federal Access Board guidelines
  - Countdown Pedestrian Signals
  - Fiber signal interconnect and communication to City Traffic Management Center for corridors identified in the City's ITS Master Plan for a maximum of 600 feet
  - Signal timing plans for the signals in the coordination group.

The project sponsor shall fund, prepare, and install the approved plans and improvements.

The 59 vehicles making these movements during the PM peak hour (45 vehicles to southbound Harrison Street and 14 vehicles to westbound 24th Street) would likely divert to the westbound through movement at this intersection or use other intersections in the area. Given that the volumes are relatively low, the diversion of traffic as a result of the left-turn prohibition would not result in substantial secondary impacts. By prohibiting westbound left turns, the green times can be reallocated to the northbound and southbound through Harrison Street movements. After implementation of the mitigation measure, the intersection would operate at an acceptable LOS C in the PM peak hour.

However, the proposed mitigation measure would represent a less-than-ideal solution and could potentially still result in confusion for drivers who do not regularly use this intersection. This confusion could potentially result in drivers attempting to make abrupt lane changes out of the shared through-left lane or make prohibited traffic movements under the assumption that they have the “right of way.”

Significance after Implementation of Mitigation: Conservatively deemed Significant and Unavoidable. If the City rejects the specific implementation approach described for Mitigation

Measure TRANS-12b for the Project, and no other feasible options are identified, then the impact at this location would be Significant and Unavoidable. Alternatively, if the City accepts the approach identified, the Project impact at this location would be Less than Significant.

If both Phase I and Phase II of the Project were built, this intersection would also be a conservatively deemed significant and unavoidable impact under Existing plus Project (Phase I and Phase II) Conditions.

Impact TRANS-12c: Phase I of the proposed Project, when added to existing traffic levels, would increase the average intersection vehicle delay by more than two seconds during the PM peak hour at *Intersection #45 (Grand Avenue / El Embarcadero)* (Existing), which currently operates at an unacceptable LOS F during the PM peak hour under Existing Conditions. (Significant)

Mitigation Measure TRANS-12c: Implement the following measures at the Grand Avenue / El Embarcadero intersection:

- Optimize the traffic signal (to include determination of allocation of green time for each intersection approach) for the PM peak period in tune with the relative traffic volumes on those approaches.

- Coordinate the signal timing at this intersection with the adjacent intersections (e.g., Grand Avenue / Mac Arthur Boulevard and Lakeshore Drive / El Embarcadero) in the same coordination group.

To implement this measure, the Project Applicant shall submit the following to TSD for review and approval:

- PS&E to modify the intersection. All elements shall be designed to City standards in effect at the time of construction, and all new or upgraded signals should include these enhancements. All other facilities supporting vehicle travel and alternative modes through the intersection should be brought up to both City standards and ADA standards (according to Federal and State Access Board guidelines) at the time of construction. Current City Standards call for the elements listed below:
  - 2070L Type Controller
  - GPS communication (clock)
  - Accessible pedestrian crosswalks according to Federal and State Access Board guidelines
  - City Standard ADA wheelchair ramps
  - Full actuation (video detection, pedestrian push buttons, bicycle detection)
  - Accessible Pedestrian Signals, audible and tactile according to Federal Access Board guidelines
  - Countdown Pedestrian Signals

– Fiber signal interconnect and communication to City Traffic Management Center for corridors identified in the City's ITS Master Plan for a maximum of 600 feet

– Signal timing plans for the signals in the coordination group.

The project sponsor shall fund, prepare, and install the approved plans and improvements.

After implementation of this measure, the intersection (located outside the Downtown area) is expected to operate at an acceptable LOS D in the PM peak hour, thus mitigating the South Tower's impact at this intersection. However, since the Grand Avenue / El Embarcadero intersection was counted (in November 2008) prior to its modification, new level of service calculations will be needed based on new counts (to be taken after the completion of scheduled modifications to the Lakeshore Drive / Mac Arthur Boulevard intersection). This analysis should be provided to TSD for review and determination whether or not the above improvement measures should be implemented.

Significance after Implementation of Mitigation: Less than Significant.

If both Phase I and Phase II of the Project were built, this intersection would also be a less than significant after mitigation impact under Existing plus Project (Phase I and Phase II) Conditions.

Impact TRANS-12d: Buildout of the proposed Project (Phase I and II), when added to existing traffic levels, would degrade the vehicle level of service from an unacceptable LOS E to an unacceptable LOS F during the PM peak hour at *Intersection #47 (Grand Avenue / MacArthur Boulevard (Eastbound) / I-580 Eastbound Off-Ramp)* (Existing). (Significant)

Mitigation Measure TRANS-12d: Implement the following measures at the Grand Avenue / MacArthur Boulevard (Eastbound) intersection:

- Optimize the traffic signal (to include determination of allocation of green time for each intersection approach) for the PM peak period in tune with the relative traffic volumes on those approaches.

- Coordinate the signal timing at this intersection with the adjacent intersections (e.g., Grand Avenue / El Embarcadero and Mac Arthur Boulevard / Lakeshore Drive) in the same signal coordination group.

To implement this measure, the Project Applicant shall submit the following to TSD for review and approval:

- PS&E to modify the intersection. All elements shall be designed to City standards in effect at the time of construction, and all new or upgraded signals should include these enhancements. All other facilities supporting vehicle travel and alternative modes through the intersection should be brought up to both City standards and ADA standards (according to Federal and State Access Board guidelines) at the time of construction. Current City Standards call for the elements listed below:

  – 2070L Type Controller

- GPS communication (clock)
- Accessible pedestrian crosswalks according to Federal and State Access Board guidelines
- City Standard ADA wheelchair ramps
- Full actuation (video detection, pedestrian push buttons, bicycle detection)
- Accessible Pedestrian Signals, audible and tactile according to Federal Access Board guidelines
- Countdown Pedestrian Signals
- Fiber signal interconnect and communication to City Traffic Management Center for corridors identified in the City's ITS Master Plan for a maximum of 600 feet
- Signal timing plans for the signals in the coordination group.

The project sponsor shall fund, prepare, and install the approved plans and improvements.

After implementation of this measure, the intersection (located outside the Downtown area) is expected to operate at an acceptable LOS D in the PM peak hour, thus mitigating the South Tower's impact at this intersection. However, since the Grand Avenue / Mac Arthur Boulevard intersection was counted in November 2008, new level of service calculations will be needed based on new counts (to be taken after the completion of scheduled modifications to the Lakeshore Drive / Mac Arthur Boulevard intersection). This analysis should be provided to TSD for review and determination whether or not the above improvement measures should be implemented.

Significance after Implementation of Mitigation: Less than Significant.

If both Phase I and Phase II of the Project were built, this intersection would also be a significant and unavoidable impact under Existing plus Project (Phase I and Phase II) Conditions.

Roadway Impacts

Table 2 summarizes peak-hour LOS for the study roadway segments under Existing plus South Tower Conditions and indicates that South Tower-generated traffic is not expected to have a significant impact on any of the 12 study roadway segments.

Cumulative (2030) plus South Tower Conditions

This section provides the results of the analysis of Cumulative (2030) plus South Tower Conditions. Near Term (2015) plus Project (Phase I or South Tower) Conditions are addressed in Section IV.L of the Draft Environmental Impact Report (DEIR) for the Kaiser Center Office Project.

Intersection Impacts

Impact TRANS-13: Under 2030 cumulative conditions, Phase I of the proposed Project would worsen level of service conditions at area intersections. (Significant at intersections described below under Impacts TRANS-13a through TRANS-13e)

Cumulative (2030) plus South Tower Conditions traffic volumes are illustrated in **Figure 2a** through **Figure 2d**. **Table 3** summarizes the peak hour LOS at the 51 study intersections under Cumulative (2030) plus South Tower Conditions.

Average delay at some intersections would decrease under Cumulative (2030) plus South Tower Conditions (when compared to Cumulative Without Project Conditions) due to greater growth on movements which are under capacity (non-critical movements) and underutilizing the green time allotted by the signal, thereby resulting in a higher vehicle throughput and reduced overall intersection average delay.

As shown in Table 2, the following intersections would operate at unacceptable conditions under Cumulative (2030) plus South Tower Conditions:

Outside Downtown Area

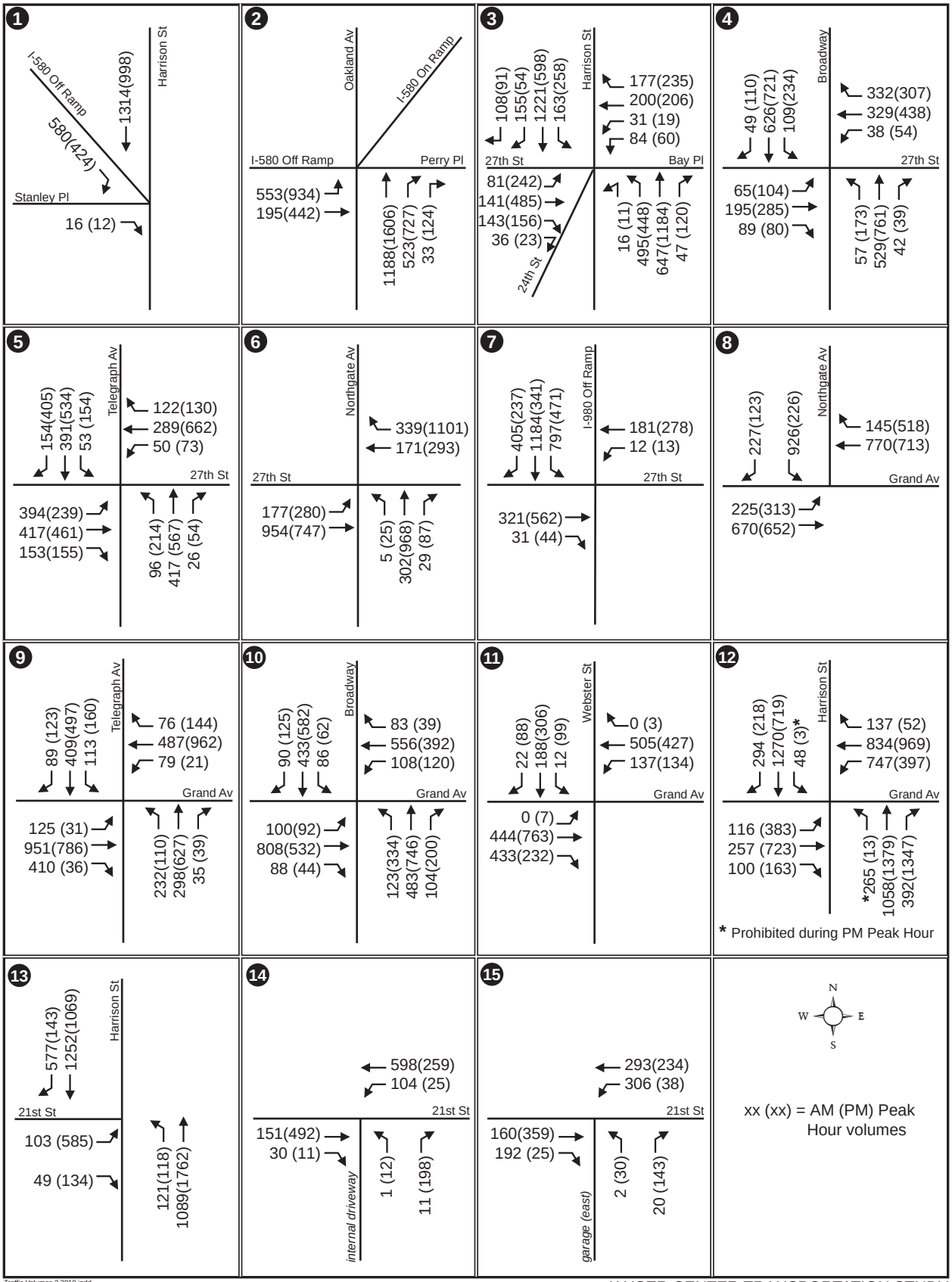
1. Harrison Street / Stanley Place / I-580 EB Off-Ramp (LOS F in AM peak hour)
2. Oakland Avenue / Perry Place / I-580 Eastbound Ramps (LOS F in AM and PM peak hours)
3. Harrison Street / 27th Street / 24th Street (LOS F in AM and PM peak hours)
5. Telegraph Avenue / 27th Street (LOS F in PM peak hour)
45. Grand Avenue / El Embarcadero (LOS F in PM peak hour)
47. Grand Avenue / MacArthur Boulevard (Eastbound) (LOS E in AM peak hour, and LOS F in PM peak hour)

TABLE 2
EXISTING WITHOUT AND WITH SOUTH TOWER ROADWAY SEGMENT LEVELS OF SERVICE

					Existing Conditions						Existing plus South Tower Conditions					
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
No.	Roadway Segment	Dir.	Ln.	Capacity (veh/hr)	LOS	Vol.	v/c	LOS	Vol.	v/c	LOS	Vol.	v/c	LOS	Vol.	v/c
Caltrans Facilities																
1	**SR 260 (Posey / Webster Tubes)** from Alameda city limits to I-880	NB	2	3,400	E	3,081	0.91	D	2,478	0.73	E	3,084	0.91	D	2,479	0.73
		SB	2	3,400	B	1,575	0.46	C	2,347	0.69	B	1,576	0.46	C	2,355	0.69
2	**I-880** from Market Street to I-980	EB	4	8,000	B	3,070	0.38	B	3,164	0.40	B	3,111	0.39	B	3,171	0.40
		WB	4	8,000	B	3,720	0.47	B	3,426	0.43	B	3,725	0.47	B	3,462	0.43
3	**I-880** from Oak Street to 5th Avenue	EB	4	8,000	C	4,968	0.62	D	5,737	0.72	C	4,974	0.62	D	5,777	0.72
		WB	4	8,000	C	5,606	0.70	C	5,075	0.63	C	5,651	0.71	C	5,083	0.64
4	**I-980** from 27th Street to 29th Street	NB	3	6,000	A	1,611	0.27	C	3,609	0.60	A	1,626	0.27	C	3,706	0.62
		SB	3	6,000	D	4,679	0.78	B	1,858	0.31	D	4,732	0.79	B	1,868	0.31
Non-Caltrans Facilities																
5	**Broadway** from 19th Street to Grand Avenue	NB	2	1,800	A	513	0.29	B	876	0.49	A	524	0.29	C	948	0.53
		SB	2	1,800	A	438	0.24	B	597	0.33	A	472	0.26	B	604	0.34
6	**Telegraph Avenue** from 20th Street to 27th Street	NB	2	1,800	A	464	0.26	B	678	0.38	A	466	0.26	B	689	0.38
		SB	2	1,800	B	661	0.37	B	565	0.31	B	661	0.37	B	567	0.32
7	**West Grand Avenue** from S. Pablo Ave. to Telegraph Ave.	EB	2	1,800	C	1,054	0.59	B	719	0.40	C	1,113	0.62	B	722	0.40
		WB	2	1,800	B	672	0.37	B	862	0.48	B	677	0.38	B	897	0.50
8	**Grand Avenue** from Broadway to Harrison Street	EB	2	1,800	B	682	0.38	B	762	0.42	B	756	0.42	B	762	0.42
		WB	2	1,800	B	644	0.36	B	783	0.44	B	644	0.36	B	783	0.44
9	**Grand Avenue** from Harrison St. to El Embarcadero	EB	2	1,800	B	751	0.42	E	1,700	0.94	B	751	0.42	E	1,762	0.98
		WB	2	1,800	E	1,531	0.85	C	968	0.54	E	1,660	0.92	C	992	0.55
10	**Harrison Street / Oakland Avenue** from I-580 to 27th Street	NB	2	1,800	C	1,189	0.66	E	1,536	0.85	C	1,216	0.68	E	1,651	0.92
		SB	2	1,800	C	1,041	0.58	B	686	0.38	C	1,117	0.62	B	700	0.39
11	**Harrison Street** from 27th Street to Grand Avenue	NB	3	2,700	A	784	0.29	B	1,236	0.46	B	819	0.30	C	1,400	0.52
		SB	3	2,700	B	899	0.33	A	556	0.21	B	986	0.37	A	572	0.21
12	**Harrison Street** from 20th Street to 14th Street	NB	2	1,800	A	475	0.26	B	745	0.41	A	485	0.27	B	750	0.42
		SB	2	1,800	A	444	0.25	A	286	0.16	A	444	0.25	A	295	0.16

SOURCE: AECOM, 2010.

AECOM



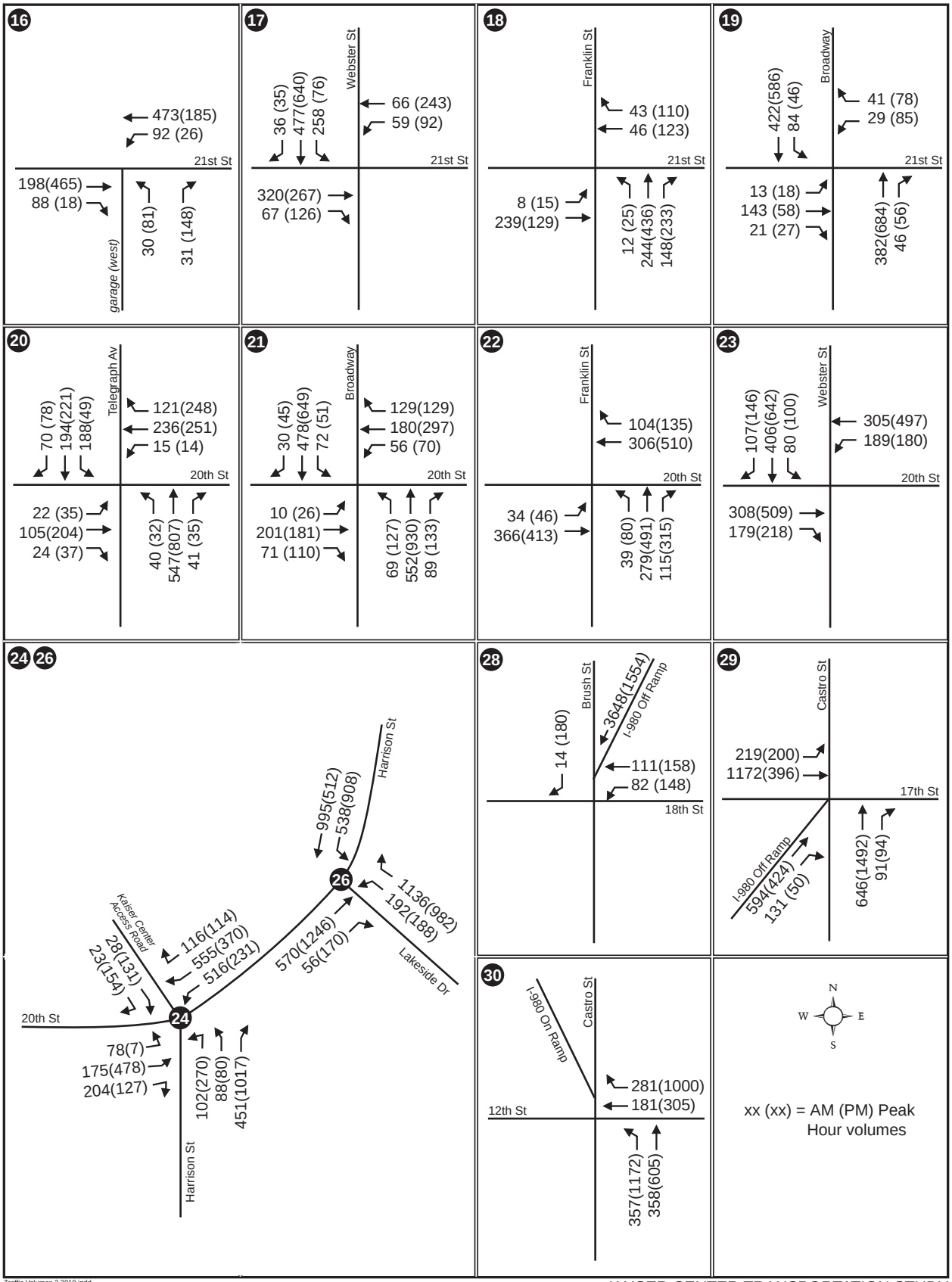
Traffic Volumes 2 2010.indd

KAISER CENTER TRANSPORTATION STUDY

Figure 2a

CUMULATIVE (2030) PLUS SOUTH TOWER TRAFFIC VOLUMES

AM (PM) Peak Hour



Traffic Volumes 2 2010.indd

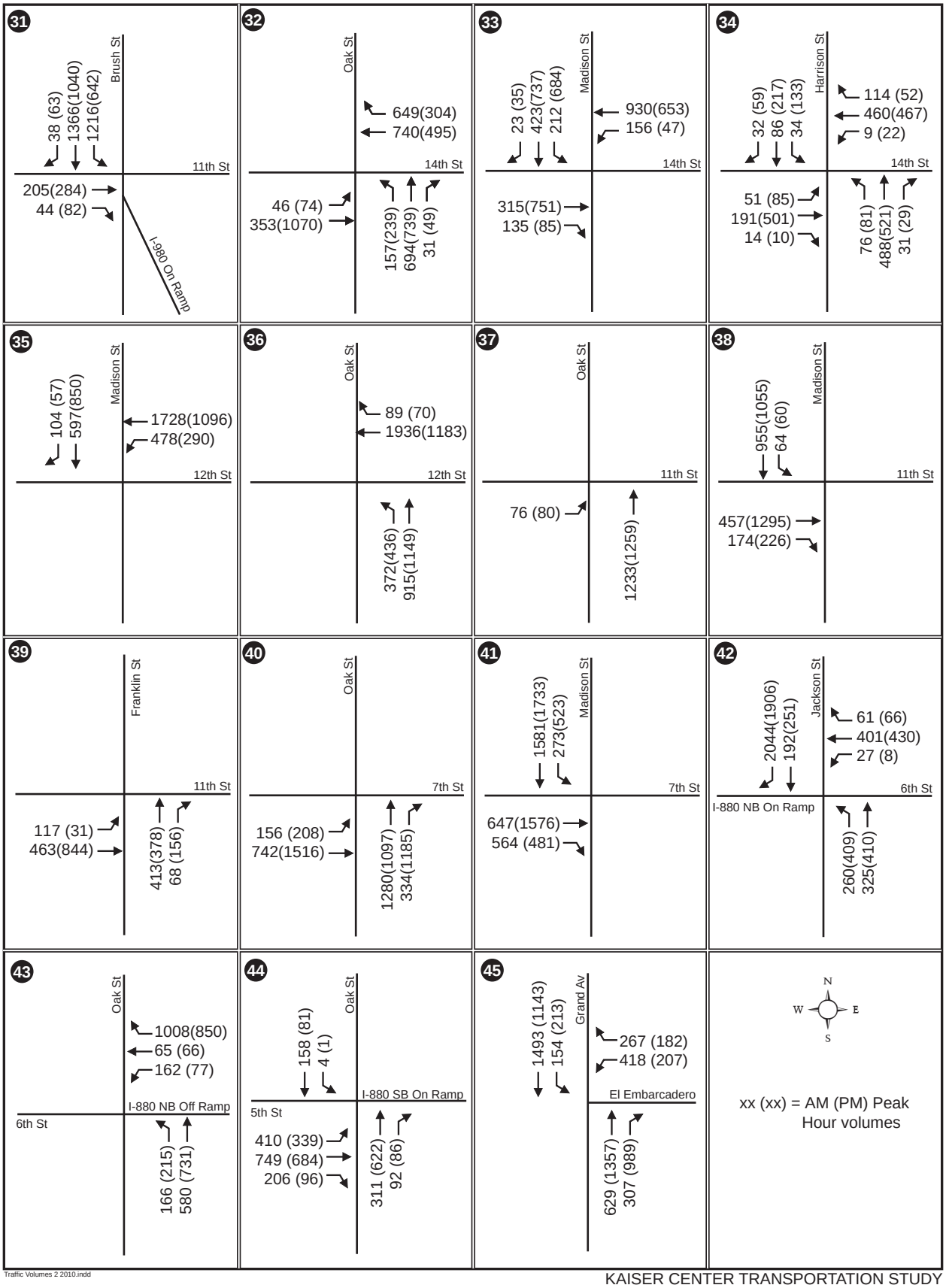
KAISER CENTER TRANSPORTATION STUDY

Figure 2b

CUMULATIVE (2030) PLUS SOUTH TOWER TRAFFIC VOLUMES

AM (PM) Peak Hour

AECOM



Traffic Volumes 2 2010.indd

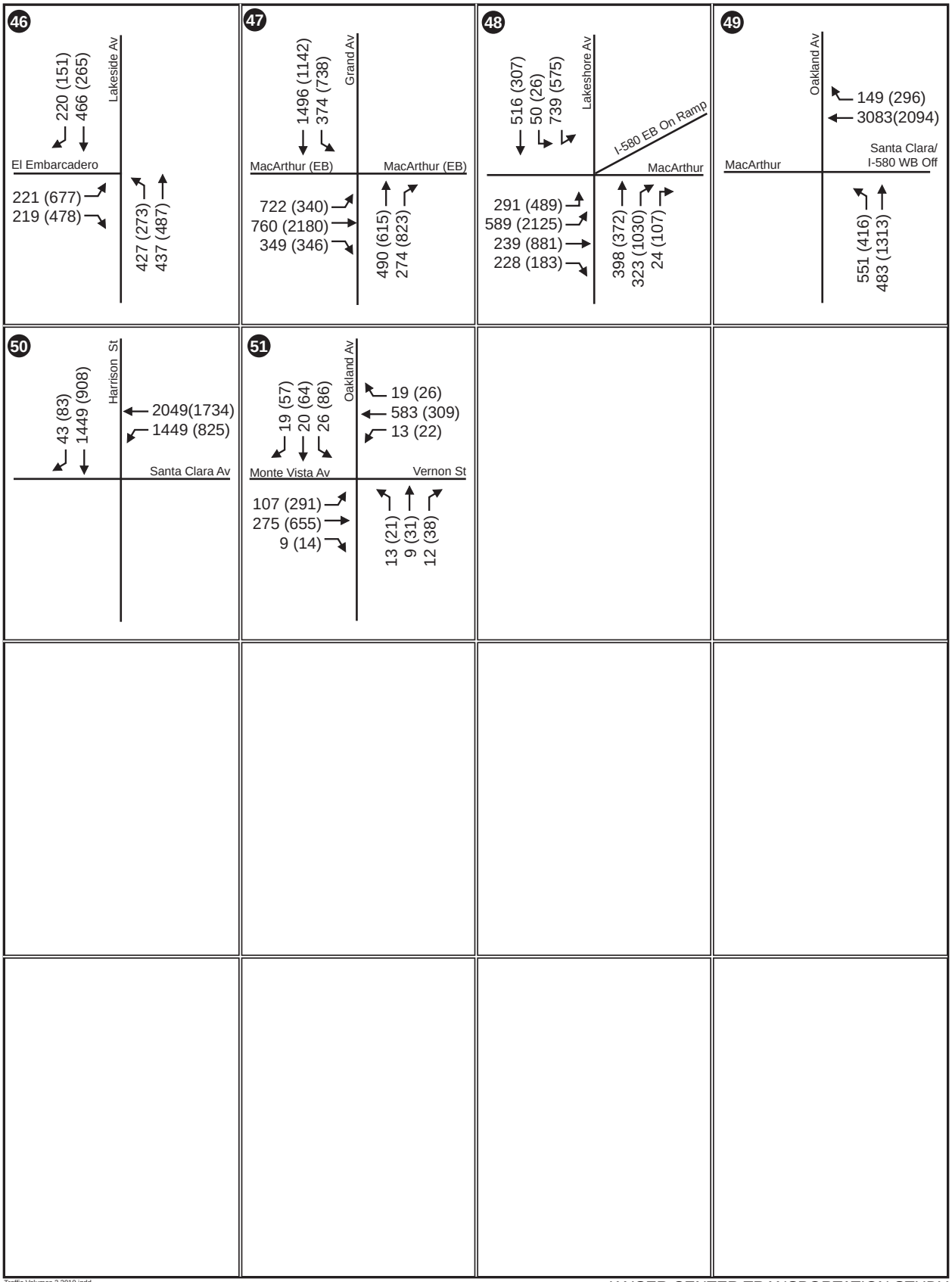
KAISER CENTER TRANSPORTATION STUDY

Figure 2c

CUMULATIVE (2030) PLUS SOUTH TOWER TRAFFIC VOLUMES

AM (PM) Peak Hour

AECOM



Traffic Volumes 2 2010.indd

KAISER CENTER TRANSPORTATION STUDY

Figure 2d

CUMULATIVE (2030) PLUS SOUTH TOWER TRAFFIC VOLUMES

AM (PM) Peak Hour

TABLE 3
CUMULATIVE (2030) WITHOUT AND WITH SOUTH TOWER INTERSECTION LEVELS OF SERVICE

No.	Intersection	Traffic Control[a]	Cumulative (2030) without Project Conditions				Cumulative (2030) + South Tower Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]
Outside Downtown										
1	Harrison St. / Stanley Pl. / I-580 EB Off-Ramp	TWSC	F	68.7	C	20.6	F	86.5	C	21.0
2	Oakland Ave. / Perry Pl. / I-580 EB Ramps	Signal	E	65.9	F	>120	**E**	**74.3**	**F**	**>120**
3	Harrison Street / 27th Street / 24th Street	Signal	F	97.0	E	78.9	**F**	**116.2**	**F**	**97.7**
4	Broadway / 27th Street	Signal	B	17.5	C	32.2	B	17.7	C	34.4
5	Telegraph Avenue / 27th Street	Signal	C	20.5	E	67.9	C	20.7	**E**	**79.9**
6	Northgate Ave. / 27th St. / I-980 EB On-Ramp	Signal	B	12.3	B	15.8	B	12.5	B	19.4
7	Northgate Ave. / 27th St. / I-980 WB Off-Ramp	Signal	B	15.7	B	12.1	B	16.5	B	12.1
45	Grand Avenue / El Embarcadero	Signal	C	23.4	F	>120	C	23.6	F	>120
46	Lakeshore Avenue / El Embarcadero	Signal	C	23.3	C	26.0	C	23.3	C	30.0
47	Grand Avenue / MacArthur Blvd. (EB)	Signal	E	68.3	F	>120	E	68.3	F	>120
48	Lakeshore Avenue / MacArthur Blvd. (EB)	Signal	F	94.5	F	>120	F	94.4	F	>120
49	Oakland Avenue / MacArthur Blvd. (WB)	Signal	F	>120	C	21.0	F	>120	C	23.9
50	Harrison Street / MacArthur Blvd. (WB)	Signal	F	83.2	C	21.3	**F**	**88.8**	C	21.4
51	Oakland Avenue / Monte Vista Avenue	AWSC	C	22.9	F	61.2	D	25.3	F	72.3
Within Downtown										
8	Northgate Avenue / West Grand Avenue	Signal	C	26.8	C	20.5	C	28.0	C	21.1
9	Telegraph Avenue / West Grand Avenue	Signal	C	31.5	D	52.6	C	34.8	E	60.6
10	Broadway / Grand Avenue	Signal	C	22.5	C	21.4	C	23.4	C	26.5
11	Webster St. / Grand Ave.	Signal	C	29.9	C	29.4	C	30.4	C	30.0
12	Harrison St. / Grand Ave.	Signal	F	93.8	F	>120	**F**	**>120**	**F**	**>120**
13	Harrison St. / 21st St.	Signal	A	7.5	B	19.9	A	9.8	D	50.7
14	Kaiser Ctr. Access Rd. / 21st Street	SSSC	B	12.4	B	12.3	B	10.3	C	17.8
15	Kaiser Ctr. Garage (NE) / 21st Street	SSSC	B	13.6	B	12.9	B	12.5	C	15.2
16	Kaiser Ctr. Garage (NW) / 21st Street	SSSC	B	12.8	B	12.7	C	15.2	B	13.7
17	Webster St. / 21st St.	Signal	B	14.4	B	19.2	B	14.9	B	19.0

See next page for table footnotes.

TABLE 3 (Continued)
CUMULATIVE (2030) WITHOUT AND WITH SOUTH TOWER INTERSECTION LEVELS OF SERVICE

No.	Intersection	Traffic Control[a]	Cumulative (2030) without Project Conditions				Cumulative (2030) + South Tower Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]
18	Franklin St. / 21st St.	Signal	B	10.3	B	11.0	A	10.0	B	10.9
19	Broadway / 21st Street	Signal	B	10.8	B	12.4	B	11.2	B	12.5
20	Telegraph Ave. / 20th St.	Signal	B	13.1	B	13.0	B	13.3	B	13.1
21	Broadway / 20th Street	Signal	B	14.5	C	34.5	B	14.6	C	34.9
22	Franklin St. / 20th St.	Signal	B	11.6	B	14.8	B	13.6	B	14.5
23	Webster St. / 20th St.	Signal	C	24.0	C	24.6	C	21.5	C	24.4
24	Harrison St. / 20th St. / Kaiser Ctr. Access Road	Signal	C	25.7	D	42.3	E	65.8	**F**	**>120**
25	Kaiser Ctr. Access Rd. / 20th Street[c]	SSSC	B	10.5	B	10.1	--	--	--	--
26	Harrison St. / Lakeside Dr.	Signal	C	21.3	D	49.0	C	20.8	D	51.1
27	Lakeside Dr. / 20th St.[d]	Signal	--	--	--	--	--	--	--	--
28	Brush St. / 18th St. / I-980 WB Off-Ramp	Signal	A	7.6	A	8.4	A	7.6	A	8.5
29	Castro St. / 17th St. / I-980 EB Off-Ramp	Signal	E	58.0	D	43.9	E	59.1	D	44.1
30	Castro St. / 12th St. / I-980 EB On-Ramp	Signal	C	20.9	B	19.0	C	20.9	B	19.1
31	Brush St. / 11th St. / I-980 WB On-Ramp	Signal	E	58.5	B	17.4	E	58.4	B	17.4
32	Oak Street / 14th Street	Signal	D	44.7	F	89.8	D	45.4	F	89.8
33	Madison St. / 14th St.	Signal	B	19.6	B	19.3	B	19.5	B	19.3
34	Harrison St. / 14th St.	Signal	A	9.8	B	10.7	A	9.9	B	10.8
35	Madison St. / 12th St.	Signal	A	9.7	A	10.0	A	9.7	B	10.1
36	Oak Street / 12th Street	Signal	B	14.7	B	16.0	B	14.7	B	16.0
37	Oak Street / 11th Street	SSSC	B	11.4	B	11.7	B	11.5	B	11.8
38	Madison St. / 11th St.	Signal	B	11.6	B	11.7	B	11.5	B	11.5
39	Franklin St. / 11th St.	Signal	B	14.2	B	14.1	B	14.1	B	14.1
40	Oak Street / 7th Street	Signal	B	11.5	F	92.3	B	11.6	F	92.3
41	Madison St. / 7th St.	Signal	B	13.2	C	32.9	B	13.3	D	36.6
42	Jackson St. / 6th St. / I-880 NB On-Ramp	Signal	F	>120	F	>120	F	>120	F	>120
43	Oak Street / 6th Street / I-880 NB Off-Ramp	Signal	C	26.5	B	15.7	C	27.5	B	15.7
44	Oak Street / 5th Street / I-880 SB On-Ramp	Signal	F	>120	F	>120	F	>120	F	>120

Bold indicates significant impact.

[a] SSSC = Side street stop controlled intersection; AWSC = All-way stop controlled intersection

[b] The LOS and delay for side street stop controlled intersections represent the worst traffic movement or approach. The LOS and delay for signalized intersections and all-way stop controlled intersections represent the average delay for all traffic movements.

[c] The Project would eliminate this intersection.

[d] After reconfiguration of Intersection 24 and Intersection 26, this intersection would be eliminated.

SOURCE: AECOM, 2010.

48. Lakeshore Avenue / MacArthur Boulevard (EB) / I-580 Eastbound On-Ramp (LOS F in AM and PM peak hours)

49. Oakland Avenue / MacArthur Boulevard (WB) / Santa Clara Avenue / I-580 Westbound Off-Ramp (LOS F in AM peak hour)

50. Harrison Street / MacArthur Boulevard (Westbound) / Santa Clara Avenue (LOS F in AM peak hour)

51. Oakland Avenue / Monte Vista Avenue / Vernon Street (LOS F in PM peak hour)

Within Downtown Area

12. Harrison Street / Grand Avenue (LOS F in AM and PM peak hours)

24. Harrison Street / 20th Street / Kaiser Center Access Road (LOS F in PM peak hour)

32. Oak Street / 14th Street (LOS F in PM peak hour)

40. Oak Street / 7th Street (LOS F in PM peak hour)

42. Jackson Street / 6th Street / I-880 Northbound On-Ramp (LOS F in AM and PM peak hours)

44. Oak Street / 5th Street / I-880 Southbound On-Ramp (LOS F in AM and PM peak hours)

South Tower–generated traffic would not result in a significant impact at the following intersections:

- #1: Harrison Street / Stanley Place / I-580 EB Off-Ramp (AM). Although the side-street service level at this unsignalized intersection would operate at LOS F during the AM peak hour under Near-Term (2030) plus South Tower Conditions, the intersection would not satisfy the California MUTCD peak-hour signal warrant.

- #45: Grand Avenue / El Embarcadero (PM). Although the intersection would operate at LOS F during the PM peak hour under both Cumulative (2030) without Project Conditions and Cumulative (2030) plus South Tower Conditions, the addition of South Tower-generated traffic would not cause an increase in v/c ratio above the three percent threshold.

- #47: Grand Avenue / MacArthur Boulevard (PM). Although the intersection would operate at LOS F during the PM peak hour under both Cumulative (2030) without Project Conditions and Cumulative (2030) plus South Tower Conditions, the addition of South Tower-generated traffic would not cause an increase in v/c ratio above the three percent threshold.

- #48: Lakeshore Avenue / El Embarcadero (PM). Although the intersection would operate at LOS F during the PM peak hour under both Cumulative (2030) without Project Conditions and Cumulative (2030) plus South Tower Conditions, the addition of South Tower-generated traffic would not cause an increase in v/c ratio above the three percent threshold.

- #49: Oakland Avenue / MacArthur Boulevard / I-580 WB Off-ramp (AM). Although the intersection would operate at LOS F during the AM peak hour under both Cumulative (2030) without Project Conditions and Cumulative (2030) plus South Tower Conditions, the addition of South Tower-generated traffic would not cause an increase in v/c ratio above the three percent threshold.

- #32: Oak Street / 14th Street (PM). Although the intersection would operate at LOS F during the PM peak hour under both Cumulative (2030) without Project Conditions and Cumulative (2030) plus South Tower Conditions, the addition of South Tower-generated traffic would not cause an increase in average intersection delay above the two-second threshold, nor an increase in critical movement delay above the four-second threshold.

- #40: Oak Street / 7th Street (PM). Although the intersection would operate at LOS F during the PM peak hour under both Cumulative (2030) without Project Conditions and Cumulative (2030) plus South Tower Conditions, the addition of South Tower-generated traffic would not cause an increase in average intersection delay above the two-second threshold, nor an increase in critical movement delay above the four-second threshold.

- #42: Jackson Street / 6th Street / I-880 NB On-Ramp (AM / PM). Although the intersection would operate at LOS F during the AM and PM peak hours under both Cumulative (2030) without Project Conditions and Cumulative (2030) plus South Tower Conditions, the addition of South Tower-generated traffic would not cause the v/c ratio to increase above the three percent threshold.

- #44: Oak Street / 5th Street / I-880 SB On-Ramp (AM / PM). Although the intersection would operate at LOS F during the AM and PM peak hour under both Cumulative (2030) without Project Conditions and Cumulative (2030) plus South Tower Conditions, the addition of South Tower-generated traffic would not cause the v/c ratio to exceed the three percent threshold.

- #51: Oakland Avenue / Monte Vista Avenue / Vernon Street (PM). Although the intersection would operate at LOS F during the PM peak hour under both Cumulative (2030) without Project Conditions and Cumulative (2030) plus South Tower Conditions, the intersection is expected to be already meet the peak hour signal warrant under Cumulative (2030) without Project Conditions. Therefore, the Project would not result in a significant impact at this intersection.

Impacts due to South Tower-generated traffic at the remaining intersections above are discussed below.

Impact TRANS-13a: Under 2030 cumulative conditions, Phase I of the proposed Project would degrade the vehicle level of service from an unacceptable LOS E to an unacceptable LOS F during the AM peak hour and increase the v/c ratio by more than three percent during the PM peak hour at *Intersection #2 (Oakland Avenue / Perry Place / I-580 Eastbound Ramps)* (2030), which would operate at an unacceptable LOS F during the PM peak hour under Cumulative (2030) without Project Conditions. (Significant)

For the PM peak hour, because delay values over 120 seconds tend to increase exponentially and are thus generally considered unreliable, the increase in v/c ratio as a result of Project traffic was instead evaluated. The intersection would operate with a v/c ratio of 1.43 under Cumulative (2030) without Project Conditions and 1.49 under Cumulative (2030) plus South Tower Conditions in the PM peak hour. Because the increase in v/c ratio would be 6 percent, which is above the three percent threshold of significance, South Tower-generated traffic would result in a significant impact at this intersection.

Mitigation Measure TRANS-13a: Implement Mitigation Measure TRANS-12a.

This measure alone should be sufficient to completely mitigate the South Tower impacts at this intersection.

Significance after Implementation of Mitigation: Less than Significant.

If both Phase I and Phase II of the Project were built, this intersection would also be a significant and unavoidable impact under Cumulative (2030) plus Project (Phase I and Phase II) Conditions.

Impact TRANS-13b: Under 2030 cumulative conditions, Phase I of the proposed Project would increase the average intersection vehicle delay by more than two seconds during the AM peak hour and degrade the vehicle level of service from an unacceptable LOS E to an unacceptable LOS F during the PM peak hour at *Intersection #3 (Harrison Street / 27th Street / 24th Street)* (2030), which would operate at LOS F during the AM peak hour under Cumulative (2030) without Project Conditions. (Significant)

> **Mitigation Measure TRANS-13b:** Implement Mitigation Measure TRANS-12b, and also prohibit westbound left turns during the AM peak hour (in addition to the PM peak hour).

After implementation of the mitigation measure, the intersection would operate at an acceptable LOS D in both the AM and PM peak hours, mitigating the South Tower impacts at this intersection.

As discussed for Mitigation Measure TRANS-12b, however, the proposed mitigation measure would represent a less-than-ideal solution and could potentially result in driver confusion.

Significance after Implementation of Mitigation: Conservatively deemed Significant and Unavoidable. If the City rejects the specific implementation approach described for Mitigation Measure TRANS-12b for the Project, and no other feasible options are identified, then the impact at this location would be Significant and Unavoidable. Alternatively, if the City accepts the approach identified, the Project impact at this location would be Less than Significant.

If both Phase I and Phase II of the Project were built, this intersection would also be a conservatively deemed significant and unavoidable impact under Cumulative (2030) plus Project (Phase I and Phase II) Conditions.

Impact TRANS-13c: Under 2030 cumulative conditions, Phase I of the proposed Project would increase average intersection vehicle delay by more than four seconds during the PM peak hour at *Intersection #5 (Telegraph Avenue / 27th Street)* (2030), which would operate at an unacceptable LOS E during the PM peak hour under Cumulative (2030) without Project Conditions. (Significant)

> **Mitigation Measure TRANS-13c:** Implement Mitigation Measure TRANS-5d at Telegraph Avenue / 27th Street:

- Optimize the traffic signal (to include determination of allocation of green time for each intersection approach) for the PM peak hour in tune with the relative traffic volumes on those approaches.

- Coordinate the signal timing changes at this intersection with the adjacent intersections (e.g., Telegraph Avenue / 26th Street and 27th Street / Northgate Avenue-SR 24 EB On-ramp) that are in the same signal coordination group.

- Redesigned the signal plan to give the northbound Telegraph Avenue left-turn movement protected-permitted phasing.

To implement this measure, the Project Applicant shall submit the following to TSD for review and approval:

- PS&E to modify the intersection. All elements shall be designed to City standards in effect at the time of construction, and all new or upgraded signals should include these enhancements. All other facilities supporting vehicle travel and alternative modes through the intersection should be brought up to both City standards and ADA standards (according to Federal and State Access Board guidelines) at the time of construction. Current City Standards call for the elements listed below:
  - 2070L Type Controller
  - GPS communication (clock)
  - Accessible pedestrian crosswalks according to Federal and State Access Board guidelines
  - City Standard ADA wheelchair ramps
  - Full actuation (video detection, pedestrian push buttons, bicycle detection)
  - Accessible Pedestrian Signals, audible and tactile according to Federal Access Board guidelines
  - Countdown Pedestrian Signals
  - Fiber signal interconnect and communication to City Traffic Management Center for corridors identified in the City's ITS Master Plan for a maximum of 600 feet
  - Signal timing plans for the signals in the coordination group.

The project sponsor shall fund, prepare, and install the approved plans and improvements.

After implementation of the mitigation measure, the intersection would operate at an unacceptable LOS E in the PM peak hour, but the average delay for the overall intersection and for critical movements would be reduced to less than Cumulative (2030) without Project conditions, mitigating the South Tower's impacts at this intersection.

Significance after Implementation of Mitigation: Less than Significant.

If both Phase I and Phase II of the Project were built, this intersection would also be a less than significant after mitigation impact under Cumulative (2030) plus Project (Phase I and Phase II) Conditions.

Impact TRANS-13d: Under 2030 cumulative conditions, Phase I of the proposed Project would increase the average intersection delay by more than two seconds during the AM peak hour at *Intersection #12 (Harrison Street / Grand Avenue)* (2030), which would operate at an unacceptable LOS F during the AM peak hour under Cumulative (2030) without Project Conditions. (Significant)

For the PM peak hour, because delay values over 120 seconds tend to increase exponentially and are thus generally considered unreliable, the increase in v/c ratio as a result of South Tower-generated traffic was instead evaluated. The intersection would operate with a v/c ratio of 1.32 under Cumulative (2030) without Project Conditions and 1.37 under Cumulative (2030) plus South Tower Conditions in the PM peak hour. Because the increase in v/c ratio would be 5 percent, which is above the three percent threshold of significance, South Tower-generated traffic would result in a significant impact at this intersection.

> **Mitigation Measure TRANS-13d:** Implement Mitigation Measure TRANS-3c, and also prohibit southbound Harrison Street left turns in the AM peak period (this movement is already prohibited in the PM peak period). To help enforce the prohibition, extinguishable message signs should be installed on the northbound and southbound approaches.

These measures alone would not be sufficient to completely mitigate the South Tower impacts at this intersection, but as discussed for Impact TRANS-3c, there are no feasible mitigation measures to completely mitigate the South Tower impacts. Therefore, the South Tower impacts at this intersection are significant and unavoidable.

Significance after Implementation of Mitigation: Significant and Unavoidable.

If both Phase I and Phase II of the Project were built, this intersection would also be a significant and unavoidable impact under Cumulative (2030) plus Project (Phase I and Phase II) Conditions.

Impact TRANS-13e: Under 2030 cumulative conditions, Phase I of the proposed Project would degrade the vehicle level of service from an acceptable LOS D to an unacceptable LOS F during the PM peak hour at *Intersection #24 (Harrison Street / 20th Street / Kaiser Center Access Road)* (2030). (Significant)

> **Mitigation Measure TRANS-13e:** Implement Mitigation Measure TRANS-1c at Harrison Street / 20th Street / Kaiser Center Access Road:
>
> - Optimize the traffic signal (to include determination of allocation of green time for each intersection approach) for the PM peak period in tune with the relative traffic volumes on those approaches.
>
> - Coordinate the signal timing at this intersection with the adjacent intersections (e.g., Webster Street / 20th Street and Harrison Street / Lakeside Drive) in the same signal coordination group.

To implement this measure, the Project Applicant shall submit the following to TSD for review and approval:

- PS&E to modify the intersection. All elements shall be designed to City standards in effect at the time of construction, and all new or upgraded signals should include these enhancements. All other facilities supporting vehicle travel and alternative modes through the intersection should be brought up to both City standards and ADA standards (according to Federal and State Access Board guidelines) at the time of construction. Current City Standards call for the elements listed below:
  - 2070L Type Controller
  - GPS communication (clock)
  - Accessible pedestrian crosswalks according to Federal and State Access Board guidelines
  - City Standard ADA wheelchair ramps
  - Full actuation (video detection, pedestrian push buttons, bicycle detection)
  - Accessible Pedestrian Signals, audible and tactile according to Federal Access Board guidelines
  - Countdown Pedestrian Signals
  - Fiber signal interconnect and communication to City Traffic Management Center for corridors identified in the City's ITS Master Plan for a maximum of 600 feet
  - Signal timing plans for the signals in the coordination group.

The project sponsor shall fund, prepare, and install the approved plans and improvements.After implementation of the mitigation measure, the intersection (located within the Downtown area) would operate at an acceptable LOS E in the PM peak hour.

Significance after Implementation of Mitigation: Less than Significant.

If both Phase I and Phase II of the Project were built, this intersection would also be a less than significant after mitigation impact under Cumulative (2030) plus Project (Phase I and Phase II) Conditions.

Impact TRANS-13f: Under 2030 cumulative conditions, buildout of the proposed Project (Phase I and Phase II) would increase the average intersection vehicle delay by more than two seconds during the AM peak hour at *Intersection #50 (Harrison Street / MacArthur Boulevard (Westbound) / Santa Clara Avenue)* (2030), which would operate at an unacceptable LOS F during the AM poeak hour under Cumulative (2030) without Project Conditions. (Significant)

Mitigation Measure TRANS-13f: Implement the following measures at the Harrison Street / MacArthur Boulevard (Westbound) / Santa Clara Avenue intersection:

- Optimize the traffic signal (to include determination of the allocation of green time for each intersection approach) for the AM peak hour in tune with the relative traffic volumes on those approaches.

- Coordinate the signal timing changes at this intersection with the adjacent intersections that are in the same signal coordination group.

To implement this measure, the Project Applicant shall submit the following to City of Oakland's Transportation Services Division for review and approval:

- Plans, Specifications, and Estimates (PS&E) to modify the intersection. All elements shall be designed to City standards in effect at the time of construction, and all new or upgraded signals should include these enhancements. All other facilities supporting vehicle travel and alternative modes through the intersection should be brought up to both City standards and ADA standards (according to Federal and State Access Board guidelines) at the time of construction. Current City Standards call for the elements listed below:

  – 2070L Type Controller
  – GPS communication (clock)
  – Accessible pedestrian crosswalks according to Federal and State Access Board guidelines
  – City Standard ADA wheelchair ramps
  – Full actuation (video detection, pedestrian push buttons, bicycle detection)
  – Accessible Pedestrian Signals, audible and tactile according to Federal Access Board guidelines
  – Countdown Pedestrian Signals
  – Fiber signal interconnect and communication to City Traffic Management Center for corridors identified in the City's ITS Master Plan for a maximum of 600 feet
  – Signal timing plans for the signals in the coordination group.

The project sponsor shall fund, prepare, and install the approved plans and improvements.

After implementation of this measure, conditions at this intersection (located within the Downtown area) would remain unacceptable, and the Project impact would not be mitigated. To completely mitigate the Project's impacts at this intersection would require substantial capacity improvements such as additional lanes on both the Harrison Street and MacArthur Boulevard (Westbound) approaches. Therefore, there are no feasible measures to completely mitigate the Project's impacts, and the Project impacts at this intersection are significant and unavoidable.

Significance after Implementation of Mitigation: Significant and Unavoidable.

If both Phase I and Phase II of the Project were built, this intersection would also be a significant and unavoidable impact under Cumulative (2030) plus Project (Phase I and Phase II) Conditions.

Roadway Impacts

Impact TRANS-14: Under 2030 cumulative traffic conditions, Phase I of the proposed Project would worsen level of service conditions on area roadway segments. (Significant at intersections described above under Impacts TRANS-13a to TRANS-13e)

Table 4 summarizes peak hour Level of Service for the study roadway segments under Cumulative (2030) plus South Tower Conditions, with the following roadway segments expected to operate at LOS F:

- Caltrans Facilities
  - #1: SR 260 (Posey/Webster Tubes) from Alameda city limits to I-880 (Northbound, AM and PM peak hours; and Southbound, PM peak hour)
  - #3: I-880 from Oak Street to 5th Avenue (Westbound, AM peak hour; and Eastbound PM peak hour)
  - #4: I-980 from 27th Street to 29th Street (Southbound, AM peak hour)
- Non-Caltrans Facilities
  - #9: Grand Avenue from Harrison Street to El Embarcadero (Westbound, AM peak hour; and Eastbound, PM peak hour)
  - #10: Harrison Street/Oakland Avenue between I-580 and 27th Street (Southbound, AM peak hour; and Northbound, PM peak hour)
  - #10: Harrison Street / Oakland Avenue from 27th Street to Grand Avenue (Southbound, AM peak hour; and Northbound, PM peak hour)

TABLE 4
CUMULATIVE (2030) WITHOUT AND WITH SOUTH TOWER ROADWAY SEGMENT LEVELS OF SERVICE

No.	Roadway Segment	Dir.	Ln.	Capacity (veh/hr)	Cumulative (2030) without Project Conditions						Cumulative (2030) plus South Tower Conditions					
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
					LOS	Vol.	v/c	LOS	Vol.	v/c	LOS	Vol.	v/c	LOS	Vol.	v/c
Caltrans Facilities																
1	**SR 260 (Posey / Webster Tubes)** from Alameda city limits to I-880	NB	2	3,400	F	4,084	1.20	F	3,885	1.14	F	4,087	1.20	F	3,886	1.14
		SB	2	3,400	E	3,327	0.98	F	4,329	1.27	E	3,328	0.98	F	4,337	1.28
2	**I-880** from Market Street to I-980	EB	4	8,000	B	3,835	0.48	B	3,394	0.42	B	3,876	0.48	B	3,401	0.43
		WB	4	8,000	C	4,441	0.56	C	4,031	0.50	C	4,446	0.56	C	4,067	0.51
3	**I-880** from Oak Street to 5th Avenue	EB	4	8,000	E	7,390	0.92	E	7,920	0.99	E	7,396	0.92	E	7,960	1.00
		WB	4	8,000	E	7,925	0.99	E	7,217	0.90	E	7,970	1.00	E	7,225	0.90
4	**I-980** from 27th Street to 29th Street	NB	3	6,000	B	2,300	0.38	D	4,806	0.80	B	2,315	0.39	D	4,903	0.82
		SB	3	6,000	F	6,653	1.11	C	3,009	0.50	F	6,706	1.12	C	3,019	0.50
Non-Caltrans Facilities																
5	**Broadway** from 19th Street to Grand Ave.	NB	2	1,800	B	699	0.39	C	1,207	0.67	B	710	0.39	D	1,279	0.71
		SB	2	1,800	B	595	0.33	B	823	0.46	B	629	0.35	B	830	0.46
6	**Telegraph Avenue** from 20th Street to 27th Street	NB	2	1,800	B	688	0.38	C	1,080	0.60	B	690	0.38	C	1,091	0.61
		SB	2	1,800	B	897	0.50	B	779	0.43	B	897	0.50	B	781	0.43
7	**West Grand Avenue** from Telegraph to San Pablo	EB	2	1,800	D	1,427	0.79	C	962	0.53	D	1,486	0.83	C	965	0.54
		WB	2	1,800	C	910	0.51	C	1,160	0.64	C	915	0.51	C	1,195	0.66
8	**Grand Avenue** from Broadway to Harrison	EB	2	1,800	C	924	0.51	D	1,269	0.71	C	998	0.55	C	1,269	0.71
		WB	2	1,800	D	1,393	0.77	C	1,199	0.67	D	1,393	0.77	C	1,199	0.67
9	**Grand Avenue** from Harrison St. to El Embarcadero	EB	2	1,800	C	936	0.52	F	2,284	1.27	C	936	0.52	F	2,346	1.30
		WB	2	1,800	E	1,782	0.99	D	1,326	0.74	**F**	**1,911**	**1.06**	D	1,350	0.75
10	**Harrison Street / Oakland Avenue** from I-580 to 27th St.	NB	2	1,800	E	1,718	0.95	F	2,342	1.30	E	1,745	0.97	**F**	**2,457**	**1.36**
		SB	2	1,800	E	1,571	0.87	C	987	0.55	E	1,647	0.92	C	1,001	0.56
11	**Harrison Street**	NB	3	2,700	B	1,276	0.47	C	1,650	0.61	B	1,311	0.49	C	1,814	0.67

	from 27th Street to Grand Ave.	SB	3	2,700	C	1,361	0.50	B	924	0.34	C	1,448	0.54	B	940	0.35
12	**Harrison Street** from 20th Street to 14th Street	NB	2	1,800	B	643	0.36	D	1,362	0.76	B	653	0.36	D	1,367	0.76

Bold indicates significant impact.

SOURCE: AECOM, 2010.

The South Tower would not result in a significant impact on the following segments because the addition of South Tower-generated traffic would not cause an increase in v/c ratio greater than the three percent threshold of significance:

- #1: SR 260 (Posey / Webster Tubes) from Alameda city limits to I-880
- #4: I-980 from 27th Street to 29th Street

The Project's potential impacts on each of the remaining segments are discussed below:

Impact TRANS-14a: Under 2030 cumulative traffic conditions, Phase I of the proposed Project would degrade the roadway segment level of service from an acceptable LOS E to an unacceptable LOS F during both peak hours on *Segment #3 (I-880 from Oak Street to 5th Avenue)* (2030). (Significant)

It should also be noted that, in each case, while the South Tower would cause the segment to operate to LOS F (because the traffic volumes would exceed the 8,000 vehicles hourly capacity), the increase in v/c ratio would be only one percent, and rounded to the hundredths place (per standard practice), the v/c ratio is 1.00, which is LOS E.

> **Mitigation Measure TRANS-14a:** There are no feasible measures to mitigate the South Tower impact, given the existing alignment and constraints due to lack of right-of-way for both the roadway on the west end of the channel and possibly for support columns above the Union Pacific right-of-way. The segment of I-880 from Oak Street to 5th Avenue consists of two four-lane aerial structures, with the segment immediately west of Lake Merritt Channel bordered on the north by the Laney College parking lot and on the south by industrial uses. The aerial structure continues east of the channel, crossing over the existing Union Pacific railroad right-of-way. Increasing capacity on the freeway would likely require increasing the number of travel lanes. Also, any proposed mitigation measure would also require Caltrans project approval. Therefore, the South Tower impacts on this roadway segment are significant and unavoidable.

Significance after Implementation of Mitigation: Significant and Unavoidable.

If both Phase I and Phase II of the Project were built, this roadway segment would also be a significant and unavoidable impact under Cumulative (2030) plus Project (Phase I and Phase II) Conditions.

Impact TRANS-14b: Under 2030 cumulative traffic conditions, Phase I of the proposed Project would degrade the roadway segment level of service from an acceptable LOS E to an unacceptable LOS F during the AM peak hour and increase the v/c ratio by more than three percent during the PM peak hour on *Segment #9 (Grand Avenue from Harrison Street to El Embarcadero)* (2030), which would operate at an unacceptable LOS F during the PM peak hour under Cumulative (2030) without Project Conditions. (Significant)

> **Mitigation Measure TRANS-14b:** Implement Mitigation Measure TRANS-2a along Grand Avenue:

- Optimize traffic signals (i.e., adjust the allocation of green time for each intersection approach) at intersections along Grand Avenue (i.e., Harrison Street, Bay Place, Park View Terrace / Bellevue Avenue, Perkins Street, Staten Avenue, Euclid Avenue, and El Embarcadero) for the AM and PM peak hours.

- Coordinate the signal timing at the intersections in the road segment.

To implement this measure, the Project Applicant shall submit the following to TSD for review and approval:

- PS&E to modify the intersections. All elements shall be designed to City standards in effect at the time of construction, and all new or upgraded signals should include these enhancements. All other facilities supporting vehicle travel and alternative modes through the intersections should be brought up to

After implementation of this measure, conditions would remain at an unacceptable LOS, and the South Tower impact would not be mitigated. This measure alone would not be sufficient to completely mitigate the South Tower impacts on this segment, but as discussed for Impact TRANS-2a, there are no feasible mitigation measures to completely mitigate the South Tower impacts. Therefore, the South Tower impacts on this roadway segment are significant and unavoidable.

Significance after Implementation of Mitigation: Significant and Unavoidable.

If both Phase I and Phase II of the Project were built, this roadway segment would also be a significant and unavoidable impact under Cumulative (2030) plus Project (Phase I and Phase II) Conditions.

Impact TRANS-14c: Under 2030 cumulative traffic conditions, buildout of the proposed Project (Phase I and Phase II) would degrade the level of service from an acceptable LOS E to an unacceptable LOS F during the AM peak hour and increase the v/c ratio by more than three percent during the PM peak hour on *Segment #10 (Harrison Street / Oakland Avenue from I-580 to 27th Street)* (2030), which would operate at an unacceptable LOS F during the PM peak hour under Cumulative (2030) without Project Conditions. (Significant)

Mitigation Measure TRANS-14c: To completely mitigate the South Tower's impacts would require substantial capacity improvements such as an additional travel lane on Harrison Street / Oakland Avenue in the northbound direction, which may conflict with objectives of Harrison Street / Oakland Avenue Community Transportation Plan currently in progress and require removal of bike lanes or substantial amounts of on-street parking. Therefore, there are no feasible measures to completely mitigate the impacts of the South Tower, and the impacts on this roadway segment are significant and unavoidable.

Significance after Implementation of Mitigation: Significant and Unavoidable.

If both Phase I and Phase II of the Project were built, this roadway segment would also be a significant and unavoidable impact under Cumulative (2030) plus Project (Phase I and Phase II) Conditions.

Bicycle Impacts

Table 5 specifies the City of Oakland Municipal Code requirements for the provision of short- and long-term bicycle parking facilities, as well as shower and locker facilities, for the South Tower. The 136 long-term bicycle spaces should be secure and serve office workers who may leave their bicycles at the same location all day or overnight, and should be provided in the form of bicycle lockers or bicycle cages.

TABLE 5
SOUTH TOWER BICYCLE FACILITY REQUIREMENTS

Facility / Land Use	Amount (KSF)[a]	Municipal Code Provision	Facility Requirement
Bicycle Parking			
Office	552	1 long-term space per 10 KSF 1 short-term space per 20 KSF	55 long-term spaces 28 short-term spaces
Retail	27	1 long-term space per 12 KSF 1 short-term space per 5 KSF	2 long-term spaces 5 short-term spaces
Total			57 long-term spaces 33 short-term spaces
Bicycle Showers and Lockers			
Office	552	2 showers per gender, plus one shower per gender for each 150 KSF above 150 KSF	4 showers per gender (8 total)
		4 lockers per shower	32 lockers
Retail	27	No locker or shower requirements (less than 150 KSF)	--
Total			4 showers per gender (8 total) 32 lockers

[a] KSF = 1,000 sq. ft.

SOURCE: AECOM, 2010.

The 33 short-term bicycle racks would accommodate visitors who leave their bikes for a reasonably short period of time and should be provided in areas that provide shelter and, ideally, a high level of passive security from surrounding pedestrians. Other visible security measures such as security cameras may also be considered.

South Tower site plans do not include provisions to accommodate bicycle parking. City of Oakland's SCAs include SCA TRANS-2, which requires that prior to the issuance of first certificate of occupancy, the applicant shall submit for review and approval of the Planning and Zoning Division, plans that show bicycle storage and parking facilities to accommodate 33 short-term bicycle parking spaces onsite or on public sidewalk, and 57 long-term bicycle parking spaces.

Although not required to mitigate a significant impact, Class 2 bicycle facilities (bicycle lane) should be considered on Franklin Street and Webster Street to improve bicycle conditions in the immediate vicinity of the South Tower. As discussed in the Existing Bicycle Conditions section, the section of Franklin Street and Webster Street between 8th Street and Broadway is proposed for Class 2 bicycle facilities (bicycle lanes) and Class 3 (bicycle route). In order to encourage use of alternative modes of travel such as bicycling and provide greater safety for bicyclists; it is recommended that these sections of the bikeway network be completed. **Table 6** presents the

TABLE 6
CUMULATIVE (2030) WITHOUT AND WITH SOUTH TOWER INTERSECTION LEVELS OF SERVICE – WITH FRANKLIN STREET AND WEBSTER STREET BIKE LANES

			Cumulative (2030) without Project Conditions				Cumulative (2030) + South Tower Conditions			
			AM Pk. Hr.		PM Pk. Hr.		AM Pk. Hr.		PM Pk. Hr.	
No.	Intersection	Traffic Control[a]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]	LOS	Delay[b]
Within Downtown										
17	Webster St. /21st St.	Signal	B	14.7	B	19.9	B	15.1	B	19.1
18	Franklin St. /21st St.	Signal	B	10.4	B	12.0	A	9.6	B	10.1
22	Franklin St. /20th St.	Signal	B	11.7	B	14.9	B	13.9	B	14.1
23	Webster St. /20th St.	Signal	C	24.6	C	25.9	C	22.0	C	25.2

[a] The LOS and delay for signalized intersections represent the average delay for all movements.

SOURCE: AECOM, 2010.

LOS results (without and with the South Tower) at four study intersections that would have its vehicle approach lanes modified to accommodate the proposed bike lane. More specifically, the proposed bike lanes would result in the following changes to the existing vehicle approach lanes:

SB Webster at 21st: Existing = 1 Shared Left-Thru, 1-Thru and 1-Shared Thru-Right
With Bike Lane=1-Shared Left-Thru and 1-Shared Thru-Right

NB Franklin at 21st: Existing = 1 Shared Left-Thru, 1-Thru and 1-Shared Thru-Right
With Bike Lane=1-Shared Left-Thru and 1-Shared Thru-Right

NB Franklin at 20th: Existing = 1 Shared Left-Thru, 2-Thru and 1-Right Turn Only
With Bike Lane=1-Shared Left-Thru, 1-Thru and 1-Right Turn Only

SB Webster at 20th: Existing = 1 Shared Left-Thru, 1-Thru and 1-Shared Thru-Right
With Bike Lane=1-Shared Left-Thru, 1-Thru and 1-Right Turn Only

Under Cumulative Conditions with the bike lanes on Franklin Street and Webster Street, the South Tower is not expected to have a significant impact on the four study intersections. In most cases, the South Tower is expected to add volume to non-critical movements, thus reducing the average delay at the intersections.

AC Transit Travel Time

Travel time along the following corridors was evaluated in order to determine the impacts of Project-generated traffic on the operations of key AC Transit trunk lines in Downtown Oakland:

1. 11th Street (eastbound) from Brush Street to Oak Street
2. 12th Street (westbound) from Oak Street to Brush Street
3. 20th Street (eastbound) from Telegraph Avenue to Harrison Street
4. 20th Street (westbound) from Harrison Street to Telegraph Avenue
5. Broadway (southbound) from 27th Street to 20th Street
6. Broadway (southbound) from 20th Street to 11th Street
7. Broadway (northbound) from 11th Street to 20th Street
8. Broadway (northbound) from 20th Street to 27th Street
9. Grand Avenue between MacArthur Boulevard and Harrison Street – (westbound AM and eastbound PM)
10. Harrison Street between MacArthur Boulevard and Grand Avenue (southbound AM and northbound PM)
11. Telegraph Avenue between 20th Street and 27th Street (southbound AM and northbound PM)

Corridors #1 through #8 were analyzed in both directions during both the AM and PM peak hours. Corridors #9, #10, and #11 were analyzed for only one direction during each peak hour, as traffic on these segments is highly directional. For the previous AC Transit Travel Time analysis, Phase I of the Project represented build-out of only the North Tower. The following analysis represents conditions with build-out of only the South Tower

Table 7 summarizes the results of the travel time analysis for the AM and PM peak hours. Observations of corridor travel times were taken for Existing Conditions and travel time differentials obtained from the Synchro networks used in the intersection LOS analysis. A minimum of three field runs were conducted in each direction for each corridor in September 2008.

It should be noted that the travel times presented here only represent the time it takes automobiles to travel the length of the corridor. Obtaining a travel time estimate for transit vehicles traveling through corridors can be difficult considering that the travel time for transit vehicles is much

more variable than that for automobiles. This variability is due to a wide variety of factors, but primarily involves schedule adherence and on-time performance. A transit vehicle that is already behind schedule can quickly get further behind schedule due to accumulating passenger demand at transit stops, resulting in longer than usual dwell times to allow passengers to board and alight. In addition, because transit vehicles must follow the same route, there is less flexibility than with automobiles in events such as accidents or unexpected congestion, increasing delays further. Given these considerations, the values in Table 8 should be viewed as the incremental increase in transit travel time compared to Existing Conditions.

TABLE 7
TRANSIT CORRIDOR TRAVEL TIMES COMPARED TO EXISTING CONDITIONS

No.	Route	Existing (Sept. 2008) Travel Time	Incremental Increase (sec.) compared to Existing: Existing plus South Tower Conditions	Incremental Increase (sec.) compared to Existing: Cumulative (2030) without Project Conditions	Incremental Increase (sec.) compared to Existing: Cumulative (2030) plus South Tower Conditions
Weekday AM Peak Hour					
1	**11th Street EB** Brush Street to Oak Street	3:35	+ 0	+ 5	+ 4
2	**12th Street WB** Oak Street to Brush Street	3:19	+ 0	+ 5	+ 5
3	**20th Street EB** Telegraph Avenue to Harrison Street	2:17	+ 20	+ 25	+ 8
4	**20th Street WB** Harrison Street to Telegraph Avenue	1:40	+ 5	(- 23)	(- 7)
5	**Broadway SB** 27th Street to 20th Street	2:21	+ 2	+ 10	+ 13
6	**Broadway SB** 20th Street to 11th Street	2:28	+ 0	+ 16	+ 17
7	**Broadway NB** 11th Street to 20th Street	2:19	+ 0	+ 19	+ 21
8	**Broadway NB** 20th Street to 27th Street	1:03	+ 1	+ 7	+ 8
9	**Grand Avenue WB** MacArthur Blvd. to Harrison Street	3:30	+ 1	+ 15	+ 24
10	**Harrison Street SB** MacArthur Blvd. to Grand Avenue	3:28	+ 11	+ 390	+ 390
11	**Telegraph Street SB** 27th Street to 20th Street	2:23	+ 1	+ 4	+ 4
Weekday PM Peak Hour					
1	**11th Street EB** Brush Street to Oak Street	4:40	+ 0	+ 5	+ 5
2	**12th Street WB** Oak Street to Brush Street	3:28	+ 0	+ 14	+ 14
3	**20th Street EB** Telegraph Avenue to Harrison Street	2:18	+ 28	+ 6	+ 4
4	**20th Street WB** Harrison Street to Telegraph Ave.	3:29	+ 9	(- 32)	(- 13)
5	**Broadway SB** 27th Street to 20th Street	2:18	+ 0	+ 9	+ 10
6	**Broadway SB** 20th Street to 11th Street	2:58	+ 0	+ 163	+ 163
7	**Broadway NB** 11th Street to 20th Street	3:33	+ 3	+ 204	+ 206
8	**Broadway NB** 20th Street to 27th Street	1:45	+ 1	+ 101	+ 103
9	**Grand Avenue EB** Harrison Street to MacArthur Blvd.	4:21	+ 17	+ 138	+ 155
10	**Harrison Street NB** Grand Avenue to Perry Place	3:44	+ 51	+ 79	+ 146
11	**Telegraph Street NB** 20th Street to 27th Street	2:03	+ 0	+ 6	+ 7

SOURCE: AECOM, 2010.

As shown in Table 8, the South Tower would increase peak hour travel times along most corridors, mostly as a result of increases in intersection average delay. Some corridors would see average travel time decrease slightly between existing and future-year scenarios and between baseline and South Tower scenarios, primarily as a result of geometry changes or better-performing movements at intersections. Travel time on westbound 20th Street, for example, is lower under Cumulative (2030) without Project Conditions than under Existing Conditions, partially as a result of reduced delays due to Measure DD modifications at this intersection.

A comparison between Existing Conditions and Existing plus South Tower Conditions, indicate that the South Tower would increase travel time the most on the following transit corridors:

- #3: 20th Street EB (from Telegraph Avenue to Harrison Street)- 20 seconds in the AM and 28 seconds in the PM;
- #10: Harrison Street NB (from Grand Avenue to Perry Place) –51 seconds in the PM.

Under Cumulative (2030) plus South Tower Conditions, the South Tower (when compared to Cumulative without Project Conditions) would cause an increase in corridor travel time of nine seconds (=24-15) along westbound Grand Avenue (from MacArthur Boulevard to Harrison Street) in the AM peak hour and an increase of 67 seconds (=146-79) in the PM peak hour along northbound Harrison Street (from Grand Avenue to Perry Place). Other corridors such as Broadway would also experience substantial increases in travel time under Cumulative Conditions, but the South Tower contribution to these increases would be minimal.

Given that Grand Avenue and Harrison Street are major corridors with significant vehicle traffic traveling to and from I-580 ramps, transit vehicles on these routes already experience some delay during the peak periods and would continue to do so in Cumulative (2030) with South Tower Conditions.

Mitigation: None required.

Planning-Related Non-CEQA Issues

The following section discusses transportation-related planning issues that do not constitute physical environmental impacts under CEQA, but that are evaluated to inform decision makers and the public about these issues.

Transit

Based on the 30 percent transit mode share assumed for the trip generation analysis, the South Tower would generate about 256 transit trips in the weekday AM peak hour and 243 transit trips in the weekday PM peak hour. Given that the Project would consist primarily of office space, these trips would almost exclusively be inbound during the AM peak hour and outbound during the PM peak hour. The expected distribution of transit trips was developed based on the trip distributions derived from the ACCMA Travel Demand Model.

For origins and destinations with both BART and AC Transit service, the split of Project-generated new transit riders on BART and AC Transit was based on a transit mode split of 7 percent AC Transit and 23 percent BART (for a total transit share of 30 percent) presented in the *Downtown Transportation and Parking Plan* (2003) for the Old Oakland / Metro Center / County Center Downtown subareas. The results of this analysis are summarized in **Table 8**.

TABLE 8
SOUTH TOWER WEEKDAY PEAK-HOUR TRANSIT TRIPS

	Transit Routes				
	AM Peak Hour		PM Peak Hour		
Origin / Destination	**BART**	**AC**	**BART**	**AC**	**Transit Routes**
San Francisco	52	13	51	13	BART, NL
Hayward / Fremont	51	12	49	12	BART, 1, 1R, 40
West Oakland	17	11	16	11	BART, 13, 14, 19, NL
East Oakland	23	10	22	9	BART, 1, 1R, 11, 14, 18, 40, NL
North Oakland / Berkeley / Albany / El Cerrito / Richmond	27	11	26	11	BART, 1, 1R, 15, 18, 51, 72, 72R, 72M, 88
Walnut Creek / Pleasant Hill	25	0	25	0	BART
Total	**195**	**58**	**189**	**56**	

SOURCE: AECOM, 2010.

AC Transit Loading

As shown in Table 6, the most substantial increase in transit ridership as a result of the South Tower would occur on the NL route, which would carry about 12 new riders in both the AM and PM peak hours. With 15-minute headways, this increase in ridership is equivalent to about three new riders per bus. The NL is has substantial capacity to accommodate these additional riders.

The South Tower would also cause increases of 8 to 12 passengers in the AM and PM peak hours to and from other origins and destinations, but these areas are served by multiple AC Transit bus lines. The South Tower transit ridership would likely only result in a maximum increase of two passengers per bus on these lines.

Given this increase in AC Transit ridership, it is not expected that the South Tower would increase the average ridership on AC Transit lines by three percent at bus stops where the average load factor in place would exceed 125 percent over a peak 30-minute period.

BART Loading

As shown in Table 6, the most substantial increase in transit ridership as a result of the South Tower would occur on the San Francisco and Fremont corridors of the BART network, which would see increases of about 50 passengers each in both the AM and PM peak hours.

Based on BART fleet statistics, the maximum capacity of a BART car was assumed to be 150 passengers, with an average of 68 to 72 seats in each car. Therefore, cars would have only standing room available at about 45 to 48 percent capacity utilization.

Under Existing plus South Tower Conditions, ridership would increase by about 12 passengers per train for these lines during the peak hours, or about two passengers per car. This is equivalent to a one percent increase in capacity utilization for these lines, bringing maximum capacity utilization on Fremont – Richmond trains in the AM peak hour to 83 percent and on Richmond – Fremont trains in the PM peak hour to 81 percent. However, the South Tower would not cause BART passenger volumes to exceed the standing capacity of trains.

Trains on other lines would see similar increases, but because they currently operate at well under 100 percent capacity utilization, these trains have capacity to accommodate additional South Tower-generated riders without exceeding standing capacity.

BART Faregate Queuing

Based on the estimates of BART ridership in Table 6, South Tower would add about 20 passengers during the peak queuing scenario (13 passengers from the Fremont – Richmond train and 7 passengers from the SFO – Pittsburg / Bay Point train). Based on a BART faregate capacity of 25 passengers per minute and assuming that these additional South Tower-generated riders all arrive at the faregates at the same time, the South Tower would theoretically increase the maximum faregate queues by 7 passengers to 13 passengers in length. It is likely that the South Tower would increase maximum queue delay by ten seconds at the most, but still keeping the maximum queue delay well under the one minute performance standard of the City of Oakland.

Intersection and Roadway Segment Operations with BRT

The AC Transit East Bay Bus Rapid Transit (BRT) Project is in the planning and are neither fully funded nor approved. Although only funded and approved projects are typically considered for inclusion in impact analyses, the following describes the result of separate supplementary BRT related traffic analyses.

As described on page IV.L-36, the proposed BRT improvements would generally require the removal of one through lane in each direction along Telegraph Avenue, narrowing the roadway to one vehicular lane in each direction. BRT vehicles would run in a protected median, with left turn pockets for autos provided at key intersections. Along 11th and 12th streets in Downtown Oakland, the BRT service would operate in a side-running configuration, removing one lane of through traffic and eliminating some parking to allow for bulbouts at stations. The LOS at eight study intersections (**Table 9**) and the roadway segment (**Table 10**) closest to the proposed BRT were calculated for Cumulative Conditions. Under Cumulative Conditions with the BRT, the South Tower is expected to increase the V/C ratio by 0.10 (from 1.71 to 1.81) at Telegraph Avenue/27th Street, thus exceeding the three percent threshold of significance. Since it is not feasible to add lane capacity at this intersection and still accommodate the BRT, this impact will be Significant and Unavoidable. The proposed removal of one lane in each direction on Telegraph Avenue to accommodate the BRT reduces the capacity of each direction in half (from

1,800 vehicles/hour to 900) thus causing the northbound direction to operate at LOS F during the PM peak. In the northbound direction, the South Tower increases the V/C ratio by 0.01 (from 1.20 to 1.21), which is below the three percent threshold of significance.

Intersection Queuing Analysis

Queuing analysis was carried out for all of the "plus South Tower" scenarios using the Synchro software. Signalized intersections operating at unacceptable conditions as shown in Table IV.L-10, Table IV.L-12, Table IV.L-14, and Table IV.L-16 were selected for evaluation as the South Tower is expected to have its largest effect on 95th percentile queues at these intersections. A 95th percentile queue of 100 feet means that 95 percent of the time, the queue is expected to be

TABLE 9
CUMULATIVE (2030) WITHOUT AND WITH SOUTH TOWER INTERSECTION LEVELS OF SERVICE – WITH BRT

No.	Intersection	Traffic Control	Cumulative (2030) without Project Conditions				Cumulative (2030) plus South Tower Conditions			
			AM Pk. Hr.		PM Pk. Hr.		AM Pk. Hr.		PM Pk. Hr.	
			LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]
Outside Downtown										
5	Telegraph Ave. / 27th St.	Signal	C	29.0	**F**	**>120.0**	C	30.5	**F**	**>120.0**
Within Downtown										
9	Telegraph / West Grand	Signal	D	37.9	E	59.2	D	40.9	E	64.5
20	Telegraph Ave. / 20th St.	Signal	B	18.3	D	38.0	B	19.5	D	36.7
21	Broadway / 20th Street	Signal	B	15.1	C	34.0	B	15.3	D	36.1
35	Madison St. / 12th Street	Signal	C	25.3	B	10.9	C	25.5	B	11.0
36	Oak Street /12th Street	Signal	B	16.1	B	16.3	B	16.1	B	16.3
38	Madison St. /11th Street	Signal	B	10.8	B	11.2	B	10.7	B	11.1
39	Franklin St. /11th Street	Signal	B	14.5	B	14.0	B	14.5	B	14.0

[a] The LOS and delay for signalized intersections represent the average delay for all movements.

SOURCE: AECOM, 2010.

100 feet or less. The 95th percentile queue is used for analysis, because it is standard practice to design a storage pocket to accommodate expected peak traffic demand 95 percent of the time. In all cases, the storage capacity (rounded to the nearest 25 feet) is taken as the distance to the nearest intersection, major driveway, or pedestrian crossing. **Table 11** and **Table 12** summarize the queuing analysis for Existing plus South Tower Conditions and Cumulative plus South Tower Conditions, respectively.

Identified below are instances where the South Tower trips would add 25 or more feet to the baseline (without South Tower) 95th percentile queue (if the baseline 95th percentile queue was already over the available storage length), or where South Tower trips would extend the queue over the available storage length. The findings are summarized below.

Existing plus South Tower Conditions

- Intersection #2: Oakland Avenue / Perry Place / I-580 EB Ramps (PM) – Oakland Avenue NER;
- Intersection #3: Harrison Street / 27th Street / 24th Street (PM) – Harrison Street NBTR;
- Intersection #42: Jackson Street / 6th Street / I-880 NB On-Ramp (AM)-Jackson Street NBL and SBR;
- Intersection #45: Grand Avenue / El Embarcadero (PM) – Grand Avenue NET; and,
- Intersection #47: Grand Avenue / MacArthur Boulevard (PM) – Grand Avenue NER.

TABLE 10
CUMULATIVE (2030) WITHOUT AND WITH SOUTH TOWER ROADWAY SEGMENT LEVELS OF SERVICE – WITH BRT

					Cumulative without Project Conditions						Cumulative plus South Tower Conditions					
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
No.	Roadway Segment	Dir.	Lane	Capacity (veh./hr.)	LOS	Volume	v/c	LOS	Volume	v/c	LOS	Volume	v/c	LOS	Volume	v/c
Non-Caltrans Facilities																
6	**Telegraph Avenue** from 20th Street to 27th Street	NB	1	900	D	688	0.76	F	1,080	1.20	D	690	0.77	F	1,091	1.21
		SB	1	900	E	897	1.00	E	779	0.87	E	897	1.00	E	781	0.87

SOURCE: AECOM, 2010.

TABLE 11
EXISTING WITHOUT AND WITH SOUTH TOWER CONDITIONS: 95TH PERCENTILE QUEUES

				Existing Conditions			Existing plus South Tower Conditions		
				Storage Cap. (feet)	Queue Length (ft)		Storage Cap. (feet)	Queue Length (ft)	
No.	Intersection	Lane Group			AM Pk. Hour	PM Pk. Hour		AM Pk. Hour	PM Pk. Hour
2	Oakland Ave. / Perry Pl. / I-580 EB Ramps	NE	T	400	--	125	400	**--**	125
			R	400	--	**600**	400	**--**	**650**
		SE	L	350	--	275	350	**--**	275
			T	350	--	300	350	**--**	300
3	Harrison St. / 27th St. / 24th St.	NB	L	400	--	125	400	**--**	150
			TR	400	--	**475**	400	**--**	**575**
		SB	L	150	--	250	150	**--**	250
			TR	375	--	200	375	**--**	200
		EB	L	725	--	225	725	**--**	225
			T	725	--	150	725	**--**	150
			R	725	--	100	725	**--**	100
		WB	L	175	--	75	175	**--**	75
			T	175	--	150	175	**--**	150
			R	175	--	50	175	**--**	50
24	Harrison St. / 20th St. / Kaiser Ctr. Access Rd.	NB	LTR	575	--	250	575	**--**	400
		SB	T	575	--	75	575	**--**	75
			R1	575	--	75	575	**--**	100
			R2	125	--	25	125	**--**	25
		SE	LT	--	--	--	150	**--**	**200**
			R	--	--	--	50	**--**	25
		EB	L2	--	--	--	100	**--**	25
			L	375	--	75	375	**--**	125
			TR	375	--	125	375	**--**	150
		WB	L	175	--	25	175	**--**	25
			T	175	--	25	175	**--**	50
42	Jackson St. / 6th St. / I-880 NB On-Ramp	NB	LT	175	**225**	**400**	175	**225**	**400**
		SB	T	250	50	50	250	50	50
			R	500	**875**	**950**	500	**875**	**950**
		WB	L	300	25	25	300	25	25
			T	300	125	225	300	125	225
			R	300	25	25	300	25	25
44	Oak St. / 5th St. / I-880 SB On-Ramp	NB	TR	100	--	275	100	125	275
		EB	LTR	300	--	200	300	200	200
45	Grand Avenue / El Embarcadero	NW	L	150	--	200	150	--	200
			R	300	--	25	300	**--**	25
		NE	T	600	--	**825**	600	**--**	**875**
		SW	L	150	--	225	150	--	225
			T	325	--	200	325	**--**	225
47	Grand Ave. / MacArthur Blvd. (EB)	NE	T	350	--	225	350	**--**	200
			R	350	--	**400**	350	**--**	**425**
		SE	LTR	350	--	300	350	**--**	300
		SW	L	150	--	300	150	--	300
			T	425	--	175	425	**--**	175

Bold indicates storage capacity exceeded.
All storage capacities and queue lengths rounded to the nearest 25 feet.

SOURCE: AECOM, 2010.

TABLE 12
CUMULATIVE (2030) WITHOUT & WITH SOUTH TOWER CONDITIONS: 95TH PERCENTILE QUEUES

				Cumulative (2030) without Project Conditions			Cumulative (2030) plus South Tower Conditions		
					Queue Length (ft)			Queue Length (ft)	
No.	Intersection	Lane Group		Storage Cap. (feet)	AM Pk. Hr.	PM Pk. Hr.	Storage Cap. (feet)	AM Pk. Hr.	PM Pk. Hr.
1	Harrison / Stanley / I-580	E	R	500	400	--	500	475	**--**
2	Oakland Ave. / Perry Pl. / I-580 EB Ramps	NE	T	400	175	300	400	175	300
			R	400	**475**	**700**	400	**500**	**775**
		SE	L	350	250	**625**	350	250	**625**
			T	350	250	**625**	350	250	**625**
3	Harrison St. / 27th St. / 24th St.	NB	L	400	250	200	400	250	225
			TR	400	250	**600**	400	250	**675**
		SB	L	150	**200**	**350**	150	**200**	**350**
			TR	375	**825**	325	375	**875**	325
		EB	L	725	100	325	725	100	350
			T	725	50	200	725	50	200
			R	725	150	150	725	150	150
		WB	L	175	125	100	175	125	100
			T	175	175	175	175	175	175
			R	175	50	50	175	50	50
5	Telegraph Ave. / 27th St.	NB	L	75	--	**300**	75	**--**	**325**
			TR	200	--	100	200	**--**	100
		SB	L	75	--	**175**	75	**--**	**175**
			TR	75	--	**250**	75	**--**	**250**
		EB	L	475	--	225	475	**--**	225
			T	475	--	350	475	**--**	350
			R	475	--	50	475	**--**	50
		WB	L	375	--	50	375	**--**	50
			T	375	--	**600**	375	**--**	**650**
			R	50	--	50	50	**--**	50
12	Harrison St. / Grand Ave.	NB	T	500	475	325	500	500	400
			R	525	75	**1,450**	525	75	**1,550**
		SB	TR	125	**575**	**200**	125	**625**	**225**
		EB	L	250	75	175	250	75	175
			T	450	100	300	450	100	300
			R	100	100	**125**	100	100	**125**
		WB	L	225	**375**	175	225	**475**	175
			T	425	300	425	425	300	425
			R	100	50	50	100	50	50
24	Harrison St. / 20th St. / Kaiser Ctr. Access Rd.	NB	LTR	575	--	500	575	**--**	**650**
		SB	T	575	--	100	575	**--**	175
			R1	575	--	100	575	**--**	150
			R2	125	--	25	125	**--**	50
		SE	LT	--	--	--	150	**--**	150

No.	Intersection	Lane Group		Cumulative (2030) without Project Conditions			Cumulative (2030) plus South Tower Conditions		
				Storage Cap. (feet)	Queue Length (ft)		Storage Cap. (feet)	Queue Length (ft)	
					AM Pk. Hr.	PM Pk. Hr.		AM Pk. Hr.	PM Pk. Hr.
			R	--	--	--	50	**--**	50
		EB	L2	--	--	--	100	**--**	25
			TR	375	--	100	375	**--**	100

TABLE 12 (Continued)
CUMULATIVE (2030) WITHOUT & WITH SOUTH TOWER CONDITIONS: 95TH PERCENTILE QUEUES

No.	Intersection	Lane Group		Cumulative (2030) without Project Conditions: Storage Cap. (feet)	Cumulative (2030) without Project Conditions: Queue Length (ft) AM Pk. Hr.	Cumulative (2030) without Project Conditions: Queue Length (ft) PM Pk. Hr.	Cumulative (2030) plus South Tower Conditions: Storage Cap. (feet)	Cumulative (2030) plus South Tower Conditions: Queue Length (ft) AM Pk. Hr.	Cumulative (2030) plus South Tower Conditions: Queue Length (ft) PM Pk. Hr.
32	Oak St. / 14th St.	NB	LT	200	--	175	200	--	175
			R	200	--	25	200	--	25
		EB	LT	300	--	**450**	300	--	**450**
		WB	LT	1,000	--	125	1000	--	125
			R	150	--	125	150	--	125
40	Oak St. / 7th St.	NB	TR	200	--	**400**	200	--	**400**
		EB	TR	300	--	75	300	--	100
42	Jackson St. / 6th St. / I-880 NB On-Ramp	NB	LT	175	**325**	**600**	175	**325**	**600**
		SB	T	250	50	75	250	50	75
			R	500	**1,250**	**1,425**	500	**1,250**	**1,425**
		WB	L	300	25	25	300	25	25
			T	300	200	**350**	300	200	**350**
			R	300	25	25	300	25	25
44	Oak St. / 5th St. / I-880 SB On-Ramp	NB	TR	100	**175**	**425**	100	**175**	**425**
		SB	LT	200	75	25	200	75	25
		EB	LTR	300	275	275	300	275	275
45	Grand Avenue / El Embarcadero	NW	L	150	--	**175**	150	--	**175**
			R	300	--	50	300	--	50
		NE	T	600	--	**1,175**	600	--	**1,225**
		SW	L	150	--	125	150	--	125
			T	325	--	200	325	--	175
47	Grand Ave. / MacArthur Blvd. (EB)	NE	T	350	275	150	350	275	150
			R	350	225	**525**	350	225	**550**
		SE	LTR	350	**675**	**1,050**	350	**675**	**1,050**
		SW	L	150	**325**	**825**	150	**325**	**825**
			T	425	**450**	275	425	**525**	300
48	Lakeshore Avenue / MacArthur Boulevard (EB) / I-580 EB On-Ramp	NE	TR	250	**375**	**750**	250	**375**	**775**
		SW	L	150	**1,075**	**850**	150	**1,075**	**850**
			T	150	125	50	150	125	50
		EB	L	475	150	75	475	150	75
			T	475	275	**550**	475	275	**550**
			R	475	75	425	475	75	425
49	Oakland Avenue / MacArthur Boulevard (WB) / Santa Clara Avenue / I-580 WB Off-Ramp	NE	T	175	**200**	**--**	175	**200**	**--**
		NW	TR	200	**850**	**--**	200	**875**	**--**
50	Harrison Street / MacArthur Boulevard (WB) / Santa Clara Avenue	NW	L	250	**300**	**--**	250	**300**	**--**
			T	250	**300**	**--**	250	**300**	**--**
		SW	T	300	**700**	**--**	300	**700**	**--**

Bold indicates storage capacity exceeded. All storage capacities and queue lengths rounded to the nearest 25 ft. Source: AECOM, 2010.

Cumulative (2030) plus South Tower Conditions

- Intersection #2: Oakland Avenue / Perry Place / I-580 EB Ramps (AM / PM) – Oakland Avenue NER;
- Intersection #3: Harrison Street / 27th Street / 24th Street (AM / PM) – Harrison Street SBLTR (AM) and NBTR (PM);
- Intersection #5: Telegraph Avenue / 27th Street (PM) – Telegraph Avenue NBL and SBLTR, and 27th Street WBT;
- Intersection #12: Harrison Street / Grand Avenue (AM / PM) – Harrison Street NBTR (PM) and SBTR (AM / PM), and Grand Avenue WBL (AM);
- Intersection #24: Harrison Street / 20th Street / Kaiser Center Access Road (PM) – Harrison Street NBLTR;
- Intersection #32: Oak Street / 14th Street (PM)-14th Street EBLT;
- Intersection #40: Oak Street / 7th Street (PM)-Oak Street NBTR;
- Intersection #42: Jackson Street / 6th Street / I-880 NB On-Ramp (AM / PM)-Jackson Street NBL and SBR (AM / PM), and 6th Street WBT (AM);
- Intersection #44: Oak Street / 5th Street / I-880 SB On-Ramp (AM / PM)-Oak Street NBTR;
- Intersection #45: Grand Avenue / El Embarcadero (PM) – Grand Avenue NET;
- Intersection #47: Grand Avenue / MacArthur Boulevard (AM / PM) – MacArthur Boulevard SELTR (AM / PM); and Grand Avenue SWLT (AM / PM) and NER (PM);
- Intersection #48: Lakeshore Avenue / MacArthur Boulevard / I-580 EB On-Ramp (AM / PM) – MacArthur Boulevard EBT (PM) and Lakeshore NETR and SWL (AM / PM);
- Intersection #49: Oakland Avenue / MacArthur Boulevard (WB) / Santa Clara Ave. / I-580 WB Off-Ramp (AM) – Oakland Avenue NET and I-580 WB Off-Ramp NWTR;
- Intersection #50: Harrison Street / MacArthur Boulevard (WB) / Santa Clara Avenue (AM) – Harrison Street SWT and MacArthur Boulevard NWLT.

It should be noted, however, that most of these locations have already been proposed for mitigation measures as a result of intersection LOS impacts. These measures, which include optimization of signal timing and phasing and upgrading of traffic signal hardware, would mitigate some of the Project's intersection LOS impacts at these locations, and would generally improve 95th percentile queues. In cases where the proposed mitigation measures would not completely mitigate the Project's intersection LOS impacts, further improvements to reduce 95th percentile queues would generally be infeasible, as these are typically geometrically-constrained intersections and may be locations where further improvements would conflict with policies for other modes or even with objectives of the Harrison Street / Oakland Avenue CTP.

South Tower Loading Docks and Parking Demand

Loading Docks

Three berths would be located in a single dock on the east side of the Project site, with access from the Access Road running through the Kaiser Center block. These berths would serve the South Tower and are shown in Figure IV.L-11 in the DEIR.

Impact TRANS-9 (as identified in the DEIR for Project Buildout): The Project would create potential conflict between loading dock operations and vehicular access to and from the Kaiser Center Garage and would present a potential safety hazard for pedestrians, bicyclists, and other drivers. (Significant)

The following mitigation measure (shall be applied to South Tower Phase 1 Build only.

> **Mitigation Measure TRANS-9 (as identified in the DEIR for Project Buildout):** Prohibit delivery and service vehicles from accessing the loading docks during the AM and PM peak periods in order to minimize the impact of loading operations on access for the Kaiser Center Garage. The section of the Access Road from Harrison Street / 20th Street to the garage entrance should be restricted to delivery and service vehicles during off-peak hours. During off-peak periods, the Access Road approach onto Harrison Street / 20th Street should be separated off by bollards or other removable barriers to prevent passenger vehicles from crossing the site and expand pedestrian space in this immediate area. Adequate additional site management staff should be made available to direct loading maneuvers to improve the safety of pedestrians, bicyclists, and drivers during deliveries into and out of this dock. Concurrent with the submittal of a Final Development Plan, the Project Applicant shall prepare and submit a loading dock plan and operational analysis which demonstrates there are no conflicts with vehicular, pedestrian, and bicycle access to or adjacent to the site for City review and approval. The Project Applicant shall implement the approved plan.

Potential Additional Recommended Conditions for Pedestrians

Site observations concluded that existing pedestrian facilities generally are insufficient. Given those concerns, and the fact that the Project will add a significant number of new pedestrian trips, the following "Recommended Conditions" should be considered to improve safety operations of pedestrian facilities in the immediate vicinity of the Project and are consistent with the City's Pedestrian Master Plan. These Recommendations are the same as those identified in this DEIR for Project Buildout. Although not required by CEQA, these Recommended Conditions are recommended herein by City Staff to be included as Project specific conditions of approval. They are not necessary to address or mitigate any environmental impacts of the Project. .

Recommendation TRANS-1: Increase sidewalk capacity on the north side of 20th Street between Broadway and Harrison Street.

> In order to improve pedestrian flow, it is recommended that the sidewalk capacity along the north side of 20th Street between Broadway and Harrison Street be increased as follows:
>
> - **Between Broadway and Franklin Street, remove parking and widen the sidewalk.** Currently, a limited amount of metered on-street parking is provided just east of the BART station entrance (three spaces on the north side of 20th Street and two spaces on the south side of 20th Street). The section on the north side directly east of the entrance is used as a de facto "kiss-and-ride" zone in the mornings and pickup zone in the afternoon and evenings. Several employee shuttles from the office buildings at 180 Grand, 155 Grand and 1 Kaiser Plaza also use this curb space to load

and offload passengers. However, circulation space is limited because the sidewalk begins to narrow 30 feet east of the entrance. This section of curb also includes an exit driveway for the existing building on the northeast corner of the intersection of Franklin Street / 20th Street.

In the AM peak periods, pedestrian traffic exiting the BART station via the escalator (located on the north side of the station entrance) conflicts with pedestrian traffic entering the station attempting to access the stairwell (located on the south side of the station entrance). Employees attempting to board the special shuttles also cross against opposing pedestrian traffic in order to reach the shuttle boarding area.

By removing parking and widening the sidewalk, circulation space directly east of the entrance could be increased.

Once the three parking spaces on the north side of 20th Street are removed, the existing bus stop serving AC Transit Lines 11, 59, 59A, and 805 would then be moved out to the new curb line, resulting in a larger unobstructed width on the main part of the sidewalk. The extended curb could align with the existing "bulbout" for the BART station entrance and 20th Street restriped to remove the misalignment in the pavement markings. A bulbout could also be provided at the northwest corner of Franklin Street / 20th Street in the east-west direction. This would not require removal of any parking as that section of curb is already marked red, but would significantly increase queuing space for pedestrians waiting to cross.

Removal of three spaces would have a negligible impact on overall parking conditions in the area. It is important to note that the schematic is only a conceptual illustration, and implementation of any or all of the improvements would require further analysis and design.

It should also be noted that there are several AC Transit stops in close proximity along westbound 20th Street between Telegraph Avenue and Harrison Street:

- North side of 20th Street between Telegraph Avenue and Broadway (three stops occupying the full length of block);
- Northwest corner of Franklin Street / 20th Street; and,
- Northeast corner of Wesbter Street / 20th Street.

While most AC transit services do not use all three stops, some consolidation of stops could also be considered to streamline service, reduce transit vehicle travel times, and improve passenger connections.

- **Between Franklin Street and Webster Street, widen the sidewalk.**

  This section of 20th Street is proposed for Class 2 bicycle facilities (bicycle lanes), which would require removal of the exclusive westbound right-turn lane. Additional space obtained as part of those improvements could be set aside for sidewalk widening along the north side of 20th Street, which has an extremely limited unobstructed width due to building frontage.

  If the westbound right-turn lane were removed, the intersection of Franklin Street / 20th Street would still operate at LOS B (14.0 seconds of intersection average delay) during the weekday AM peak hour and LOS B (14.7 seconds of intersection average

delay during the weekday PM peak hour under Cumulative (2030) plus Project (Phase I and Phase II) Conditions. Without removal of the westbound right-turn lane, the intersection would operate at LOS B under both peak hours, with intersection average delay at 14.1 seconds during the weekday AM peak hour and 14.5 seconds during the weekday PM peak hour. Therefore, removal of the westbound right-turn lane would produce a negligible change in intersection operations and would not result in secondary impacts if implemented.

The northeast corner of Franklin Street / 20th Street could be redesigned so as to reduce the curb radius, shortening crossing distances for pedestrians and encouraging drivers to take their turns slower. A bulbout could also be provided at this corner to further reduce crossing distances.

- **Between Webster Street and Harrison Street, redesign the Project frontage to be pedestrian-friendly.** The portion of 20th Street abutting the site is split into two narrow paths as a result of landscaping and a slight grade from the edge of the existing buildings to the curb. The path closest to the curb is extremely narrow and is partially restricted by the AC Transit bus stop east of the intersection of Webster Street / 20th Street. The path closer to the existing building is restricted by outdoor cafe seating.

  The sidewalk could be redesigned to reduce or eliminate the grade difference and better position the landscaping so as to buffer the sidewalk from the roadway as opposed to divide the sidewalk in two. Given the wide curb lane, the sidewalk closest to the intersection with Webster Street could be widened in a similar fashion to the section of 20th Street between Broadway and Franklin Street. The existing bus stop would be moved out to the new curb line. This may, however, restrict some through capacity along westbound 20th Street, as vehicles could queue up behind stopped transit vehicles, unable to pass around them.

  Bulbouts could be provided at the northwest and northeast corners of this intersection in the east-west direction, shortening crossing distances and increasing queuing space on the major pedestrian route to and from BART.

Recommendation TRANS-2: Reduce cycle times of signals at the intersections of Franklin Street / 20th Street and Webster Street / 20th Street.

Due to long cycle lengths, one-way traffic, and relatively low traffic volumes, there is a high occurrence of pedestrians on the north side of 20th Street crossing Franklin Street and Webster Street illegally. Reducing the cycle length of these signals would shorten wait times for pedestrians attempting to cross, improving safety for all road users, including drivers, bicyclists, and pedestrians. Currently, these intersections operate with 80-second cycle lengths, but these could be reduced to 60- or 70-second cycle lengths to reduce waiting times for pedestrians attempting to cross.

Parking Demand Evaluation

This section evaluates if the South Tower estimated parking demand would be met by the existing parking supply within a reasonable walking distance (five minutes or 900 feet) of the Project site.

Table 13 summarizes vehicle parking code requirements and estimated parking demand for the South Tower. Because the proposed retail space is assumed to be a one-to-one replacement of existing retail space at the Project site, the proposed retail space is omitted from the code requirement and demand calculations.

The South Tower would construct 467 new parking spaces, but would not involve demolition of any existing parking spaces in the Kaiser Center Garage, resulting in a net new increase of 467 parking spaces. After completion of the South Tower, the Kaiser Center Garage would have a capacity of 1,807 spaces and be operated as a single garage shared between the existing Kaiser Center tower and the South tower. For the purposes of comparing parking supply and demand, however, the South tower is assumed to have an on-site parking supply of 467 spaces.

TABLE 13
PARKING CODE REQUIREMENTS AND PARKING DEMAND FOR THE SOUTH TOWER

			Parking Demand		
Land Use[a]	**Size (KSF)**[b]	**Code Requirement**	**ITE**	**Downtown Transportation and Parking Plan**	**Spaces Proposed (Net)**
Office (South Tower Only)	552	0	1,325	773	467

[a] For office use (Land Use 701 – Office Building, Urban):
Average Peak Period Parking Demand: 2.40 vehicles per 1,000 sq. ft. GFA

[b] KSF = 1,000 sq. ft.

SOURCE: City of Oakland *Municipal Code* 17.116.080; Institute of Transportation Engineers (ITE), *Parking Generation* (3rd Edition), 2003; AECOM, 2010.

According to the City of Oakland Municipal Code, the Project is not required to provide any off-street parking because of its location in a C-55 / S-17 zoning district. Therefore, no additional parking is being proposed with the South Tower only option.

According to national Institute of Transportation Engineers (ITE) statistics, the South Tower would generate a parking demand of approximately 1,325 spaces. The available existing capacity within the Kaiser Center Garage and in the surrounding area would be about 913 spaces:

- 419 spaces in average existing capacity available at the Kaiser Center Garage, based on occupancy data as of July 2010 (Table IV.L-7); and,
- 494 spaces in average existing capacity available at off-street parking facilities in the vicinity of the Project, based on occupancy surveys as of October 2008 (Table IV.L-7, all facilities other than the Kaiser Center Garage).

Based on this available capacity and ITE parking demand estimates, the South Tower may result in a parking shortfall of about 412spaces.

It should be noted, however, that the estimated parking demand rate of 2.4 vehicles per 1,000 square feet represents an average for suburban locations where private automobiles are the primary mode

of travel, and is therefore not entirely applicable for areas with comprehensive transit service such as Downtown Oakland. The *Downtown Transportation and Parking Plan*, compiled by Dowling Associates for the City of Oakland Redevelopment Agency and the Community and Economic Development Agency (CEDA) in October 2003, recommended off-street parking ratios of 1.4 vehicles per 1,000 square feet for locations in Downtown outside of the City Center area, within two blocks of BART. Based on these calculations, the South Tower would generate a parking demand of about 773 spaces, which could be met by available off-street parking capacity in the surrounding area.

Alternative Measure DD Analysis for South Tower

The following is a summary of the Alternative Measure DD analysis for both Cumulative (2030) conditions without and with the South Tower. **Figure 3** summarizes the traffic volumes used for the LOS analysis presented in **Table 14**.

TABLE 14
CUMULATIVE (2030) WITHOUT AND WITH SOUTH TOWER
INTERSECTION LEVELS OF SERVICE – ALTERNATIVE MEASURE DD

			Cumulative (2030) without Project Conditions (Alternative Measure DD)				Cumulative (2030) plus South Tower Conditions (Alternative Measure DD)			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
No.	Intersection	Traffic Control	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]
Within Downtown										
24	Harrison St. / 20th St. / Kaiser Ctr. Access Road	Signal	D	39.8	**F**	**107.4**	E	69.0	**F**	**>120**
25	Kaiser Ctr. Access Rd. / 20th Street [b]	SSSC	B	10.5	B	10.1	--	--	--	--

Bold indicates significant impact.

[a] The LOS and delay for one-way stop controlled intersections represent the worst movement or approach. The LOS and delay for signalized intersections represent the average delay for all movements.

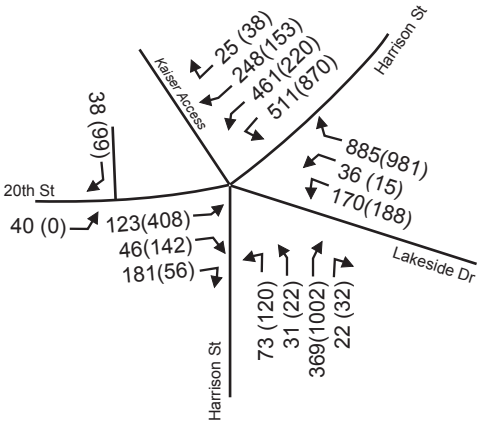
[b] The Project would combine this intersection with Intersection #24.

SOURCE: AECOM, 2010.

As shown in the table, the following intersection would operate at unacceptable conditions under Cumulative (2030) plus South Tower Conditions (Alternative Measure DD):

- Within Downtown (LOS F)
  - LOS F - Intersection #24: Harrison Street / 20th Street / Kaiser Center Access Road (PM)

Cumulative (2030) without South Tower Conditions



Cumulative (2030) plus South Tower Conditions

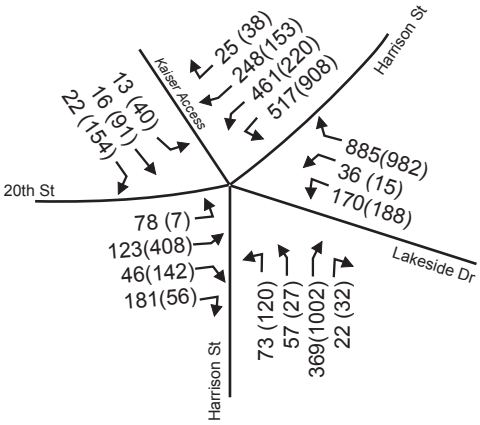


Figure 3

ALTERNATIVE MEASURE DD TRAFFIC VOLUMES

AM (PM) Peak Hour

Potential impacts at the above intersections due to the Project are discussed below.

Impact ALT DD TRANS-4 Intersection #24: Harrison Street / 20th Street / Kaiser Center Access Road (PM). The intersection of Harrison Street / 20th Street / Kaiser Center Access Road would operate at LOS F in the PM peak hour under both Cumulative (2030) without Project Conditions (Alternative Measure DD) and Cumulative (2030) plus South Tower Conditions (Alternative Measure DD). The intersection is located within the Downtown area.

Because the Project would cause an increase in average intersection delay greater than the two-second threshold of significance, the Project would result in a significant impact at this intersection.

Mitigation Measure ALT DD TRANS-4:

1. The Project applicant shall add an additional lane and reconfigure the northbound Harrison Street approach as a shared left-through lane (to westbound 20th Street and Kaiser Center Access Road) and two exclusive right-turn lanes (one lane to northbound Harrison Street, the other to northbound Harrison Street and eastbound 20th Street / Lakeside Drive). This would require curb setback of about 10 feet and a corresponding reduction in park space and removal of up to five on-street parking spaces along the west side of Snow Park.

   In addition, the left turns from the Kaiser Center Access Road to eastbound 20th Street / Lakeside Drive would need to be prohibited in order to allow the northbound movement along Harrison Street to run concurrently with the Access Road phase.

2. Implement Mitigation Measure TRANS-13e.

3. Consider implementation of Recommendation TRANS 6:

   Installation of a signalized mid-block pedestrian crossing across Harrison Street between 20th Street and 21st Street under the Alternative Measure DD Configuration would require signal coordination with adjacent traffic signals at Harrison Street / 21st Street, Harrison Street / 20th Street / Kaiser Center Access Road, and other signals in the same signal coordination group. Due to the coordination, the pedestrian phase could be timed to coincide with periods of low arriving traffic flow from upstream intersections such that no additional intersection delay would be created. Instead, the signalized mid-block crossing would potentially improve operations along this corridor by "metering" traffic entering the ultimate bottleneck intersections at Harrison Street / Grand Avenue and Harrison Street / 20th Street / Kaiser Center Access Road. As a result, the crossing itself would not result in secondary impacts to other modes.

To implement these measures, the Project Applicant shall submit to City of Oakland's Transportation Services Division for review and approval a PS&E to modify the intersection. All elements shall be designed to City standards in effect at the time of construction, and all new or upgraded signals should include these enhancements. All other facilities supporting vehicle travel and alternative modes through the intersection should be

brought up to both City standards and ADA standards (according to Federal and State Access Board guidelines) at the time of construction.

The Project Applicant shall fund, prepare, and install the approved plans and improvements.

Significance after Implementation of Mitigation: If additional mitigation measures for the Project are determined feasible by the City, then the impact at this location would be Less than Significant. Otherwise, as described above, the Project impacts at this location would be Significant and Unavoidable.

After implementation of the proposed mitigation measure, the intersection would still operate at LOS D in the PM peak hour under Cumulative (2030) plus Project (Phase I) Conditions (Alternative Measure DD), which is a Less than Significant impact. However, measures that reduce the land area of Snow Park or eliminate parking spaces in this block may not be acceptable to the City, as they also result in secondary impacts on pedestrians. Therefore, signal optimization may be the only other feasible mitigation measure; however, this does not completely mitigate the Project's impacts.

If additional mitigation measures for the Project are determined feasible by the City, then the impact at this location would be Less than Significant. Otherwise, as described above, the Project (Phase I) impacts at this location would be Significant and Unavoidable.

Microsimulation Analysis

A microsimulation analysis was conducted to better determine the operational performance of the Alternative Measure DD Configuration. Selected measures of effectiveness (MOEs) were then compared against the original Measure DD Configuration.

As shown in **Table 15**, which summarizes the movement delay for the original Measure DD Configuration and Alternative Measure DD Configuration, the northbound Harrison Street, eastbound 20th Street, and southbound Kaiser Center Access Road approaches to the intersection of Harrison Street / 20th Street / Kaiser Center Access Road would perform poorly (LOS F) under either configuration.

TABLE 15
CUMULATIVE (2030) PLUS SOUTH TOWER MICROSIMULATED MOVEMENT DELAY

			Cumulative (2030) plus South Tower Conditions (Original Measure DD)				Cumulative (2030) plus South Tower Conditions (Alternative Measure DD)			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
No.	**Intersection**	**Mvmt.**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
24	Harrison St. / 20th St. / Kaiser Ctr. Access Road	EBL	D	35.2	C	28.0	**F**	**>120.0**	E	80.0
		EBT	C	22.8	**F**	**>120**	D	35.4	E	117.0
	EB: EB 20th St.	EBR	B	10.3	**F**	**>120**	B	14.1	C	20.8
	WB: SWB Harrison St.	EBR2	E	58.2	D	35.1	B	19.5	B	16.2
	NB: NB Harrison St.	WBL2	B	19.9	A	8.6	D	41.1	E	92.9
	NW: WB 20th St.	WBL	A	5.0	A	2.9	D	42.7	C	22.5
	SB: Kaiser Center Access Road	WBT	C	26.5	**F**	**>120**	E	85.3	D	43.0
		WBR	C	27.9	**F**	**>120**	E	66.1	C	27.2
		NBL	A	8.6	**F**	**>120**	**F**	**>120.0**	**F**	**>120**
		NBT	C	33.4	D	52.0	E	106.2	**F**	**>120**
		NBR	A	9.0	C	23.8	**F**	**>120.0**	**F**	**>120**
		NBR2	C	22.1	**F**	**>120**	**F**	**>120.0**	**F**	**>120**
		NWL	D	35.2	C	28.0	E	77.7	**F**	**>120**
		NWT	C	22.8	**F**	**>120**	E	79.2	**F**	**>120**
		NWR	B	10.3	**F**	**>120**	A	9.7	B	15.6
		SBL	E	58.2	D	35.1	E	63.9	**F**	**>120**
		SBT	B	19.9	A	8.6	E	71.5	**F**	**>120**
		SBR	A	5.0	A	2.9	B	14.3	**F**	**>120**
		All	C	26.5	**F**	**>120**	E	55.1	**F**	**>120**
26	Harrison Street / Lakeside Drive[a]	EBT	B	15.4	D	37.9	--	--	--	--
		EBR	B	10.7	D	35.7	--	--	--	--
	EB: NB Harrison St.	WBL	**F**	**>120**	**F**	**>120**	--	--	--	--
	WB: SB Harrison St.	WBT	**F**	**>120**	E	83.3	--	--	--	--
	NB: NB Lakeside Dr.	NBL	C	29.8	C	23.7	--	--	--	--
		NBR	B	12.4	A	9.8	--	--	--	--
		All	**F**	**>120**	E	59.1	--	--	--	--

Bold indicates movements operating at LOS F.

[a] Intersection only present in Original Measure DD. SOURCE: AECOM 2010.

Queuing Conditions

As shown in **Table 16** , which summarize the 95th percentile queues by lane for the original Measure DD Configuration and Alternative Measure DD Configuration, queues on the northbound Harrison Street approach at Harrison Street / 20th Street / Kaiser Center Access Road exceed available storage capacity in the PM peak hour for all Cumulative scenarios, regardless of configuration. Under the original Measure DD Configuration, queues on the eastbound Harrison Street approach at Harrison Street / Lakeside Drive exceed or approach the available storage capacity. The lack of storage between the two key intersections in the original Measure DD Configuration causes spillback queuing along northbound Harrison Street and eastbound

TABLE 16
CUMULATIVE (2030) PLUS SOUTH TOWER MICROSIMULATED 95TH PERCENTILE QUEUES

		Cumulative (2030) plus South Tower Conditions (Original Measure DD)				Cumulative (2030) plus South Tower Conditions (Alternative Measure DD)			
No.	**Intersection**	**Move-ment**	**Storage**	**AM Peak Hour**	**PM Peak Hour**	**Move-ment**	**Storage**	**AM Peak Hour**	**PM Peak Hour**
24	Harrison St. / 20th St. / Kaiser Ctr. Access Road *EB: EB 20th St.* *WB: SWB Harrison St.* *NB: NB Harrison St.* *NW: WB 20th St.* *SB: Kaiser Center Access Road*	EBL	100	75	25	EBL	100	**150**	50
		EBT	375	50	150	EBT	375	275	375
		EBT	375	50	375	EBT	375	125	375
		EBTR	375	100	**575**	EBR	375	150	200
		WBL	200	100	100	WBL	600	275	250
		WBT	200	125	100	WBL	600	275	250
		WBT	200	125	100	WBL	600	350	175
		WBR	125	75	75	WBTR	200	**275**	**225**
		NBLTR	575	175	**>1,000**	NBLTR	575	575	**>1,000**
		NBR	575	100	**>1,000**	NBR	575	575	**>1,000**
		--	--	--	--	NWLR	800	275	525
		--	--	--	--	NWR	475	175	400
		--	--	--	--	NWR	475	200	325
		SBT	150	50	**225**	SBLT	150	75	**250**
		SBR	50	50	**100**	SBR	50	50	**100**
26	Harrison Street / Lakeside Drive[a] *EB: NB Harrison St.* *WB: SWB Harrison St.* *NB: NB Lakeside Dr.*	EBT	150	100	**150**	--	--	--	--
		EBT	150	125	**175**	--	--	--	--
		EBTR	150	125	150	--	--	--	--
		WBL	250	200	**450**	--	--	--	--
		WBL	250	**500**	**450**	--	--	--	--
		WBT	250	**450**	**350**	--	--	--	--
		WBT	250	**250**	75	--	--	--	--
		WBT	250	150	75	--	--	--	--
		NBL	450	75	75	--	--	--	--
		NBLR	450	250	175	--	--	--	--
		NBR	800	200	150	--	--	--	--

Bold indicates movements operating at LOS F.

[a] Intersection only present in Original Measure DD.

All storage capacities and queue lengths rounded to the nearest 25 feet

SOURCE: AECOM, 2010.

20th Street, hampering throughput on the northbound Harrison Street and eastbound 20th Street approaches at Harrison Street / 20th Street / Kaiser Center Access Road. These queues then stretch back to upstream intersections, affecting Harrison Street / 19th Street and Webster Street / 20th Street. Likewise, queues on the westbound Harrison Street approach to Harrison Street / Lakeside Drive also exceed the available storage capacity, causing spillback into the upstream intersection at Harrison Street / 21st Street.

Conclusions

The following is a summary of the 12 CEQA related mitigation measures that are expected due to the build-out of the South Tower under Existing Conditions (requiring measures at four intersections) and Cumulative (2030) Conditions (requiring measures at five intersections and three roadways). After implementation of these proposed measures, the South Tower impacts under Existing Conditions would be significant and unavoidable at two of the intersections and less than significant at the other two intersections. Under Cumulative Conditions, the implementation of the measures would result in the South Tower impacts being significant and unavoidable at one intersection; less than significant at the four other intersections and all three roadway segments.

Existing plus South Tower Conditions

1) Implement Intersection Mitigation Measure TRANS-12a at the **Oakland Avenue / Perry Place / I-580 Eastbound Ramps** intersection. However, even after implementation of the proposed measure, the South Tower impacts at this intersection would be significant and unavoidable.

2) Implement Intersection Mitigation Measure TRANS-12b at the **Harrison Street / 27th Street-Bay Place / 24th Street** intersection. However, even after implementation of the proposed measure, the South Tower impacts at this intersection would be significant and unavoidable.

3) Implement Intersection Mitigation Measure TRANS-12c at the **Grand Avenue / El Embarcadero** intersection and the South Tower impacts on this intersection are expected to be less than significant.

4) Implement Intersection Mitigation Measure TRANS-12d at the **Grand Avenue / MacArthur Boulevard** intersection and the South Tower impacts on this intersection are expected to be less than significant.

Cumulative (2030) plus South Tower Conditions

1) Intersection Mitigation Measure TRANS-13a: Implement Mitigation Measure TRANS-12a. This measure alone should be sufficient to completely mitigate the South Tower impacts at **Oakland Avenue / Perry Place / I-580 Eastbound Ramps**. Therefore, the South Tower impacts are less than significant.

2) Intersection Mitigation Measure TRANS-13b: Implement Mitigation Measure TRANS-12b at **Harrison Street / 27th Street-Bay Place / 24th Street**, and also prohibit westbound left turns from Bay Place during the AM peak hour (in addition to the PM peak hour). After implementation of the mitigation measure, the intersection would operate at an acceptable LOS D in both the AM and PM peak hours, mitigating the South Tower impacts at this intersection. Therefore, the South Tower impacts on this intersection are less than significant.

3) Intersection Mitigation Measure TRANS-13c: Implement Mitigation Measure TRANS-5d at **Telegraph Avenue / 27th Street**. After implementation of the mitigation measure, the intersection would operate at an unacceptable LOS E in the PM peak hour, but the average

delay for the overall intersection and for critical movements would be reduced to less than Cumulative (2030) without Project conditions, mitigating the South Tower's impacts at this intersection. Therefore, the South Tower impacts on this intersection are less than significant.

4) Intersection Mitigation Measure TRANS-13d: Implement Mitigation Measure TRANS-3c at **Harrison Street / Grand Avenue**, and also prohibit southbound Harrison Street left turns in the AM peak period (this movement is already prohibited in the PM peak period). To help enforce the prohibition, extinguishable message signs should be installed on the northbound and southbound approaches. These measures alone would not be sufficient to completely mitigate the South Tower impacts at this intersection, but as discussed for Impact TRANS-3c, there are no feasible mitigation measures to completely mitigate the South Tower impacts. Therefore, the South Tower impacts at this intersection are significant and unavoidable.

5) Intersection Mitigation Measure TRANS-13e: Implement Mitigation Measure TRANS-1c at **Harrison Street / 20th Street / Kaiser Center Access Road**:

- Optimize the traffic signal for the PM peak period.
- Coordinate the signal timing at this intersection with the adjacent intersections.

To implement this measure, the Project Applicant shall submit to TSD for review and approval PS&E to upgrade the intersection to both City standards and ADA standards at the time of construction. The Applicant shall also fund, prepare, and install the approved plans and improvements, which would make the South Tower impacts on this intersection less than significant.

6) Roadway Mitigation Measure TRANS-14a: There are no feasible measures to mitigate the South Tower impact on **I-880 from Oak Street to 5th Avenue**, given the existing alignment and constraints due to lack of right-of-way. Therefore, the South Tower impacts on this roadway segment are significant and unavoidable.

7) Roadway Mitigation Measure TRANS-14b: Implement Mitigation Measure TRANS-2a on **Eastbound Grand Avenue from Harrison Street to El Embarcadero**. After implementation of this measure, conditions would remain at an unacceptable LOS, and the South Tower impact would not be mitigated. Therefore, the South Tower impacts on this roadway segment are significant and unavoidable.

8) Roadway Mitigation Measure TRANS-14c: To completely mitigate the South Tower's impacts would require substantial capacity improvements such as an additional travel lane on **Northbound Harrison Street / Oakland Avenue from 27th Street to I-580**. Since there are no feasible measures to add such capacity, and the South Tower impacts on this roadway segment are significant and unavoidable.

APPENDIX I

Preliminary Greenhouse Gas Emissions Reduction Plan

GHG EMISSIONS INVENTORY AND REDUCTION ANALYSIS AND DATA

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Preliminary Greenhouse Gas Emissions Reduction Plan

date August 20, 2010

to Eric Angstadt, Deputy Director, Oakland Community and Economic Development Agency

from Joan Douglas, AICP, Project Manager
Crescentia Brown, AICP, Project Director

subject Kaiser Center Office Project – Preliminary GHG Emissions Reduction Plan

This preliminary Greenhouse Gas (GHG) Emissions Reduction Plan (or "GHG Plan") presents GHG emissions inventory estimates and identifies potential GHG emissions reduction measures available for the Kaiser Center Office Project ("Project" or "Proposed Project"). Emission inventories for two Project Alternatives are also presented. This GHG Plan is organized as follows:

Part A: GHG Emissions Inventory and Impacts

a) Identifies and discusses the emission sources that are included in the inventory, as well as other sources that are not included.

b) Identifies and discusses Project design features, applicable City Standard Conditions of Approval, regulatory requirements, and General Plan policies and programs that would reduce GHG emissions from the Project.

c) Estimates the Project's "unadjusted" ("business as usual") GHG emissions inventory in carbon dioxide equivalents (CO_2e) for construction and operations, generally excluding the emissions reductions resulting from the considerations in "b," above.

d) Estimates the Project's and the Alternatives' "adjusted" baseline GHG emissions, which incorporate the emissions reductions resulting from the considerations in "b,", against the CEQA thresholds of significance for GHGs.

Part B: Additional GHG Reduction Measures that May be Considered

e) Describes a comprehensive set of additional GHG reduction measures that may be implemented by the Project to further reduce GHG emission beyond "adjusted" emissions described in "c" above.

This GHG Plan is considered "preliminary" because it is anticipated that the Project Applicant will continue to develop this GHG Plan to further refine the list of additional GHG reduction measures (including preparation and implementation of an approved Transportation Demand Management [TDM] Plan), whereupon it shall fully satisfy Mitigation Measure AIR-3 and SCA GHG-1 identified in the EIR. The Final GHG Plan will be a document to be updated, refined and implemented throughout the Project.

The information and analysis presented herein has been prepared by Chris Sanchez, ESA Senior Technical Associate, Air Quality/GHG; and Jeff Caton, P.E., LEED AP, Director, ESA Renewable Resources.

Part A: GHG Emissions Inventory and Impacts

1.0 Background and CEQA Context

The analysis presented herein is prepared consistent with both statewide and local guidance on the estimation and evaluation of GHG emissions relative to CEQA. These specifically include amendments adopted on March 18, 2010 to the *CEQA Guidelines* regarding GHG emissions. No significance threshold is included in the amendments; the *CEQA Guidelines* afford the customary deference provided to lead agencies in their analysis and methodologies. The Governor's Office of Planning and Research (OPR) emphasizes the need for a consistent threshold to analyze projects, specifies that the analyses should be performed based on the best available information, and that if a lead agency determines that a project may generate GHGs, the agency is responsible for quantifying estimated GHG emissions by type and source. The analysis in this GHG Plan is consistent with this guidance.

Local guidance includes the Air Quality CEQA Thresholds of Significance from the Bay Area Air Quality Management District (BAAQMD), adopted June, 2, 2010. These thresholds represent the only quantitative thresholds formally proposed by a regulatory agency with jurisdiction over the Project. In its June 2010 *CEQA Air Quality Guidelines*, BAAQMD is specific as to what sources of emissions should be considered relative to proposed CEQA GHG thresholds[1] (Table 4-2: Guidance for estimating a Project's Operations GHG Emissions, page 4-6) and also provides the BAAQMD Bay Area Greenhouse Gas Emissions Model (BGM) to estimate GHG emissions from land development of projects. As such, the Project's baseline GHG emissions inventory presented in this GHG Plan provides emissions data for the sources identified by BAAQMD in its updated Guidelines and applies the adopted significance thresholds. .

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[1] Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, Table 4-3: GHG Quantification Guidance Standard, page 4-6. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/Draft%20BAAQMD%20CEQA%20Guidelines_Dec%207%202009.ashx

2.0 GHG Emission Sources

2.1 GHG Emission Sources Included in the Inventory

Emissions included in the updated BAAQMD Guidelines and therefore included in the baseline GHG emissions inventory for the Project, if applicable, are:

- Area Source Emissions. These are direct emissions from sources that include natural gas combustion for heating, cooking, fireplaces, or boilers, as well as emissions from landscape maintenance equipment.

- Transportation Emissions. These are direct emissions from mobile sources including automobiles, trucks, motorcycles, and busses.

- Operational Electricity Consumption. These are indirect emissions emitted off-site via non-renewable, non-nuclear electricity generators as a result of increased electrical demand.

- Solid Waste Disposal Emissions. These are indirect emissions associated with waste generation. The non-residential uses at the development would generate waste. A large percentage of this waste would be diverted from landfills by waste reduction, recycling, and composting. Oakland currently diverts a large portion of its waste and has goals to even further reduce the amount of waste sent to a landfill. The remainder of the waste not diverted would be disposed of at a landfill. Landfills emit anthropogenic methane from the anaerobic breakdown of material.

- Operational Fugitive (Direct) Emissions. These direct emissions are most commonly associated with a inadvertent emissions to the atmosphere due to leakage or inherent imperfections in a gas transport or collection system. Direct fugitive GHG emissions that may reasonably be expected to be generated by a commercial building like the Project would consist of GHG refrigerants emitted from leaks or other imperfections in refrigeration or air cooling equipment.

- Operational Water Emissions (embedded energy). These indirect emissions are associated with the electricity used to convey water, due to increased water demand from the Project.

- Operational Wastewater (non-biogenic). The updated Guidelines define indirect emissions from wastewater treatment as including the GHG emissions associated with the electricity use in wastewater treatment and not the biogenic CO_2 process emissions[2].

2.2 GHG Emission Sources Not Included in the Inventory

Emissions not included in the BAAQMD Guidelines, and therefore not included in the baseline GHG emissions inventory for the Project, are discussed below. These emissions may be considered in addition to those incorporated into the Project's baseline GHG emissions inventory discussed below in Sections 6.0 through 9.0.

[2] Bay Area Air Quality Management District, *California Environmental Quality Act Air Quality Guidelines*, page 4-7. http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/Draft%20BAAQMD%20CEQA%20Guidelines_Dec%207%202009.ashx

- Permitted Stationary Source Equipment. Per BAAQMD, GHG emissions from permitted stationary source equipment are not to be assessed as part of the operational emissions of a land development project, but are instead to be directly compared to BAAQMD's 10,000 metric ton per year threshold for such equipment for the purposes of impact assessment relative to CEQA. GHG emissions from permitted stationary source equipment are not to be included in the project inventory that is used for comparison to either the BAAQMD's proposed threshold of 1,100 metric tons (MT) of CO_2e per day or the efficiency-based threshold of 4.6 MT per year per service population (Tholen, 2010b). The GHG analysis for the Project does not include any permitted stationary source equipment.

- Vegetation Sequestration Change. This is the net change in CO_2 emissions resulting from vegetation change and its associated carbon sequestration. Given the urban location of the Proposed Project, a significant change in sequestration of CO_2 from vegetative sources is not expected.

- Fugitive Refrigeration Emissions. Refrigerant gases such as CFCs, HFCs, and HCFCs have a high global warming potential. Leaks of refrigeration gases were not quantified for the Project. At the entitlement stage of development, data necessary to estimate emissions (the pounds of charge of refrigerant for all air handling units) is not readily available.

- Life Cycle Emissions. Although there is no regulatory definition for "lifecycle emissions," the term is generally used to refer to all emissions associated with the creation and existence of a project, including emissions from the manufacture and transportation of component materials, and even emissions from the manufacture of the machines required to produce those materials. However, since it is impossible to accurately estimate the entire chain of emissions associated with any given project, lifecycle analyses are limited in effectiveness and meaning (relative to assessing or reducing Project-specific emissions for the CEQA analysis). The California Natural Resources Agency (CNRA) has stated that lifecycle analyses are not required under CEQA,[3] and in December 2009 CNRA issued new energy conservation guidelines for EIR's that make no reference to lifecycle emissions.[4] The CNRA's explained that: (1) There exists no standard regulatory definition for lifecycle emissions, and (2) Even if a standard definition for 'lifecycle' existed, the term might be interpreted to refer to emissions "beyond those that could be considered 'indirect effects'" as defined by CEQA Guidelines, and therefore beyond what project managers are required to estimate and mitigate.[5]

- Agricultural Emissions. These are emissions from livestock, from fuel combustion associated with agricultural equipment operation, electricity use and fertilizer application. These sources were assumed not to be generated by the Proposed Project.

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3 California Natural Resources Agency, 2009. *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97*, p. 71-72. http://ceres.ca.gov/ceqa/docs/Final_Statement_of_Reasons.pdf (accessed February 4, 2010).

4 State CEQA Guidelines, Appendix F. These new guidelines were part of amendments issued pursuant to SB97.

5 California Natural Resources Agency, 2009. *Final Statement of Reasons for Regulatory Action: Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97*, p. 71. http://ceres.ca.gov/ceqa/docs/Final_Statement_of_Reasons.pdf (accessed February 4, 2010).

- Off Road Equipment Emissions. These are emissions from off-road equipment typically associated with equipment typically associated with industrial or large commercial land uses such as fork lifts, yard dogs and generators. These sources were assumed not to be generated by the proposed office tower project.

3.0 Project Design Features, City Standard Conditions of Approval, Regulatory Requirements, and General Plan Policies and Local Programs that Reduce GHG Emissions

There are many ways for a project to reduce its GHG emissions through its design, construction and operations. Local conditions of approval, policies, programs and regulatory requirements that apply to a project also combine to reduce project GHG emissions. Each of these components is considered part of the Proposed Project and is included in the estimate of the Project's baseline GHG emissions inventory as follows:

3.1 Project Design Features

- CALGreen – Energy Performance Standard. One of the objectives of the Project (presented in Chapter 3, Project Description) is to meet contemporary energy and design objectives by ensuring that the new towers meet mandatory CALGreenperformance standard under CALGreen and provide the opportunity for the Project, as part of this GHG Plan, to exceed such standards where feasible. CALGreen is a newly enacted building code requirement pursuant to Title 24 of the CCR, which is effective January 2011 and will apply to construction of the Proposed Project. CALGreen will require that every new building constructed in California reduce water consumption by 20 percent, divert 50 percent of construction waste from landfills and install low pollutant-emitting materials. It also requires separate water meters for nonresidential buildings' indoor and outdoor water use, with a requirement for moisture-sensing irrigation systems for larger landscape projects and mandatory inspections of energy systems (e.g., heat furnace, air conditioner and mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity and according to their design efficiencies. The effects of these energy and water saving features are incorporated into the baseline emission inventory for the Proposed Project.

3.2 City Standard Conditions of Approval

City Standard Conditions of Approval (also referred to as "SCAs") are incorporated and required as part of a Proposed Project and are adopted as conditions of approval and required of the project to help ensure less than significant impacts.

The following SCAs are required as part of a Proposed Project and adopted as conditions of approval to help reduce GHG emissions of the Project:

- SCA TRANS-1 – Parking and Transportation Demand Management Plan. SCA TRANS-1 requires the Project applicant to submit for review and approval by the City of Oakland Planning and Zoning Division a Transportation Demand Management (TDM) Plan containing strategies to reduce on-site parking demand and single occupancy vehicle (SOV) travel. Although a TDM Plan for the Project has not yet been prepared, generally, TDM could reduce SOV trips for a large office project near located near transit by about 10 to 20 percent. Calculations of GHG reductions attributable to the TDM Plan preliminarily (and conservatively) assume a 10 percent reduction in Project trip generation. This GHG Plan provides emissions estimates for the project both with and without the preliminary 10 percent projected TDM trip reduction. Once the TDM Plan is completed and approved (prior to certification of the EIR), the appropriate refinement to the Project trip generation and resulting GHG emissions will be calculated and reported in the EIR prior to certification.

- SCA UTIL-1 – Waste Reduction and Recycling. SCA UTIL-1 requires the Project applicant to submit a Construction & Demolition Waste Reduction and Recycling Plan (WRRP) and an Operational Diversion Plan (ODP) for review and approval by the Oakland Public Works Agency. Chapter 15.34 of the Oakland Municipal Code outlines requirements for reducing waste and optimizing construction and demolition (C&D) recycling. Affected projects include all new construction and all demolition. This SCA essentially addresses reduction in construction–related emissions, which the City combines with the Project's operational emissions to assess against the significance thresholds for operational emissions, even though construction emissions are not a component of BAAQMD's Guidelines. Therefore, this SCA will contribute to reducing total emissions of the Project.

- Landscape Requirements and Tree Replacement. SCAs address landscape requirements for frontages of commercial buildings and replacement of trees removed as part of a project. Projects are required to install one tree for every 25 feet of street frontage in cases sidewalks have adequate width. Additionally SCAs generally require the replacement of native trees removed as part of a project. Together, these SCAs that maintain and increase landscaping and trees effect cooler climate, reduce excessive solar gain, and absorb CO2e emissions over the minimum 3.5 years to construct Phase 2 of the Project, but have no impact on the emissions inventory of the Proposed Project.

- SCA GHG-1- GHG Reduction Plan. SCA GHG-1 applies to certain projects that produce total GHG emissions that exceed the BAAQMD CEQA Thresholds, including commercial office buildings employing 1,000 persons or containing more than 250,000 square feet of total floor area, such as the Proposed Project. SCA GHG-1 requires the Project applicant to prepare a GHG Reduction Plan to increase energy efficiency and reduce GHG emissions to the greatest extent feasible below the BAAQMD CEQA Thresholds. The GHG Reduction Plan will include a comprehensive set of quantified GHG emissions reduction measures in addition to energy efficiencies included as part of the project (including the City's Standard Conditions of Approval, proposed mitigation measures, project design features, and other City requirements. SCA GHG-1 is presented in the detailed Project GHG emissions impact analysis further below and will reduce the GHG emissions of the Project.

3.3 General Plan Policies and City Programs

- Oakland General Plan LUTE. The LUTE is aimed at promoting use of public transit, bicycles and pedestrian travel. Any reduction of transportation-related GHG emissions are captured in the trip reduction associated with the TDM Plan.

- Oakland General Plan Open Space, Conservation and Recreation (OSCAR) Element. The OSCAR contains policies that (a) encourage the provision of open space, which increases vegetation area (trees, grass, landscaping, etc.) to effect cooler climate, reduce excessive solar gain, and absorb CO_2; (b) encourage stormwater management, which relates to the maintenance of floodplains and infrastructure to accommodate potential increased storms and flooding; and (c) encourage energy efficiency and use of alternative energy sources. Policies that address vegetation area have no impact on the emissions inventory as vegetative sequestration is not a component of BAAQMD's Guidelines Other policies regarding energy efficiency encourage and support energy efficiency but are not requirements under any implementation mechanism via the General Plan. They have resulted, however, in the implementation of the City of Oakland sustainability program discussed below.

- City of Oakland Sustainability Programs. The City has proactively adopted a number of sustainability programs in an effort to reduce the City's impact on climate change. Oakland's sustainability efforts are managed by the Oakland Sustainability Community Development Initiative and there are two main categories that relate to reducing GHG emissions from a development project: renewable energy and green building.

  Renewable Energy. With regard to renewable energy, the City's Sustainability Program has set a priority of promoting renewable energy with a particular emphasis on solar generation. The Program's aggressive renewable energy goals include the following: 50 percent of city facilities entire electricity use from renewable sources by 2017; and 100 percent of the city's entire electricity use from renewable sources by 2030. The City has some control over renewable energy percentages for buildings it operates by contracting its energy needs directly with the local utility. However, private building operators generally receive a standard energy mix from PG&E, and would not be required to contract for a higher percentage of renewables under this program as it only targets City facilities. PG&E does have a 20 percent renewable energy mix goal for 2020 (compared to a 12 percent mix in 2007).

  Green Building. With regard to green building strategies, the City of Oakland has implemented green building principles in City buildings through the following programs: Civic Green Building Ordinance (Ordinance No. 12658 C.M.S., 2005), requiring, for certain large civic projects, techniques that minimize the environmental and health impacts of the built environment through energy, water and material efficiencies and improved indoor air quality, while also reducing the waste associated with construction, maintenance and remodeling over the life of the building; Green Building Guidelines (Resolution No. 79871, 2006) which provides guidelines to Alameda County residents and developers regarding construction and remodeling; and Green Building Education Incentives for private developers. Green building requirements for private developers are anticipated for adoption in the fall of 2010, however, the baseline emissions inventory for the

Proposed Project assumes implementation of mandatory CALGreen standards as a Project design feature, as discussed above.

3.4 Regulatory Requirements

- *AB 1493 and Amended "Pavley" Regulations*. AB 1493 required the California Air Resources Board (CARB) to develop and adopt, by January 1, 2005, regulations that achieve "the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty trucks and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the State. The CARB has adopted amendments to the Pavley regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016. The amendments, approved by CARB on September 24, 2009, are part of California's commitment toward a nation-wide program to reduce new passenger vehicle GHGs from 2012 through 2016. The model used to estimate the Proposed Project's GHG emissions for this analysis accounts for reductions of GHG resulting from implementation of Pavley standards.

- *Low Carbon Fuel Standards (LCFS).* On April 23, 2009 CARB approved the regulation to implement the LCFS. The LCFS will reduce GHG emissions from the transportation sector in California by about 16 million metric tons (MMT) in 2020. The model used to estimate the Proposed Project's GHG emissions for this analysis accounts for reductions of GHG resulting from implementation of LCFS.

Other Project characteristics that reduce GHG emissions and support the Project's alignment with AB 32 GHG reduction goals include proposed pedestrian improvements. The Project final design is anticipated to include extensive streetscape improvements, including new and increased sidewalk, curb, and gutter; right-of-way landscaping; streetlights; street furniture; wayfinding signage; and/or art. These features, as outlined in the City's Pedestrian Master Plan adopted in November 2002, are identified as design amenities that develop a pedestrian-oriented environment that facilitate walking and transit use. These features would help reduce transportation-related GHG emissions by encouraging additional pedestrian trips. Also, the Project's combination of office and commercial/retail uses has the potential to reduce greenhouse gas emissions related to transportation for both the employees and the patrons of each of these uses. Multiple amenities and services an employee or patron might use would be located in this single development, which would reduce vehicle-miles-traveled.

4.0 Baseline GHG Emissions Inventory

4.1 Construction-Related GHGs

Assumptions

Estimated Total and Annualized Construction-generated GHG Emissions

The construction-generated GHG emissions of the Project are shown in **Table 1**, which summarizes the emissions estimates from the principal GHGs (CO_2, CH_4 and N_2O) in metric tons of CO_2e, by construction

year and Project phase. An estimated total 2,081 MT CO_2e emissions from Project construction equipment and vehicles would be emitted over the minimum 3.5 years to construct Phase 1 of the Project, and an estimated total 2,461 MT CO_2e emissions over the minimum 3.5 years to construct Phase 2 of the Project, for a total of approximately 4,542 MT CO_2e emissions over the minimum total construction period of seven years through Buildout. Approximately 46 percent of the total construction GHG emissions is associated with Phase 1 construction, with approximately 54 percent associated with Phase 2 construction.

TABLE 1
CONSTRUCTION-GENERATED GHG EMISSIONS OF THE PROPOSED PROJECT

	Annual CO_2e Emissions (metric tons per year)			
Construction Year	**CO_2**	**CH_4**	**N_2O**	**Total CO_2e**
Phase 1				
2012	244	0.29	1.94	246
2013	733	0.88	5.82	740
2014	750	0.90	5.96	757
2015 (Phase 1)	335	0.40	2.66	338
Total Phase 1				**2,081**
Phase Construction Emissions per Year (annualized over 40 years)				52
Phase 2				
2015 (Phase 2)	112	0.13	0.89	113
2016	953	1.14	7.57	962
2017	948	1.14	7.53	957
2018	426	0.51	3.39	430
Total Phase 2				**2,461**
Total Construction Emissions – Project Buildout				**4,542**
Total Construction Emissions per Year (annualized over 40 years)				**114**
Total Construction Emissions per Year (annualized over approximately 7 years to construct the Project)				649

SOURCE: ESA, 2010

Construction emissions are annualized because the proposed operational GHG emissions thresholds are analyzed in terms of metric tons "per year." Assuming a 40-year development life of the Project until it is demolished or remodeled for energy efficiency (which is the common standard currently used in practice), total construction emissions represent approximately 114 MT CO_2e annually, over 40 years. Annualized over the 3.5-year construction period for Phase 1, the one-time construction–related contribution to GHG emissions is approximately 52 MT CO_2e per year, and over the seven-year construction period of the Project Buildout the one-time construction-related contribution is approximately 649 MT CO_2e per year.

The BAAQMD Guidelines do not include a specific threshold or methodology for assessing construction-related GHG emissions for CEQA analysis. The City's methodology adds the 40-year annualized construction-related GHG emissions to the Project's total operational-related emissions, to assess construction-related GHG emissions against the BAAQMD thresholds and Project's ability to meet AB 32 GHG reduction goals, as discussed below.

The Project includes characteristics that specifically contribute it being consistent with AB 32 GHG reduction goals during construction. The analysis of construction emissions only considers improvements in construction equipment exhaust emissions through manufacturer requirements and turnover. In addition to considering the CO_2e emission from construction activities, the Project would incorporate dust control measures recommended by BAAQMD (Oakland SCA AIR-1, Construction-Related Air Pollution Controls (Dust and Equipment Emissions [Dust Control]), and measures related to construction exhaust emissions (Oakland SCA AIR-2, Construction Emissions). Further, the SCAs that apply to the Project align with BAAQMD regulations that relate to portable equipment (e.g., concrete batch plants, and gasoline- or diesel-powered engines used for power generation, pumps, compressors, pile drivers, and cranes), architectural coatings, and paving materials. Equipment used during project construction would be subject to the requirements of BAAQMD Regulation 2 (Permits), Rule 1 (General Requirements) with respect to portable equipment unless exempt under Rule 2-1-105 (Exemption, Registered Statewide Portable Equipment); BAAQMD Regulation 8 (Organic Compounds), Rule 3 (Architectural Coatings); and BAAQMD Regulation 8 (Organic Compounds), Rule 15 (Emulsified and Liquid Asphalts).

In summary, the annualized GHG emissions from construction of the Project would not conflict with the goals of AB 32.

4.2 Construction and Long-Term Operational GHGs

As introduced above, long-term operational GHG emissions associated with the Project include indirect emissions from mobile sources (motor vehicle trips), emissions from natural gas combustion used in non-residential buildings, emissions from electricity use in non-residential buildings (grid electricity), emissions from water conveyance and waste water treatment and conveyance, and emissions from area sources. Emissions from each of these sources, in addition to the construction-related emissions discussed above, are reported in **Tables 2** and **3**, below.

Unadjusted Operational GHG Emissions

"Unadjusted Operational GHG Emissions" of the Project do not factor in the Project's design features, applicable City SCAs (including TDM), and regulatory requirements that are considered part of the Project and that reduced the Project's GHG emissions; it is essentially a "business as usual" approach. Unadjusted emissions do, however, assume the same Project assumptions and inputs used to estimate the Project's baseline emissions, below. The unadjusted emissions are considered to demonstrate the emissions reductions that are attributable to measures incorporated as part of the Project. As shown in **Table 2**, the total unadjusted annual GHG emissions generated by the Project is approximately 8,197 MT CO_2e per year at Phase 1 and 15,772 MT CO_2e per year at Project Buildout.

TABLE 2

UNADJUSTED OPERATIONAL GHG EMISSIONS INVENTORY FROM THE PROPOSED PROJECT

	Total Annual CO_2e Emissions (metric tons per year)	
	Phase 1 Total CO_2e	**Project Buildout [a] Total CO_2e**
Emission Source		
Motor vehicle trips (no TDM)	4,570	9,143
Natural gas	734	1,749
Grid Electricity	2,538	3,966
Water Conveyance	11	20
Wastewater Treatment & Conveyance	12	22
Solid Waste	280	758
Area Source (landscape maintenance)	0.24	0.24
Total Unadjusted Operational Project GHG Emissions without Construction Emissions	**8,145**	**15,658**
Construction Emissions per Year (annualized over 40 years) (see Table IV.B-9)	**52**	**114**
Total Unadjusted Operational Project GHG Emissions with Construction Emissions	**8,197**	**15,772**
Total Unadjusted Operational Project GHG Emissions by Service Population	**5.7[b]**	**4.8[b]**

[a] Project Buildout includes Phase 1 (South Tower) and Phase 2 (North Tower) and all other Project components
[b] Total emissions divided by service population of 1,423 net new employees for the Project at Phase 1, and 3,233 net new employees for the Project at Buildout.

SOURCE: ESA, 2010

Assumptions and Estimated Baseline Adjusted Operational GHG Emissions, by Source

- Mobile Source (Motor Vehicle) Emissions. The Proposed Project consists of high-density commercial development located within walking distance of public transportation, designed to minimize the use and impacts of private automobiles. The Project mobile source emissions would result from the typical daily operation of motor vehicles by employees, customers and vendors. Vehicle trip generation from the Proposed Project is based on information from the transportation analysis in Table IV.L-9 of the DEIR. The Proposed Project would result in a net increase of 7,966 standard vehicle trips per day over existing conditions without the preliminary 10 percent TDM reduction, and 7,169 standard vehicle trips per day over existing conditions with the assumed preliminary 10 percent TDM trip reduction. Emissions for vehicle trips were calculated using the URBEMIS2007 computer model and the BGM of the BAAQMD. Trip generation rates of the BGM were adjusted to reflect the Project-specific vehicle trip generation presented in the DEIR. The calculation used the model default vehicle trip lengths specific to urban areas of Alameda County in the San Francisco Bay Area Air Basin.

BGM calculates the CO_2, CH_4 and N_2O emissions from motor vehicle trips based on trip generation and trip lengths and other data in the URBEMIS model. BGM uses CH_4 and N_2O emission factors from CCAR and multiplies them by their respective global warming potential (GWP) to convert them to CO_2e. BGM also takes into account emissions reductions that would result from the implementation of Pavley greenhouse gas standards and the LCFS. The resulting total Project mobile source emissions are estimated to be approximately **8,359 MT CO_2e per year** *without the preliminary 10 percent TDM reduction* and **7,515 MT CO_2e per year** *with the preliminary 10 percent TDM reduction***.**

- Project Natural Gas Combustion Emissions. GHG emission estimates from natural gas were calculated using the BGM of BAAQMD. The Project-related natural gas GHG emissions are estimated to be 1,749 MT CO_2e per year. GHG emissions from existing buildings to be demolished represent 371 MT CO_2e per year. The net increase in GHG emissions from natural gas resulting from the Proposed Project are estimated to be **1,632 MT CO_2e per year**.

- Indirect Project Electrical GHG Emissions. Non-residential buildings require electricity for space and water heating, air conditioning, lighting, and plug-in outlets. The amount of energy used (and the amount of associated GHG emissions emitted) per dwelling unit would vary with the type of residential building.

  GHGs are indirectly emitted as a result of electrical service required for a Proposed Project. GHGs are emitted during the generation of electricity from fossil fuels. When electricity is used in a building, a portion of the electricity is typically generated off site at a power plant, while the remaining percentages are generated by renewable resources such as hydroelectric dams. The relative percentages of renewable and non-renewable resources vary from year-to-year based on the magnitude of available water flows at hydroelectric dams and other source variables. Currently, electricity provided by the standard PG&E grid invariably represents indirect emissions of GHGs from the combustion of fossil fuels. PG&E maintains annual records on the percentage of electricity from renewable and non-renewable resources and, using this data, calculates an average annual emission factor (CO_2e emission rate per kilowatt of electricity generated) for its sources.

  BGM was not used to calculate GHG emissions because it uses statewide composite emission factors that cannot be adjusted in the model. Because PG&E would be the electrical provider for the Proposed Project and because PG&E calculates its own emission factors based on its percentage of renewable energy within its portfolio.

  For the Project inventory, all indirect electricity emission factors are drawn from the most recent PG&E's calculation of a 5-year rolling average and have been adjusted to incorporate its fluctuating Renewable Portfolio Standard. The PG&E emission factor is provided in terms of CO_2e and does not separate out the individual contribution of CH_4 and N_2O. While fossil fuel combustion generates CH_4 and N_2O, the emissions of these GHGs typically comprise less than one percent of total CO_2e emissions.

  Project electrical GHG emissions were calculated based on energy demand estimates for commercial buildings contained in the California Energy Commission's latest *California Energy*

Demand Staff Report adopted in December 2009. The Proposed Project will construct the buildings to 2010 CALGreen standards that will become mandatory by 2011. To achieve CALGreen Tier I energy efficiency, buildings must achieve 15 percent beyond Title 24, part 6. For the inventory these standards were applied to the Proposed Project and a 15 percent reduction in energy demand was incorporated into the calculation of GHG emissions from grid electricity. The resulting energy demand was then converted to GHG emissions by using the appropriate emission factors discussed above. To determine the net increase resulting from the Project, the GHG emissions from existing structures to be demolished were subtracted from Project emissions. The resulting net Project-related electrical GHG emissions are estimated to **3,099 MT CO_2e per year**.

- Water and Wastewater Treatment and Conveyance. The Project GHG inventory includes emissions associated with drinking water and wastewater supply and treatment. In general, the majority of these emissions are indirect emissions associated with the energy used to convey, treat, and distribute water and wastewater. Additional emissions from wastewater treatment include CH_4 and N_2O, which are emitted directly from wastewater treatment processes.

  The amount of electricity required to treat and supply water is a function of water use. According to Section 4.M, Utilities and Service Systems, of the DEIR, the Project would generate a net water demand of 119,000 gallons per day (gpd) after accounting for existing uses in the buildings to be demolished. Implementation of the proposed CALGreen standard would reduce water demand by an additional 20 percent (projected).

  Three main processes are required to supply potable water to residential and commercial users: (1) supply and conveyance of the water from the source; (2) treatment of the water to potable standards; and (3) distribution of the water to individual users. Indirect emissions resulting from electricity use were determined by multiplying electricity use by California statewide CO_2, CH_4 and N_2O emission factors from CCAR's General Reporting Protocol. Statewide emission factors are used rather than local PG&E factors to reflect the fact that drinking water from the local water utility (EBMUD) is pumped from a variety of sources including primarily the Mokelumne River watershed in the eastern Sierras and therefore has the potential to be pumped through the jurisdictions of electricity providers other than PG&E.

  Energy use for the various aspects of water treatment (e.g., source water pumping and conveyance, water treatment, distribution to users) was determined using the stated water demand and energy intensity values from the CEC that are also recommended for use by BAAQMD in its latest proposed Air Quality Guidelines.

  Emissions associated with wastewater treatment include indirect emissions associated with powering the treatment process and direct emissions from degradation of organic material in the wastewater, which are biogenic in nature and not considered as part of the Project's GHG inventory. Wastewater discharge from the Proposed Project is estimated in Section 4.M, Utilities and Service Systems, of the EIR, to be 105,500 mgd. Implementation of the proposed CALGreen standard would reduce water demand by an additional 20 percent. In total, all municipal of water and wastewater treatment and conveyance for the Project is expected to produce **39 MT CO_2e**

annually: approximately **15 MT CO_2e per year** attributable to water conveyance and approximately **24 MT CO_2e per year** attributable to wastewater treatment and conveyance.

- Solid Waste. The updated BAAQMD Air Quality Guidelines now specifically identifies emissions from solid waste as an element to be included in a GHG inventory for comparison to their proposed GHG significance thresholds. For solid waste, BGM uses the emission factors compiled by CALrecycle to estimate GHG emissions. For office uses the factor used is one of the highest and is from an unverifiable source in a Ventura County EIR This analysis used the user override function to apply an office land use waste generation use rate of 1.999 pounds per 1,000 square feet per year. This rate is consistent with what was in the EIR and is also from Cal recycle.

  BGM uses a two step process. In the first step, BGM estimates the amount of solid waste that the project will generate based on solid waste generation rates compiled by Calrecycle (formerly the California Integrated Waste Management Board). In the second step, BGM estimates the GHG emissions associated with that solid waste.

  The solid waste GHG emissions include two components: truck hauling emissions and emissions resulting from the decomposition of solid waste. Truck hauling emissions use the vehicle miles traveled (VMT) estimates described in Step 1 and multiply them by EMFAC2007 emission rates for heavy heavy-duty trucks. An EMFAC2007 modeling run was used to estimate CO2 and CH4 emissions in grams per mile for trucks traveling at an average speed of 35 mph. Truck emissions also account for the Low Carbon Fuels Rule For this Project, BGM was adjusted to assume that solid waste was assumed to be disposed of a Altamont Landfill for a round trip distance of 75 miles.

  BGM uses the U.S. EPA WARM Model emission rates for mixed solid waste decomposition. Those rates equal 3.1 metric tons of CO2e per short ton of solid waste that is land filled, assuming no recovery, 0.64 tons CO2e per short ton, assuming land filled waste with flaring, and 0.3 tons CO2e per short ton, assuming land filled waste with energy recovery. For the Project, the scenario with landfill recovery was assumed, as Altamont landfill implements landfill gas (LFG) recovery and energy conversion, including running some of its vehicles on collected LFG. BGM calculates the net increase in GHG emissions from the increase in solid waste generation of the Proposed Project to be **462 MT CO_2e per year**.

- Area Sources. Area source emissions stem from hearths (including gas fireplaces, wood-burning fireplaces, and wood-burning stoves) and small mobile fuel combustion sources such as lawnmowers and other landscape maintenance equipment. For commercial development with no hearth facilities, such as the Proposed Project, area source emissions of GHG would be entirely due to landscape maintenance equipment.

  For the Proposed Project, the URBEMIS model indicates practically no quantifiable change in GHG emissions from landscape equipment compared to the existing uses to be demolished. The net increase of area source emissions in the Project GHG inventory is approximately **0.24 MT CO_2e per year**.

Estimated Adjusted Total Baseline Operational GHG Emissions

"Baseline Operational GHG Emissions" of the Project factor in all the emissions reduction components described in Section 3.0, which are part of the Project: the Project design features, applicable City SCAs (including TDM, but excluding SCA GHG-1), and regulatory requirements. Although a TDM Plan for the Project (required by SCA TRANS-1) has not yet been prepared, generally, TDM could reduce SOV trips for a large office project near located near transit by about 10 to 20percent. Baseline emissions are reported with and without a preliminary (and conservative) 10 percent TDM trip reduction assumption.

TABLE 3
BASELINE OPERATIONAL GHG EMISSIONS INVENTORY
FROM THE PROPOSED PROJECT

	Annual CO_2e Emissions (metric tons per year)	
	Phase 1 Total CO_2e	**Project Buildout [a] Total CO_2e**
Emission Source		
Motor vehicle trips without TDM / with TDM [a]	4,190 / 3,771	8,359 / 7,515
Natural gas	682	1,632
Grid Electricity	1,995	3,099
Water Conveyance	8	15
Wastewater Treatment & Conveyance	13	24
Solid Waste	170	462
Area Source (landscape maintenance)	0.24	0.24
Total Baseline Operational Project GHG Emissions without TDM / with TDM, without Construction Emissions	**7,058 / 6,639**	**13,591 / 12,747**
Construction Emissions per Year (annualized over 40 years) (see Table IV.B-9)	**52**	**114**
Total Baseline Operational Project GHG Emissions without TDM / with TDM, with Construction Emissions	**7,110 / 6,691**	**13,705 / 12,861**
BAAQMD Threshold of Significance	1,100	1,100
Exceeds Threshold?	*Yes*	*Yes*
Total Operational Project GHG Emissions by Service Population without TDM / with TDM	**5.0 / 4.7 [c]**	**4.2 / 3.9 [d]**
BAAQMD Threshold of Significance	4.6	4.6
Exceeds Threshold?	*Yes*	*No*
Impact Determination	**Significant**	**Less than Significant [e]**

a Project Buildout includes Phase 1 (South Tower) and Phase 2 (North Tower) and all other Project components

b Assumes preliminary 10 percent TDM reduction of vehicle trips.

c Total emissions divided by service population of 1,423 net new employees for Phase I of the Project.

d Total emissions divided by service population of 3,233 net new employees for the Project at Buildout.

e For projects that meet the City's definition of a "very large project," the City requires the Project applicant to prepare a GHG Reduction Plan as a Standard Condition of Approval, even though no CEQA impact is identified.

SOURCE: ESA, 2010

The total annual baseline GHG emissions generated by the Project not assuming the preliminary 10 percent TDM reduction is approximately 13,705 MT CO2e per year, including

construction emissions. See Table 3, which shows emissions for Phase 1 and Buildout (Phase 1 and Phase 2). The table reveals that the majority of annual Project emissions results from vehicle use (62 percent), followed by electrical demand (23 percent). As a result, the Project would generate GHG emissions of approximately **4.2 MT CO_2e per year per capita of service population**, which is the total annual GHG emissions divided by the Project's estimated total service population of 3,233 net new employees.[6]

The total annual baseline GHG emissions generated by the Project *assuming the preliminary 10 percent TDM reduction* is approximately **12,861 MT CO_2e per year**, exclusive of one-time construction emissions for which BAAQMD has specifically not proposed a threshold of significance. See Table 3. The majority of the annual Project emissions would continue to result from vehicle use (59 percent), followed by electrical demand (24 percent). Total Project GHG emissions would be approximately **3.9 MT CO_2e per year per capita of service population**.

Comparison of Unadjusted and Baseline Emissions

The difference in the baseline and unadjusted GHG emissions of the Project generally demonstrate the extent of emissions reduction that is attributable to measures incorporated with the Project.

At Phase 1, the total annual GHG emissions generated by the Project, *assuming no TDM reduction* (7,110 MT CO_2e shown in Table IV.B-11), is approximately 1,087 MT CO_2e per year less than the Project's estimated unadjusted Phase 1 emissions (8,197 MT CO_2e shown in IV.B-10). This is a reduction of approximately 13 percent. The most substantial reductions are associated with motor vehicle emissions (approximately 380 MT CO_2e per year less than the unadjusted emissions, based primarily on implementation of Pavley GHG standards and the LCFS since no TDM is assumed) and indirect electricity emissions (approximately 543 MT CO_2e per year less than the unadjusted emissions, which do not consider the Project's adherence to CALGreen standards, as discussed in the assumptions, above).

At Buildout, the total annual GHG emissions generated by the Project, *assuming no TDM reduction* (13,705 MT CO_2e shown in Table IV.B-11), is approximately 2,067 MT CO_2e per year less than the Project's estimated unadjusted emissions (15,772 MT CO_2e shown in IV.B-10). This is a reduction of approximately 13 percent (as with Phase 1). Again, the most substantial reductions are associated with motor vehicle emissions (approximately 784 MT CO_2e per year less than the unadjusted emissions, based primarily on implementation of Pavley GHG standards and the LCFS since no TDM is assumed) and indirect electricity emissions (approximately 867 MT CO_2e per year less than the unadjusted emissions, which do not consider the Project's adherence to CALGreen standards).

[6] Total Service Population is calculated as the sum of additional net new residents (zero) and 3,233 net new employees associated with the Project.

Impacts of Baseline Operational GHG Emissions

Based on the project-level significance thresholds, the Project would have a significant impact on the environment if it would produce total emissions of more than 1,100 metric tons of CO_2e annually *and* more than 4.6 metric tons of CO_2e per service population annually, or conflict with an applicable plan, policy, or regulation adopted for the purposes of reducing greenhouse gas emissions.

Impact at Phase 1

For Phase 1, as shown in Table IV. B-11, the Project's total annual GHG emissions *not assuming the preliminary 10 percent TDM reduction* is approximately 7,110 MT CO_2e, which exceeds the 1,100 MT CO_2e per year threshold. Also, the Project's 5.0 MT CO_2e per year per capita of service population exceeds the 4.6 MT CO per year threshold. Similarly, *assuming the preliminary 10 percent TDM reduction*, the Project's total annual GHG emissions is approximately 6,691 MT CO_2e, which exceeds the 1,100 MT CO_2e per year threshold, and the 4.7 MT CO_2e per year per capita of service population exceeds the 4.6 MT CO per year threshold. Therefore, the Project would have a significant cumulative GHG impact in Phase 1 because its emissions would exceed both the 1,100 MT CO_2e per year threshold *and* the 4.6 MT CO_2e per year service population threshold.

Impact at Total Buildout

At Buildout, as shown in Table IV.B-11, the Project's total annual GHG emissions *not assuming the preliminary 10 percent TDM reduction* is approximately 13,705 MT CO_2e, which exceeds the 1,100 MT CO_2e per year threshold. However, the Project's 4.2 MT CO_2e per year per capita of service population does not exceed the 4.6 MT CO per year threshold. Similarly, *assuming the preliminary 10 percent TDM reduction*, the Project's total annual GHG emissions is approximately 12,861 MT CO_2e, which exceeds the 1,100 MT CO_2e per year threshold, but the 3.9 MT CO_2e per year per capita of service population does not exceed the 4.6 MT CO per year threshold. Therefore, at Buildout, the Project would not have a significant cumulative GHG impact because it would not exceed the 4.6 MT CO_2e per year service population threshold, even though it would exceed the 1,100 MT CO_2e per year threshold.

5.0 Alternatives GHG Emissions Inventory and Impacts

This section presents the relative operational GHG emissions and resulting impacts for Alternative 1 (South Tower Build Only) and Alternative 2 (Onsite Maximum Reduced Impacts). Table 4 summarizes the relative emissions and impacts of the two alternatives and the Proposed Project. The emissions inventory for Alternatives 1 and 2 are presented below in Tables 4 and 5, respectively.

TABLE 4

COMPARISON OF OPERATIONAL GHG EMISSIONS AND IMPACTS FOR THE PROPOSED PROJECT AND ALTERNATIVES

	Annual CO2e Emissions (metric tons per year)		
	Proposed Project	**Alternative 1 (South Tower Build Only)**	**Alternative 2 (Onsite Maximum Reduced**
Total Operational GHG Emissions (without TDM / with TDM) [a]	13,591 / 12,747	7,110 / 6,691	2,554 / 2,304
Exceeds BAAQMD 1,100 MT CO_2e threshold?	*Yes*	*Yes*	*Yes*
Total Operational GHG Emissions by Service Population (without TDM / with TDM)	4.2 / 3.9 [b]	5.0 / 4.7 [c]	3.9 / 3.5 [d]
Exceeds 4.6 MT CO_2e per Service Population threshold?	*No*	***Yes***	*No*
IMPACT DETERMINATION	Less than Significant	**Significant**	Less than Significant
Total Construction GHG Emissions	4,542	2,081	2,081
Annualized Construction Emissions	114 over 40 years	52 over 40 years	52 over 40 years

[a] Assumes preliminary 10 percent TDM reduction of vehicle trips and annualized construction emissions.
[b] Total emissions divided by service population of 3,233 net new employees for the Project at Buildout.
[c] Total emissions divided by service population 1,423 net new employees for Phase I of the Project.
[d] Total emissions divided by service population 647 net new employees for the reduced Project.

5.1 Alternative 1 (South Tower Build Only)

GHG Emissions for Alternative 1 were calculated similarly to those for the Proposed Project, with a few differences:

- Emissions from increased electricity demand for water and wastewater treatment and conveyance were calculated based on the prorated reduction of square feet of development (approximately 56 percent) compared to the Proposed Project. Existing uses to be demolished under this alternative would be 22,000 square feet, reduced from 280,000 square feet to be demolished under the Project.

- Since this Alternative would be completed earlier (2015) than the Proposed Project (2019), the effect of the Pavley GHG Standards (AB 1493) on mobile emissions would not be as great since fewer Pavley-compliant models would part of the vehicle fleet .

The detailed emissions inventory for Alternative 1 (which is the same as Phase 1 of the Proposed Project) is show in Table 3. As shown in Tables 3 and 4, the total annual GHG emissions generated from Alternative 1, including the design features related to energy use and transit, is approximately **7,110 MT CO_2e per year** *not assuming the preliminary 10 percent TDM reduction* (compared to 13,705 MT CO_2e

for the Proposed Project). The majority of estimated GHG emissions for Alternative 1 results from vehicle use (59 percent), followed by electrical demand (28 percent), similar to sources for the Proposed Project. The total operational emissions for Alternative 1 exceeds the 1,100 MT CO_2e per year threshold. Alternative 1 emissions *assuming the preliminary 10 percent TDM reduction* would total approximately 6,694 MT CO_2e per year, which would still exceed the 1,100 MT CO_2e per year threshold.

As also shown in Tables 3 and 4, the resulting emissions estimate for the proposed Alternative 1 on an annual per capita service population basis is **5.0 MT CO_2e per year** *not assuming the preliminary 10 percent TDM reduction* (compared to 4.2 MT CO_2e for the Proposed Project). This was calculated by dividing total emissions (7,110 MT CO_2e) by the service population associated with this Alternative 1, which would only build the South Tower (1,423 net new employees).[7] This service population-based estimate for Alternative 1 exceeds the 4.6 MT CO_2e per year service population threshold, which is not exceed under the Proposed Project. Alternative 1 emissions *assuming the preliminary 10 percent TDM reduction* on an annual per capita service population basis would be **4.7 MT CO_2e per year,** which would still exceed the 4.6 MT CO_2e per year service population.

A project that exceeds **both** thresholds is considered a significant impact. Thus, Alternative 1 would result in a significant cumulative GHG impact under the BAAQMD thresholds.

5.2 Alternative 2 (On-Site Maximum Reduced Impacts)

- GHG Emissions for Alternative 2 were calculated similarly to those for the Proposed Project, with the following differences: Emissions from increased electricity demand for water and wastewater treatment and conveyance were calculated based on the prorated reduction of square feet of development (approximately 80 percent) compared to the Proposed Project.

- Existing uses would be demolished.

As shown in Tables 4 and 5, the total annual GHG emissions generated from Alternative 2 including the design features related to energy use and transit is approximately **2,554 MT CO_2e per year** *not assuming the preliminary 10 percent TDM reduction* (compared to 13,705 MT CO_2e for the Proposed Project). The majority of GHG emissions for Alternative 2 results from vehicle use (83 percent), followed by natural gas demand (11 percent), which is a notably higher portion from vehicle use and a lower portion from natural gas, compared to the Proposed Project and to Alternative 1. The total operational emissions for Alternative 2 exceed the proposed bright-line 1,100 MT CO_2e per year threshold. Alternative 2 emissions *assuming the preliminary 10 percent TDM reduction* would total approximately **2,304 MT CO_2e per year**, which would still exceed the 1,100 MT CO_2e per year threshold.

As also shown in Table 5, the resulting emissions estimate for the proposed Alternative 2 on an annual service population basis is **3.9 MT CO_2e per year** *not assuming the preliminary 10 percent TDM reduction* (compared to 4.2 MT CO_2e for the Proposed Project). This was calculated by dividing total emissions (2,554 MT CO_2e) by the service population associated with this Alternative (647 net new employees). This service population-based estimate for Alternative 2 is below the 3.9 MT CO_2e per year service population threshold. Alternative 2 emissions *assuming the preliminary 10 percent TDM*

[7] Alternative 1 results in a greater service population than the Proposed Project given the relatively lower ratio of employees to total emissions.

reduction on an annual per capita service population basis would be **3.5 MT CO_2e per year,** which is further below the 4.6 MT CO_2e per year service population.

Like the Proposed Project (and Alternative 1), Alternative 2 exceeds the 1,100 MT CO_2e per year threshold, and like the Proposed Project (at Buildout) it is below the service population threshold . Therefore, Alternative 2 would result in a less-than-significant cumulative GHG impact under the BAAQMD thresholds.

TABLE 5

OPERATIONAL GHG EMISSIONS INVENTORY FROM

ALTERNATIVE 2 (ON-SITE MAXIMUM REDUCED IMPACTS)

	Annual CO_2e Emissions (metric tons per year)
	Total CO_2e
Emission Source	
Motor vehicle trips without TDM / with TDM [a]	2,078 / 1,870
Natural gas	274
Grid Electricity	71
Water Conveyance	4
Wastewater Treatment & Conveyance	6
Solid Waste	69
Area Source (landscape maintenance)	0.24
Total Baseline Operational Project GHG Emissions without TDM / with TDM (no Construction Emissions_	2,502 / 2,252
Construction Emissions per Year Annualized over 40 years	52
Total Baseline Operational Project GHG Emissions without TDM / with TDM	**2,554 / 2,304**
BAAQMD Threshold of Significance	1,100
Exceeds Threshold?	*Yes*
Total Operational Project GHG Emissions by Service Population without TDM / with TDM	**3.9 / 3.5** [b]
BAAQMD Threshold of Significance	4.6
Exceeds Threshold?	*No*
Does Project Meet "Very Large Project" Definition?	*No*
IMPACT DETERMINATION	**Less than Significant**

[a] Assumes preliminary 10 percent TDM reduction of vehicle trips and annualized construction emissions.

[b] Total emissions divided by service population 647 net new employees for the reduced Project.

SOURCE: ESA, 2010

PART B: Available GHG Reduction Measures

In preparing this preliminary GHG Reduction Plan, ESA consulted multiple sources including the State of California's Climate Change Scoping Plan (December 2008), the State Attorney General's web site, the California Air Pollution Control Officer Association's (CAPCOA) white paper on CEQA and Climate Change (January 2008), Reference Guides on Leadership in Energy and Environmental Design (LEED) published by the US Green Building Council, and BAAQMD's CEQA Air Quality Guidelines. ESA identified and assessed the feasibility of emission reduction measures from these various sources to identify "additional" measures for potential implementation during development and operation of the Project This analysis presents a best-professional effort to identify available reduction strategies and does not assume to be exhaustive in its scope.

6.0 GHG Reduction Measures Identified in the Climate Change Scoping Plan of the California Air Resources Board

Table IV.B-8 of the DEIR presented the 39 Recommended Actions (qualitative measures) identified to date by CARB's Scoping Plan. Of the 39 measures identified, those considered to have potential application to the Proposed Project are primarily related to transportation, electricity and natural gas use and green building design. Each of these measures is evaluated below, by source-type, for its applicability to the Proposed Project, its emission reduction potential, and for its inclusion in the Proposed Project as currently designed.

6.1 Transportation

CARB's Scoping Plan identifies nine transportation-related recommended actions. **Action T-1** concerns improvements to light-duty vehicle technology for the purposes of reducing GHG emissions (Pavley Standards). This action focuses on legislating improved controls for vehicle manufacturers and would not generally be considered applicable to the Proposed Project. However, it is reasonably anticipated that vehicles utilized by the Proposed Project would be subject to the new Pavley regulation. BGM took into account emissions reductions that would result from the implementation of the Pavley Standards, therefore this action does not represent additional mitigation available to the City and Project applicant.

Action T-2 concerns implementation of a LCFS. To reduce the carbon intensity of transportation fuels, CARB is developing a LCFS, which would reduce the carbon intensity of California's transportation fuels by at least ten percent by 2020 as called for by Governor Schwarzenegger in Executive Order S-01-07. LCFS will incorporate compliance mechanisms that provide flexibility to fuel providers in how they meet the requirements to reduce GHG emissions. Implementation of such a standard is not within the purview of a development project and this action does not represent additional mitigation available to the City and Project applicant. BGM took into account emissions reductions that would result from the implementation of the LCFS.

Action T-3 addressees regional transportation targets for reducing GHG emissions. SB 375 requires CARB to develop, in consultation with MPOs, passenger vehicle GHG emissions reduction targets for

2020 and 2035 by September 30, 2010. It sets forth a collaborative process to establish these targets, including the appointment by CARB of a Regional Targets Advisory Committee to recommend factors to be considered and methodologies for setting GHG emissions reduction targets. SB 375 also provides incentives – relief from certain CEQA requirements for development projects that are consistent with regional plans that achieve the targets. While no targets have been set pursuant to SB 375 and the Sustainable Community Strategy for the region will likely not be adopted prior to 2012, the Proposed Project will be required to implement TDM measures which reduce VMT as a Standard Condition of Approval. Although there are presently no details as to what specific measures would and what would not be included in the TDM Plan, a preliminary estimated 10 percent vehicle trip reduction was accounted for in the Project inventory reported in Table 3. As such, TDM measures represent a potential available means of further reducing GHG emissions from the Project.

Action T-4 is concerned with vehicle efficiency measures. The California Integrated Waste Management Board (CIWMB) with various partners continues to conduct a public awareness campaign to promote sustainable tire practices. CARB is pursuing a regulation to ensure that tires are properly inflated when vehicles are serviced. Because the Proposed Project would not involve the operation of fleet vehicles, this action does not represent additional mitigation available to the City and Project applicant.

Actions T-5 and T-6 addresses electrification of ships at ports and port operations and is not applicable to the Proposed Project. Therefore, this action does not represent additional mitigation available to the City and Project applicant.

Action T-7 requires addresses existing trucks/trailers to be retrofitted with the best available technology and/or CARB-approved technology. This action does not represent additional mitigation available to the City and Project applicant.

Action T-8 focuses on hybridization of medium- and heavy-duty vehicles. The implementation approach to Action T-8 is to adopt a regulation and/or incentive program that reduces GHG emissions by encouraging hybrid technology as applied to vocational applications that have significant urban, stop-and-go driving, idling, and power take-off operations in their duty cycle. Such applications include parcel delivery trucks and vans. This action does not represent additional mitigation available to the City and Project applicant.

Action T-9 concerns implementation of a high speed rail (HSR) system. This action does not represent additional mitigation available to the City and Project applicant.

6.2 Electricity and Natural Gas

Action E-1, together **with Action GB-1** (Green Building), aims to reduce electricity demand by increased efficiency of Utility Energy Programs and adoption of more stringent building and appliance standards. Elements of this action include encouraging construction of zero net energy (ZNE) buildings and implementation of passive solar design. In addition to employing on-site electricity generation, a ZNE building must either replace natural gas with renewable energy for space and water heating, or compensate for natural gas use by generating surplus electricity for sale on the state's electricity grid. The Project proposes to construct the proposed towers consistent with the updated CALGreen building code standards which will become effective in January 2011. Compliance with CALGreen standards was

accounted for in the inventory presented in Table 3. The intent of compliance with CALGreen standards is generally consistent with the objectives of Action E-1 and GB-1. However, the Proposed Project does not currently include any form of on-site electricity generation. Consequently, on-site power generation represents a potential additional mitigation measure .

Action E-2 encourages an increase in the use of combined heat and power (CHP) use, or co-generation, facilities. California has supported CHP for many years, but market and other barriers continue to keep CHP from reaching its full market potential. Increasing the deployment of efficient CHP will require a multi-pronged approach that includes addressing significant barriers and instituting incentives or mandates where appropriate. Co-generation would not be applicable to the Project site as it would require a constant need for steam that is absent. This action does not represent additional mitigation available to the City and Project applicant.

Action E-3 concerns Renewable Portfolio Standards for utilities and does not apply to development projects. Therefore, the Proposed Project would not conflict with the recommended measure.

Action E-4 strives to promote solar generated electricity. As discussed with respect to Action E-1, the proposed Project does not currently include any form of on-site electricity generation. Consequently, on-site power generation represents a potential additional mitigation measure.

7.0 GHG Reduction Measures Identified in the California Air Pollution Control Officers Association (CAPCOA) CEQA and Climate Change Guidance Document

Proposed project design elements and mitigation measures may be compared to the list of 64 project-specific mitigation measures developed by the CAPCOA in their document *CEQA and Climate Change*.[8] **Table 7** presents an itemized list of each of the project-specific mitigation measures identified in the CAPCOA document and correlates them to any existing or Proposed Project elements. Mitigation measures which are not proposed by the project or identified as a Standard Condition of Approval or Mitigation Measure in the DEIR are then identified as potential GHG reduction measures if they are deemed applicable to the type of project proposed. The State Attorney General has also published a list of various "measures that may reduce the global warming related impacts of a project."[9] These measures are generally included in CAPCOA's more extensive listing of GHG mitigations and are not repeated.

8 California Air Pollution Control Officers Association, *CAPCOA White Paper - CEQA and Climate Change. CAPCOA*, 2008, http://www.capcoa.org/ceqa/CAPCOA%20White%20Paper%20-%20CEQA%20and%20Climate%20Change.pdf, accessed on October 23, 2008.

9 California Department of Justice, Attorney General Edmund G. Brown Jr., *The California Environmental Quality Act Addressing Global Warming Impacts at the Local Agency Level***,** December 9, 2008, http://ag.ca.gov/globalwarming/pdf/GW_mitigation_measures.pdf, accessed on July 1, 2009.

TABLE 7
CAPCOA-IDENTIFIED GHG MITIGATION MEASURES

Mitigation Measure	Description	Reduction Estimate	Existing or proposed by the project?
MM T-1	Bike parking	1-5 percent for MM T-1, MM T-2, and MM T-3	Yes Municipal Code Chapter 17.117 requires new development to provide both short-term (i.e., bicycle racks) and long-term bicycle parking (i.e., lockers or indoor storage) for bicycles per SCA TRANS 2 the applicant shall submit for review and approval of the Planning and Zoning Division, plans that show bicycle storage and parking facilities to accommodate 75 short-term bicycle parking spaces onsite or on public sidewalk, and 136 long-term bicycle parking spaces
MM T-2	End of trip facilities (i.e., showers and lockers)		Yes – Showers (20) and lockers (80) to be installed for office uses per Table 4.L-18 of the DEIR.
MM T-3	Bike parking (residential)		Not Applicable –No Residential component.
MM T-4	Proximity to bike path/bike lanes		Yes – per DEIR Transportation Section, Class I, II and III bike routes exist in the area.
MM T-5	Pedestrian network	1 percent – 10 percent	Yes – per DEIR Transportation Section, Pedestrian facilities include sidewalks, crosswalks, and pedestrian signals. Sidewalks are provided on all of the existing roadways in the study area.
MM T-6	Pedestrian barriers minimized		
MM T-7	Bus Shelter for Existing/Planned Transit Service	1 percent – 2 percent	Yes – per DEIR Transportation Section, the Project would install AC Transit shelters at two relocated stops on 20th Street.
MM T-8	Traffic Calming	1 percent - 10 percent	Not applicable to commercial office building located in an urban area.
MM T-9	Paid Parking	1 percent – 30 percent	**This could be a consideration of the TDM Plan and as such represents a potential additional mitigation measure**.
MM T-10	Minimum Parking	1 percent – 30 percent	Yes -The Proposed Project would have a parking demand deficit of 238 spaces per the Transportation Section of the DEIR.
MM T-11	Parking Reduction beyond Code/Shared Parking	1 percent – 3- percent	Not Applicable -The Municipal Code specifies the Project is not required to provide any off-street parking because of its location in a C-55 / S-17 zoning district. However, the Proposed Project would have a parking demand deficit of 238 spaces per the Transportation Section of the DEIR.
MM T-12	Pedestrian pathway through parking	1 percent - 4 percent	Not Applicable. The project includes subterranean parking levels which would not be an impediment to pedestrian travel.
MM T-13	Off Street Parking	1 percent – 4 percent	Yes - Design of the Proposed Project provides for off street parking.
MM T-14	Parking Area Tree Cover (50 percent cover in ten years)	3.1 kg/m^3 of canopy	Not Applicable. The project includes subterranean parking levels which would not be exposed to sunlight.
MM T-15	Valet Bicycle Parking	Low	Not Applicable – project is not an event center.
MM T-16	Garage Bicycle Storage	Low	Not Applicable – Project is not residential.
MM T-17	Preferential Parking for EVs/CNG Vehicles	Low	Yes – This required by CALGreen section 5.106.5.2.

TABLE 7
CAPCOA-IDENTIFIED GHG MITIGATION MEASURES

Mitigation Measure	Description	Reduction Estimate	Existing or proposed by the project?
MM T-18	Reduced/No Parking Fee for EVs/CNG Vehicles	Low	**No –This measure represents a potential additional mitigation measure.**
MM T-19	TMA Membership	1 percent – 28 percent	Yes - Project will prepare aTDM implementation as SCA TRANS-1, however, details of the TDM Plan are not established and no GHG reduction estimate from implementation of the TDM Plan was considered in the inventory. **Consequently, this measure represents a means by which further GHG emission reductions may be realized.**
MM T-20	Use or provide ULEV	Low	Not Applicable – No applicant vehicle fleet that can feasibly operate on hybrid or electric power.
MM T-21	Flex Fuel Vehicles	Low	Not Applicable – No applicant vehicle fleet.
MM D-1	Office/ Mixed Use Density	0.05 percent – 2 percent	Yes – Project provides office and retail use proximate to transit with bicycle and pedestrian access.
MM D-2	Orientation to Existing/Planned Mass Transit	0.4 percent – 1 percent	Yes – DEIR Transportation Section states that the site is located approximately 0.25 mile of the 19th Street BART station. AC Transit provides bus service to the project site.
MM D-3	Services Operational – for Employees	0.5 percent – 5 percent	Yes - Operational features include retail space restaurants and a fitness center.
MM D-4	Residential Density	1 percent – 40 percent	Not Applicable – Project is not residential.
MM D-5	Street Grid	1 percent	Not Applicable to non-residential projects.
MM D-6	Neighborhood Electric Vehicle Access	0.5 percent – 1.5 percent	Not Applicable to non-residential project.
MM D-7	Affordable Housing Component	0.4 percent – 6 percent	Not Applicable – Project is not residential.
MM D-8	Recharging Area	Low	Not Applicable – Project is not residential.
MM D-9	Urban Mixed Use Development	3 percent - 9 percent	Yes - Development predominantly characterized office and retail uses that are combined in two buildings on a single site in an integrated development project with functional interrelationships.
MM D-10	Suburban Mixed Use Development	3 percent	Not Applicable – Project is urban not suburban (see MM D-9)
MM D-11	Other Mixed Use Development	1 percent	Not Applicable to non-residential project.
MM D-12	Infill Development	3 percent - 30 percent	Not Applicable – Project is not located on a vacant infill site, brownfield or greyfield.
MM D-13	Electric Lawnmower Provided to Residents	1 percent	Not Applicable – Project is not Residential.
MM D-14	Enhanced Recycling	Low	Construction : Yes – DEIR Project Description states that the Project Applicant proposes to establish a construction debris recycling program throughout demolition and construction of the project which would assume 50 percent materials recycled or reused. Concrete materials, in particular, not needed for the Proposed Project would be hauled from the site for recycled material reuse.

TABLE 7
CAPCOA-IDENTIFIED GHG MITIGATION MEASURES

Mitigation Measure	Description	Reduction Estimate	Existing or proposed by the project?
			Operation: -No. In terms of operational elements, while the City has adopted a zero-waste resolution there are no operational project recycling goals**. Operational recycling goals represent a potential additional mitigation measure**
MM D-15	LEED Certification	Moderate	Partially – The Proposed Project will be designed to CALGreen standards. These standards require a reduction over existing Title 24 energy standards as well as water demand reductions. CALGreen standards do not contain specificity with regard to measures or building techniques to be implemented. **Therefore, LEED certification and its corresponding measures represent a potential for further GHG reductions.**
MM D-16	Retro-Commissioning: Building systems perform interactively to optimize energy performance	8 percent – 10 percent	**No –This measure represents a potential additional mitigation measure. However it may be a technique to achieve CALGreen standards proposed by the Project.**
MM D-17	Drought tolerant Landscaping and shade trees	Low	Partially – shade trees are proposed for 20th, 21st and Webster Streets. There is no speifcity regarding landscaping. **Consequently drought-tolerant landscaping represents potential additional mitigation measure**.
MM D-18	Local Farmers Market	Low	Not Applicable to retail/office project.
MM D-19	Community Gardens	Low	Not Applicable to retail/office project.
MM E-1	High-Efficiency Pumps	Low	**No –This measure represents a potential additional mitigation measure.**
MM E-2	Wood Burning Fireplaces/Stoves	Low	Not Applicable to retail/office project.
MM E-3	Natural Gas Stove	Low	Not Applicable to retail/office project.
MM E-4	Energy Star Roof	0.5 percent – 1 percent	**No –This measure represents a potential additional mitigation measure.**
MM E-5	On-Site Renewable Energy System	1 percent – 3 percent	**No –This measure represents a potential additional mitigation measure.**
MM E-6	Exceed Title 24	1 percent	Yes – CALGreen standards require exceeding existing Title 24 requirements by 15%.
MM E-7	Solar Orientation	Low	Not feasible for high rise towers – This measure cannot be implemented for high rise towers because by design they require exposure from all directions to maximize natural light and view shed**.**
MM E-8	Non-roof Surfaces - Provide light-colored pavement for at least 30 percent of the site's non-roof impervious surfaces, including parking lots, walkways, plazas, OR place a minimum of 50 percent of parking spaces underground or covered by structured parking	Low	Yes – Non-roof surfaces would be landscaped gardens. Parking areas would be subterranean.

TABLE 7
CAPCOA-IDENTIFIED GHG MITIGATION MEASURES

Mitigation Measure	Description	Reduction Estimate	Existing or proposed by the project?
MM E-9	Low-energy Cooling (Separate ventilation and Cooling systems)	1 percent – 10 percent	**No –This measure represents a potential additional mitigation measure.**
MM E-10	Install Vegetated Green Roof	1 percent	**No –However, this measure would compete for roof space with Measures E-4 and E-5 and would be unrealistic for a high-rise building and is not suggested as an additional mitigation measure.**
MM E-11	Charging Facilities	Low	**No –This measure represents a potential additional mitigation measure.**
MM E-12	Light-colored Paving	Low	Not applicable to a high rise commercial building with subterranean parking.
MM E-13	Cool Roof	Low	**No –However, MM E-4 requires Energy Star roofs which are low emissivity materials[10]. This measure does not represent an additional mitigation measure with implementation of MM E-4.**
MM E-14	Solar Water Heaters	20 percent – 70 percent	Not applicable for institutional complex with central boiler.
MM E-15	Electric Yard Equipment Compatibility	Low	**No –This measure represents a potential additional mitigation measure.**
MM E-16	Energy Efficient Appliance Standards	Low	Not Applicable to retail/office project.
MM E-17	Green Building Materials	Low	**No –This measure represents a potential additional mitigation measure.**
MM E-18	Shading Mechanisms for windows, patio and walkway overhangs	Low	**No –This measure represents a potential additional mitigation measure.**
MM E-19	Ceiling/whole-house fans	Low	Not Applicable to retail/office project.
MM E-20	Programmable Thermostats	Low	**No –This measure represents a potential additional mitigation measure.**
MM E-21	Passive Heating and Cooling Systems	Low	Not applicable for high rise towers. High rise towers would be exposed to summer sunlight in all directions and would require more tan just a passive cooling system. Similar considerations or winter heating based on concrete and steel substructure necessary for high-rise towers.
MM E-22	Day Lighting Systems	Low	Not applicable – High rise towers are designed to receive sunlight from all directions. CAPCOA indicates that this measure has “little benefit in multi-floor buildings”. .
MM E-23	Low- Water Use Appliances	Low	Yes – This measure would be a requirement of CALGreen Standards.
MM E-24	Goods Transport by Rail	Moderate	Not Applicable to retail/office project.
MM S-1	Emissions Reduction Education	Low	**No –This measure represents a potential additional mitigation measure.**
MM S-2	School Curriculum	Low	Not Applicable to retail/office project.

[10] http://www.energystar.gov/index.cfm?c=roof_prods.pr_roof_emissivity

TABLE 7
CAPCOA-IDENTIFIED GHG MITIGATION MEASURES

Mitigation Measure	Description	Reduction Estimate	Existing or proposed by the project?
MM M-1	Off-Site Mitigation Fee Program	Moderate	The BAAQMD does not have a fee mitigation program for GHG. CARB's cap and trade program is not scheduled for launch until 2012. CAPCOA identifies this measure as not logistically feasible at present.
MM M-2	Offset Purchase	Low	Not Applicable (As noted above, CARB is developing a cap and trade program but it is not scheduled for launch until 2012). CAPCOA identifies this measure as not logistically feasible at present.

SOURCE: CAPCOA, 2009.

8.0 GHG Reduction Measures Identified in the Bay Area Air Quality Management District (BAAQMD) Proposed CEQA Air Quality Guidelines

The BAAQMD's CEQA Air Quality Guidelines contains tables of mitigation measures to reduce operational-related emissions of GHG's from mobile, area and stationary sources in Section 4.3 of the document. These measures include reduction estimates applicable to each measure. **Table 8** presents an itemized list of each of the project-specific mitigation measures identified in by BAAQMD and correlates them to any existing or Proposed Project elements. Mitigation measures which are not proposed by the project or identified as a Standard Condition of Approval or Mitigation Measure in the DEIR are then identified as potential GHG reduction measures if they are deemed applicable to the type of project proposed.

TABLE 8
BAAQMD-IDENTIFIED GHG MITIGATION MEASURES

Mitigation Measure	Description	Reduction Estimate	Existing or proposed by the project?
1	Mix of Uses	-3 percent – 9 percent	Yes, residential within ½ mile
2	Local Serving Retail within ½ mile of Project	2 percent	Yes
3	Transit Service	0 percent – 15 percent	Yes – DEIR Transportation Section states that the site is located approximately 0.25 mile of the 19th Street BART station. AC Transit provides bus service to the project site.
4	Bike & Pedestrian	0 percent - 9 percent	Yes – per DEIR Transportation Section, Class I, II and III bike routes exist in the area.
5	Affordable Housing	0 percent – 4 percent	Not Applicable to retail/office project.`

TABLE 8
BAAQMD-IDENTIFIED GHG MITIGATION MEASURES

Mitigation Measure	Description	Reduction Estimate	Existing or proposed by the project?
6	Daily Parking Charge	0 percent – 25 percent	**This could be a consideration of the TDM Plan and as such represents a potential additional mitigation measure**.
7	Parking Cash-out. California law requires certain employers who provide subsidized parking for their employees to offer a cash subsidy to employees who do not drive, in lieu of a parking space	0 percent – 12.5 percent	**No –This measure represents a potential additional mitigation measure.**
8	Free Transit Passes	25 percent of transit service reduction	**No –This measure represents a potential additional mitigation measure.**
9	Employee Telecommuting Program	1 percent – 100 percent	Not feasible for a commercial building where tenants are not yet identified.
10-12	Compressed Work Schedule	1 percent – 40 percent	Not feasible for a commercial building with multiple tenants that are not yet identified.
13	Secure Bike Parking	3 or more elements = 1percent; 5 or more = 2 percent reduction	Yes bicycles per SCA TRANS 2 the applicant shall submit for review and approval of the Planning and Zoning Division, plans that show bicycle storage and parking facilities to accommodate 75 short-term bicycle parking spaces onsite or on public sidewalk, and 136 long-term bicycle parking spaces
14	Showers/Changing facilities provided		Yes – Showers (20) and lockers (80) to be installed for office uses per Table 4.L-18 of the DEIR.
15	Guaranteed Ride Home Program provided		Yes – Alameda County has this program available to all employers and employees in the County
16	Car sharing services provided		**No –This measure represents a potential additional mitigation measure.**
17	Information provided on transportation alternatives		**No –This measure represents a potential additional mitigation measure.**
18	Dedicated employee transportation coordinator		**No –This measure represents a potential additional mitigation measure.**
19	Carpool matching program		**No –This measure represents a potential additional mitigation measure.**
20	Preferential carpool/vanpool parking		**No –This measure represents a potential additional mitigation measure.**
21	Parking supply	0-50 percent	Yes -The Proposed Project would have a parking deficit of 416 spaces per the Transportation Section of the DEIR.
22	On Road trucks	URBEMIS determination	Not Applicable to retail/office project
23	Increase energy efficiency beyond Title 24	Equal to percentage increase beyond Title 24	Yes – CALGreen standards require exceeding existing Title 24 requirements by 15%.
24	Electrically powered landscape equipment and electrical outlets	Equivalent to URBEMIS estimated emissions	**No –This measure represents a potential additional mitigation measure.**

TABLE 8
BAAQMD-IDENTIFIED GHG MITIGATION MEASURES

Mitigation Measure	Description	Reduction Estimate	Existing or proposed by the project?
26	Plant shade trees within 40 feet of the south side or within 60 feet of the west sides of properties	30 percent	Yes – shade trees are proposed for 20th, 21st and Webster Streets.
27	Require cool roof materials	34 percent	**No –However, MM E-4 requires Energy Star roofs which are low emissivity materials[11]. This measure does not represent an additional mitigation measure with implementation of MM E-4.**
28	Install green roofs	1 percent	**No –However, this measure would compete for roof space with Measures E-4 and E-5 and would be unrealistic for a high-rise building and is not suggested as an additional mitigation measure.**
29	Require smart meters and programmable thermostats	10 percent	**Installation of Smart Meters would not reduce GHG emissions. Installation of programmable thermostats is addressed in CAPCOA Measure E-20.**
30	Meet GBC standards in all new construction	3 percent – 17 percent	Yes. Buildings will be built to CALGreen standards.
32	Install solar water heaters	70 percent	Not Applicable to retail/office project.`
33	Install tankless water heaters	35 percent	Not Applicable to retail/office project.`
34	Install solar panels on residential and commercial buildings	100 percent	**No –However, CAPCOA MM E-5 discusses solar energy systems. This measure does not represent an additional mitigation measure with implementation of MM E-5.**
35	100% increase in diversity of land use mix	5 percent	Not Applicable to retail/office project.`
36	Jobs/housing balance	Trip reduction as determined by traffic consultant	Trip generation estimates considered households and employment for the Study area. Not a true mitigation measure, given the project location is not changeable.
37	100% increase in design (i.e., presence of design guidelines for transit oriented development, complete street standards	3 percent	Yes – per DEIR Transportation Section, the Project would relocate two AC Transit stops on 20th Street and add shelter. The site is located approximately 0.5 mile of the 19th Street BART station. AC Transit provides bus service to the project site
38	100% increase in density	5 percent	Yes – Per DEIR Project Description, project will increase total useable floor area on the project site by 92 percent.
39	HVAC duct sealing	30 percent	Yes -this measure is required by section 5.504.3 of the CALGreen mandatory standards for commercial buildings.
40	Provide necessary infrastructure and treatment to allow use of 50% greywater;/recycled water in residential and commercial uses for outdoor irrigation	6 percent	**No – However, per DEIR Utilities section pp. IV.M-10, , EBMUD has stated that recycled water service is not recommended for the type of project proposed .**

11 http://www.energystar.gov/index.cfm?c=roof_prods.pr_roof_emissivity

TABLE 8
BAAQMD-IDENTIFIED GHG MITIGATION MEASURES

Mitigation Measure	Description	Reduction Estimate	Existing or proposed by the project?
41	Complete streets	1percent – 5 percent	Not Applicable to retail/office project
42	Maximize interior daylight	None Given	Not applicable – High rise towers are designed to receive sunlight from all directions. CAPCOA indicates that this measure has "little benefit in multi-floor buildings". .
43	Increase roof/ceiling insulation	None Given	**No –This measure represents a potential additional mitigation measure. However it may be a technique to achieve CALGreen standards proposed by the Project.**
45	Install rainwater collection systems in commercial buildings	None Given	**No –This measure represents a potential additional mitigation measure.**
46	Install low-water use appliances and fixtures	None Given	Yes –CALGreen standards would require low flow, water efficient fixtures
47	Restrict the use of water for cleaning outdoor surfaces/prohibit systems that apply water to non-vegetated surfaces	None Given	**No –This measure represents a potential additional mitigation measure.**
48	Implement water-sensitive urban design practices in new construction	None Given	**No –This measure represents a potential additional mitigation measure. However it may be a technique to achieve CALGreen standards proposed by the Project.**
50	Create food waste and green waste curb-side collection service	None Given	Not Applicable to retail/office project
51	Require provision of storage areas for recyclables and green waste in new construction	None Given	**No –This measure represents a potential additional mitigation measure.**

9.0 Summary of Additional GHG Reduction Measures Considered for the Proposed Project

The following Table 9 summarizes the available additional GHG reduction measures identified in Sections 6.0 through 8.0 above. These listed were indentified as those not already assumed as part of the Project and that could be considered for implementation development and operation of the Project to further increase energy efficiency and reduce GHG emissions from the Project to the greatest extent practical and feasible. As previously indicated, available and feasible reduction measures would not be limited to those listed in Table 9; given the evolving nature of GHG emissions reduction strategies and technologies, there is some uncertainty involved with the identification and effectiveness of available GHG reduction measures. Further, additional measures may because feasible (or less so) as the Project is developed in greater detail. Overall, a "comprehensive set of quantified additional GHG reduction

measures available to further reduce GHG emissions beyond the adjusted GHG emissions" that may include but not be limited to a combination of the available measures in Table 9 would constitute a GHG Emissions Reduction Plan for the Project.

A preliminary estimate of emissions reductions is presented for some measures. For others a quantifiable emission reduction cannot be reasonably estimated given the available details of the Project or are insubstantial because the emissions would be minimal. However, these measures are still identified for possible implementation by the Project (as the GHG Emissions Reduction Plan) to ensure emissions reduction to the greatest extent feasible below the BAAQMD CEQA Thresholds of Significance (1,100 metric tons of CO2e per year and 4.6 metric tons of CO2e per year per service population), pursuant to Mitigation Measure AIR-3 and Standard Condition of Approval GHG-1 identified in the EIR for the Project..

Following Table 9 is an individual assessment of the feasibility, applicability and GHG emissions reduction potential of each of these additional reduction measures identified.

TABLE 9

ADDITIONAL GHG REDUCTION MEASURES IDENTIFIED FOR POTENTIAL IMPLEMENTATION BY THE PROPOSED PROJECT

Mitigation Measure	Description	CO_2e Emissions Reduction Estimate Range
CAPCOA MM T-9	Paid Parking[a]	1 percent – 30 percent
CAPCOA MM T-18	Reduced/No Parking Fee for EVs/CNG Vehicles	Low
CAPCOA MM T-19	TMA Membership[a]	1 percent – 28 percent
CAPCOA MM D-14	Enhanced Recycling	Low
CAPCOA MM D-15	LEED Certification[b]	Moderate
CAPCOA MM D-16	Retro-Commissioning	8 percent – 10 percent
CAPCOA MM D-17	Drought-tolerant Landscaping	Low
CAPCOA MM E-1	High-Efficiency Pumps	Low
CAPCOA MM E-4	Energy Star Roof	0.5 percent – 1 percent
CAPCOA MM E-5	On-Site Renewable Energy System	1 percent – 3 percent
CAPCOA MM E-9	Low energy Cooling	1 percent – 10 percent
CAPCOA MM E-11	Charging Facilities	Low
CAPCOA MM E-15	Electric Yard Equipment Compatibility	Low
CAPCOA MM E-17	Green Building Materials	Low
CAPCOA MM E-18	Shading Mechanisms for windows, patio and walkway overhangs	Low
CAPCOA MM E-20	Programmable Thermostats	Low
CAPCOA MM S-1	Emissions Reduction Education	Low
CAPCOA MM M-2	Offset Purchase	Up to 100 percent
BAAQMD MM 6	Daily Parking Charge [a,c]	0 percent - 25 percent
BAAQMD MM 7	Parking Cash-out. California law requires certain employers who provide subsidized parking for their employees to offer a cash subsidy to employees who do not drive, in lieu of a parking space [a]	0 percent – 12.5 percent
BAAQMD MM 8	Free Transit Passes [a]	25 percent of transit service reduction
BAAQMD MM 16	Car sharing services provided [a]	1 percent additional mobile source reduction with implementation of these 5 additional TDM Measures together
BAAQMD MM 17	Information Provided on Transportation Alternatives [a]	1 percent additional mobile source reduction with implementation of these 5 additional TDM Measures together
BAAQMD MM 18	Dedicated Employee Transportation Coordinator [a]	
BAAQMD MM 19	Carpool Matching Program [a]	
BAAQMD MM 20	Preferential Carpool/Vanpool Parking [a]	
BAAQMD MM 24	Electrically powered landscape equipment and electrical outlets	Equivalent to URBEMIS estimated emissions

Mitigation Measure	Description	CO_2e Emissions Reduction Estimate Range
BAAQMD MM 43	Increase Roof/Ceiling Insulation	BAAQMD provides no emissions reduction range
BAAQMD MM 45	Install rainwater collection systems in commercial buildings	BAAQMD provides no emissions reduction range
BAAQMD MM 47	Restrict the use of water for cleaning outdoor surfaces/prohibit systems that apply water to non-vegetated surfaces	BAAQMD provides no emissions reduction range
BAAQMD MM 48	Implement water-sensitive Urban Design Practices in New Construction	BAAQMD provides no emissions reduction range
BAAQMD MM 51	Require the Provision of storage areas for recyclables and green waste in new construction	BAAQMD provides no emissions reduction range

[a] To be estimated with SCA TRANS-1, which requires preparation of a TDM incorporating a variety of measures aimed at reducing SOV trips generated by the Project.

[b] While LEED certification is not being proposed for the Project, Voluntary Tier CALGreen standards may be identified.

[c] Addressed In CAPCOA Measure T-9.

SOURCE: ESA, 2010

9.1 CAPCOA Mitigation Measure T-9: Paid Parking. This measure would provide an employee and/or customer paid parking system. Project must have a permanent and enforceable method of maintaining user fees for all parking facilities. The facility may not provide customer or employee validations. Daily charge for parking must be equal to or greater than the cost of a transit pass plus 20 percent. This measure would reduce trip generation and could be a component of the required TDM Plan. The estimated reduction of trip generation (and associated GHG emissions) is best determined by the traffic consultant preparing the TDM Plan. BAAQMD estimates an employee trip reduction benefit of 0 to 25 percent with this measure.

9.2 CAPCOA Mitigation Measure T-18: Reduced Parking Fee for EV/CNG Vehicles. This measure would reward and encourage the use of low GHG emission vehicles. CAPCOA indicates that this measure has a low reduction score and does not quantify any emissions reduction related to this measure. Consequently, this measure is suggested to be implemented but no quantifiable reduction in transportation-related emissions can reliably be estimated.

9.3 CAPCOA Mitigation Measure T-19: TDM Membership. This measure would require permanent TMA membership and funding requirement. Funding to be provided by Community Facilities District or County Service Area or other non-revocable funding mechanism. TDMs have been shown to reduce employee vehicle trips up to 28 percent with the largest reductions achieved through parking pricing and transit passes. The impact depends on the

travel alternatives. These trip reductions will be detailed in the TDM Plan to be prepared for the Project (pursuant to SCA TRANS-1), and the resulting vehicle trip and related GHG emissions reductions will be calculated.

9.4 CAPCOA Mitigation Measure D-14: Enhanced Recycling. This measure would provide infrastructure/education that promotes the avoidance of products with excessive packaging, recycle, buying of refills, separating of food and yard waste for composting, and using rechargeable batteries. CAPCOA indicates that this measure has a low reduction score and does not quantify any emissions reduction related to this measure. Consequently, this measure is suggested to be implemented but no quantifiable reduction in GHG emissions can reliably be estimated.

9.5 CAPCOA Mitigation Measure D-15: LEED Certification. The Proposed Project will be designed to the CALGreen building standards which when adopted on January of 2011. While LEED certification is not being proposed for the Project towers, they nonetheless are proposed to be built to CALGreen standards. For the purpose of meaningful GHG emissions reduction calculations, CALGreen standards for commercial buildings would result in 15 percent less energy demand and 20 percent reduced water demand than a standard building built to 2008 Title 24 standards. Therefore, for the purpose of estimating an emissions inventory, CALGreen is equivalent to a LEED "silver" rating in terms of meaningful emissions reductions. CALGreen is assumed in the adjusted baseline emissions for the Project reported in the Project's baseline emissions discussed previously. More aggressive LEED certification ("gold" or "platinum") would further increase efficiency and further reduce GHG emissions.

9.6 CAPCOA Mitigation Measure E-5: On-site Renewable Energy System. This measure would provide onsite renewable energy system(s). Nonpolluting and renewable energy potential includes solar, wind, geothermal, low-impact hydro, biomass and bio-gas strategies. When applying these strategies, projects may take advantage of net metering with the local utility. Of these strategies, the most common for commercial building applications in an urban environment would be solar. The effectiveness of a solar energy system for the Proposed Project would be restricted by the available roof space and the need for other ancillary equipment on the rooftop.

With regard to feasibility of this measure, it should be noted that in a March 30, 2010 press release, Kaiser Permanente announced its intention to install 15 megawatts of solar power systems[12] on its hospitals, medical offices and other buildings at 15 locations in California. Kaiser estimates that installation of solar power systems will provide for 10 percent of electricity demand for its buildings at each location. Lowering this reduction goal to 5 percent to account for rooftop space limits the estimate of the potential GHG reductions resulting if such a measure was implemented for the Proposed Project, a potential reduction of 176 MT/year of CO_2e would be possible.

9.7 CAPCOA Mitigation Measure E-9: Low Energy Cooling. This measure would require the Project to optimize the buildings thermal distribution by separating ventilation and

12 http://xnet.kp.org/newscenter/pressreleases/nat/2010/033010solarpower.html

thermal conditioning systems. CAPCOA estimates a 1 to 10 percent reduction in energy demand through implementation of this measure. Applying the lower end of this estimated reduction goal as an estimate of the potential GHG reductions if such a measure was to be implemented for the proposed Project, a potential reduction of 35.3 MT/year of CO_2e would be possible

9.8 CAPCOA Mitigation Measure E-11: Charging Facilities. This measure would require the Project to install electric vehicle charging facilities. CAPCOA indicates that this measure has a low reduction score and does not quantify any emissions reduction related to this measure. Consequently, this measure is suggested to be implemented but no quantifiable reduction in GHG emissions can reliably be estimated.

9.9 .CAPCOA Mitigation Measure E-15: Electric Yard Equipment Compatibility. This measure would require provision of electrical outlets at building exterior areas. CAPCOA indicates that this measure has a low reduction score and does not quantify any emissions reduction related to this measure. Consequently, this measure is suggested to be implemented but no quantifiable reduction in GHG emissions can reliably be estimated.

9.10 CAPCOA Mitigation Measure E-17: Green Building Materials. This measure would require the Project to use materials which are resource efficient, recycled, with long life-cycles and manufactured in an environmentally friendly way. This measure addresses lifecycle GHG emissions which are not a consideration relative to CEQA. Consequently, this measure is suggested to be implemented but no quantifiable reduction in GHG emissions would be applicable to the Project inventory.

9.11 CAPCOA Mitigation Measure E-18: Shading Mechanisms for Windows, Patios and Walkway Overhangs. This measure would require installation of energy-reducing shading mechanisms for windows, porch, patio and walkway overhangs. CAPCOA cites an estimate the savings of this measure to be $450 per year. Based on a commercial electrical rate of 0.18 dollars per kw-hr represents approximately 2,500 kw-hr per year or about 0.6 MT/year of CO_2e.

9.12 CAPCOA Mitigation Measure E-20 Programmable Thermostats. This measure would require the Project to install energy-reducing programmable thermostats that automatically adjust temperature settings. CAPCOA cites an estimate the savings of this measure to be $100 per year. Based on a commercial electrical rate of 0.18 dollars per kw-hr represents approximately 556 kw-hr per year or about 0.13 MT/year of CO_2e.

9.13 CAPCOA Mitigation Measure S-1: Emission reductions Education. This measure would require the Project to provide businesses with guidance/protocols/information on how to reduce GHG emissions. CAPCOA indicates that this measure has a low reduction score and does not quantify any emissions reduction related to this measure. Consequently, this measure is suggested to be implemented but no quantifiable reduction in GHG emissions can reliably be estimated.

9.14 CAPCOA Mitigation Measure M-2: Offset Purchase. This analysis considers Offset Purchase (CAPCOA Mitigation Measures M-2) to be a potentially feasible measure,

despite CAPCOA's indication that it is "logistically feasible at present", given that Phase 1 of the Project would not be operational until approximately 2016, and Phase 2 or Project Buildout could be up to an additional several years after that (approximately 2-3 years assumed in this analysis), and given the potential for implementation of this measure to have a "Moderate/High" reduction estimate.

There is recognized uncertain in the current state of carbon markets (including the availability and pricing of offsets) in the U.S. With a federal climate bill languishing in the Senate, and emerging political challenges to AB 32 it is difficult at best to characterize supply and demand in yet-to-be-created carbon market, and even more difficult to predict the price of emissions allocations or offsets. A national cap and trade system, where buyers and sellers determine a market price for allocations and offsets, is still a possibility at the national level, and has a strong likelihood of developing in California (through AB 32) and other Western states (through the Western Climate Initiative). Currently in California, buyers purchase offsets either to reduce their carbon footprint voluntarily, or as a "pre-compliance" strategy with the hope that they can use them in a future cap-and-trade system. Prices have remained relatively low over the past year or two due to the sluggish economy and the policy uncertainty. They are certain to rise significantly if and when federal, regional, and/or state cap-and-trade becomes a reality.

The AB 32 Scoping Plan identifies cap-and-trade as a key strategy for helping California reduce its GHG emissions, but ARB still has not yet indicated how the system will work. Consistent with AB 32, ARB must adopt the cap-and-trade regulation by January 1, 2011, and the program itself must begin in 2012. At the time of this writing it is not known how such a system would distribute allocations to those who fall under the cap, and how offsets could be used to reduce emissions against the cap. It is also unclear whether ARB will operate their own cap-and-trade program or contract the program to a third party, and if the program will link to external registries of approved carbon offset credits.

Despite the various uncertainties, several registries of carbon reduction projects (representing carbon credits) have emerged in the United States in recent years. These registries facilitate and give legitimacy to carbon credit tracking and trading. One of the leading registries, the Climate Action Reserve (CAR), is expected to serve as a source of regulatory offsets under the future California program. CAR is a spin-off program of the California Climate Action Registry (CCAR) which was created by California state legislation in 2001 and has been closely involved with ARB throughout the AB 32 implementation process, including the development of its reporting rule, verification scheme, and many sector accounting protocols. CAR is also recognized in the Kerry-Boxer and Waxman-Markey climate bills as eligible for providing offset credits to the federal cap-and-trade system. CAR is respected as a national project registry that sets standards, accredits verifiers, and registers and tracks projects using sophisticated software to serialize and transfer emission reduction credits. In 2009, CAR transactions accounted for the majority of the US offset market value, and CAR Climate Reserve Tons (CRTs) usually command a premium over the general voluntary offset market.

Newly enacted CEQA Guidelines Section 15126.4 (c), adopted March 18, 2010 expressly provides for this as mitigation to reduce GHG emissions.

9.15 BAAQMD Mitigation Measure 6: Daily Parking Charge. This measure would require parking fees for all employees to discourage daily vehicle trips and promote use of transit These will be detailed in the TDM Plan for the Project., and the resulting vehicle trip and related GHG emissions reductions will be calculated. Employee trips represent 35 percent of trip generation based on URBEMIS2007 data for office buildings.

9.16 BAAQMD Mitigation Measure 7: Parking Cash-out. This measure would require employers who provide subsidized parking for their employees to offer a cash subsidy to employees who do not drive, in lieu of a parking space. This measure would reduce employee trips only, not visitor trips. BAAQMD estimates an employee trip reduction benefit of 0 to 12.5 percent with this measure. Employee trips represent 35 percent of trip generation based on URBEMIS2007 data for office building. Assuming an average of 6 percent reduction in employee trips, implementation of this measure would reduce Phase 1 emissions by 192 MT/year of CO_2e .

Employee trips represent 7 percent of MOB trip generation based on URBEMIS2007 data for medical office buildings. Assuming an average of 6 percent reduction in employee trips, implementation of this measure would reduce remaining future phase emissions by 21.1 MT/year of CO_2e .

9.17 BAAQMD Mitigation Measure 8: Free Transit Passes. This measure would require employers to provide free transit passes to employees. BAAQMD estimates that this measure would result in a further 25 percent of the existing transit service reduction Thirty percent of employees take BART or buses to the Project site, according to the DEIR Transportation section. A 25 percent increase in this rate would result in 37.5 percent of employees taking transit. Given the Proposed Project results in 3,233 total employees with the Project. The additional 7.5 percent increase in employee transit ridership resulting from this measure would remove approximately 242 employees from daily vehicle trips to work. Assuming each employee who drives to work generates 2.5 vehicle trips per day, this measure would remove approximately 605 vehicle trips per day. Based on URBEMIS2007 emission rates, this trip reduction would reduce GHG emissions by 695 MT/year of CO_2e.

9.18 BAAQMD Mitigation Measure 16: Car Sharing Services Provided. BAAQMD identifies this measure along with a menu of seven other TDM measures as reducing GHG emissions synergistically as a group. The degree of benefit estimated, depends on the number of TDM measures included from the menu. As this measure and the following four measures (BAAQMD 17 -20) of the of the total eight TDM measures on the menu that are not already identified as in operation, the potential GHG reduction benefits for these measures are considered together. Together, these five additional TDM measures were assumed to result in an additional 1 percent reduction, or about 91.4 MT/year of CO_2e.

9.19 BAAQMD Mitigation Measure 17: Information Provided on Transportation Alternatives. See BAAQMD Measure 16 for discussion on reductions from this TDM measure.

9.20 BAAQMD Mitigation Measure 18: Dedicated Employee Transportation Coordinator. See BAAQMD Measure 16 for discussion on reductions from this TDM measure.

9.21 BAAQMD Mitigation Measure 19: Carpool Matching Program. See BAAQMD Measure 16 for discussion on reductions from this TDM measure.

9.22 BAAQMD Mitigation Measure 20: Preferential Carpool/Vanpool Parking. See BAAQMD Measure 16 for discussion on reductions from this TDM measure.

9.23 BAAQMD Mitigation Measure 24: Electrically Powered Landscape Equipment. BAAQMD identifies this measure as reducing GHG emissions associated with operation of landscape maintenance equipment. This measure is similar to CAPCOA measure E-15 above. If we assume that this measure results in no landscape equipment emissions as calculated in the Projects emissions inventory in Table 3, then implementation of this measure would reduce emissions by 0.24 MT/year of CO_2e.

9.24 BAAQMD Mitigation Measure 34: Install Solar Panels on Residential and Commercial Buildings. This measure is addressed relative to CAPCOA Mitigation Measure E-5 above.

9.25 BAAQMD Mitigation Measure 44:Increase Roof/Ceiling Insulation. This measure is likely to be implemented to achieve the 15 percent energy reduction target recommended by CALGreen standards. BAAQMD does not cite a reduction efficiency associated with this measure. Consequently, this measure is suggested to be implemented but no quantifiable reduction in GHG emissions is estimated.

9.26 BAAQMD Mitigation Measure 45: Rainwater Collection Systems in Commercial Buildings. BAAQMD does not cite a reduction efficiency associated with this measure. Consequently, this measure is suggested to be implemented but no quantifiable reduction in GHG emissions is estimated.

9.27 BAAQMD Mitigation Measure 47: Restrict Use of Water for Cleaning Outdoor Surfaces. BAAQMD does not cite a reduction efficiency associated with this measure. Consequently, this measure is suggested to be implemented but no quantifiable reduction in GHG emissions is estimated.

9.28 BAAQMD Mitigation Measure 48: Implement Water-sensitive Urban Design Practices in New Construction. This measure is likely to be implemented by as a required element of CALGreen commercial building standards. BAAQMD does not cite a reduction efficiency associated with this measure. Consequently, this measure is suggested to be implemented but no quantifiable reduction in GHG emissions is estimated.

9.29 BAAQMD Mitigation Measure 51: Require Provision of Storage Areas for Recyclables and Green Waste in New Construction. BAAQMD does not

cite a reduction efficiency associated with this measure. Consequently, this measure is suggested to be implemented but no quantifiable reduction in GHG emissions is estimated.

References

BAAQMD, *CEQA Air Quality Thresholds and Guidelines*, June 2010

California Air Pollution Control Officers Association (CAPCOA), *CEQA & Climate Change, Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, January 2008.

California Air Resources Board (CARB), *Mandatory Reporting of California Greenhouse Gas Emissions*, Presentation at Cal/EPA Headquarters. August 29, 2007b.

California Air Resources Board, *Climate Change Scoping Plan, A Framework for Change*, December 2008.

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International Code Council, *Draft 2010 California Green Building Standards Code*, http://www.documents.dgs.ca.gov/bsc/documents/2010/Draft-2010-CALGreenCode.pdf, accessed August 18, 2010 (ICC, 2010)

GHG EMISSIONS DATA

PROJECT CONSTRUCTION EMISSIONS PHASE 1

EMISSIONS in tons

2012 Construction Emissions	**CO2**	**CH4**	**N2O**	
	269 (from URBEMIS)			1051

From CCAR GPR 3.1 (2009) Table C-6

Diesel emission of CO2

10.15	kg CO2/gal
0.00058	kg CH4/gal
0.00026	kg N2O/gal

So for Mobile sources… CH4 emission = 5.71E-05 percent of CO2 Emissions
N2O emissions = 2.56E-05 percent of CO2 Emissions

Total Construction emissions in tons =

CO2	**CH4**	**N2O**	**Total GHG**
269.00	0.02	0.01	269.02

Total construction emissions as eCO2 in tons =

269.00	0.32	2.14	271.46

Total construction Emissions as eCO2 on Metric tons =

244.03	**0.29**	**1.94**	**246.26**

EMISSIONS in tons

2013 Construction Emissions

CO2	CH4	N2O
808 (from URBEMIS)		

From CCAR GPR 3.1 (2009) Table C-6

Diesel emission of CO2

10.15	kg CO2/gal
0.00058	kg CH4/gal
0.00026	kg N2O/gal

So for Mobile sources… CH4 emission = 5.71E-05 percent of CO2 Emissions
N2O emissions = 2.56E-05 percent of CO2 Emissions

Total Construction emissions in tons =

CO2	CH4	N2O	Total GHG
808.00	0.05	0.02	808.07

Total construction emissions as eCO2 in tons =

808.00	0.97	6.42	815.39

Total construction Emissions as eCO2 on Metric tons =

733.00	**0.88**	**5.82**	**739.70**

EMISSIONS in tons

2014 Construction Emissions

CO2	CH4	N2O
827 (from URBEMIS)		

From CCAR GPR 3.1 (2009) Table C-6

Diesel emission of CO2

10.15	kg CO2/gal
0.00058	kg CH4/gal

0.00026 kg N2O/gal

So for Mobile sources… CH4 emission = 5.71E-05 percent of CO2 Emissions
N2O emissions = 2.56E-05 percent of CO2 Emissions

Total Construction emissions in tons =

CO2	CH4	N2O	Total GHG
827.00	0.05	0.02	827.07

Total construction emissions as eCO2 in tons =

827.00	0.99	6.57	834.56

Total construction Emissions as eCO2 on Metric tons =

750.24	**0.90**	**5.96**	**757.10**

2015 Construction Emissions

EMISSIONS in tons

CO2	CH4	N2O
369 (from URBEMIS)		

From CCAR GPR 3.1 (2009) Table C-6

Diesel emission of CO2 10.15 kg CO2/gal
0.00058 kg CH4/gal
0.00026 kg N2O/gal

So for Mobile sources… CH4 emission = 5.71E-05 percent of CO2 Emissions
N2O emissions = 2.56E-05 percent of CO2 Emissions

Total Construction emissions in tons =

CO2	CH4	N2O	Total GHG
369.00	0.02	0.01	369.03

Total construction emissions as eCO2 in tons =

369.00	0.44	2.93	372.37

Total construction Emissions as eCO2 on Metric tons =

334.75	**0.40**	**2.66**	**337.81**

PROJECT CONSTRUCTION EMISSIONS PHASE 2

	EMISSIONS in tons		
2015 Construction Emissions	**CO2**	**CH4**	**N2O**
	123 (from URBEMIS)		
			1051

From CCAR GPR 3.1 (2009) Table C-6

Diesel emission of CO2

10.15	kg CO2/gal
0.00058	kg CH4/gal
0.00026	kg N2O/gal

So for Mobile sources…

CH4 emission =	5.71E-05	percent of CO2 Emissions
N2O emissions =	2.56E-05	percent of CO2 Emissions

Total Construction emissions in tons =

CO2	**CH4**	**N2O**	**Total GHG**
123.00	0.01	0.00	123.01

Total construction emissions as eCO2 in tons =

123.00	0.15	0.98	124.12

Total construction Emissions as eCO2 on Metric tons =

111.58	**0.13**	**0.89**	**112.60**

EMISSIONS in tons

2016 Construction Emissions

CO2	CH4	N2O
1051 (from URBEMIS)		

From CCAR GPR 3.1 (2009) Table C-6

Diesel emission of CO2	10.15	kg CO2/gal
	0.00058	kg CH4/gal
	0.00026	kg N2O/gal

So for Mobile sources… CH4 emission = 5.71E-05 percent of CO2 Emissions
N2O emissions = 2.56E-05 percent of CO2 Emissions

Total Construction emissions in tons =

CO2	CH4	N2O	Total GHG
1051.00	0.06	0.03	1051.09

Total construction emissions as eCO2 in tons =

1051.00	1.26	8.35	1060.61

Total construction Emissions as eCO2 on Metric tons =

953.45	**1.14**	**7.57**	**962.16**

EMISSIONS in tons

2017 Construction Emissions

CO2	CH4	N2O
1045 (from URBEMIS)		

From CCAR GPR 3.1 (2009) Table C-6

Diesel emission of CO2	10.15	kg CO2/gal
	0.00058	kg CH4/gal

0.00026 kg N2O/gal

So for Mobile sources… CH4 emission = 5.71E-05 percent of CO2 Emissions
N2O emissions = 2.56E-05 percent of CO2 Emissions

Total Construction emissions in tons =

CO2	CH4	N2O	Total GHG
1045.00	0.06	0.03	1045.09

Total construction emissions as eCO2 in tons =

1045.00	1.25	8.30	1054.55

Total construction Emissions as eCO2 on Metric tons =

948.00	**1.14**	**7.53**	**956.67**

2018 Construction Emissions

EMISSIONS in tons

CO2	CH4	N2O
470 (from URBEMIS)		

From CCAR GPR 3.1 (2009) Table C-6

Diesel emission of CO2 10.15 kg CO2/gal
0.00058 kg CH4/gal
0.00026 kg N2O/gal

So for Mobile sources… CH4 emission = 5.71E-05 percent of CO2 Emissions
N2O emissions = 2.56E-05 percent of CO2 Emissions

Total Construction emissions in tons =

CO2	CH4	N2O	Total GHG
470.00	0.03	0.01	470.04

Total construction emissions as eCO2 in tons =

470.00	0.56	3.73	474.30

Total construction Emissions as eCO2 on Metric tons =

426.37	**0.51**	**3.39**	**430.27**

Total Project Construction = **4635.04**
2012-2018

PROJECT MOBILE WITHOUT TDM EMISSIONS

Mitigated Transportation

Target Year:	2020	2011	
	Project	**Baseline**	**Project-Baseline**
Operational Vehicles from URBEMIS (CO2 tons/year):	11,045.74	0.00	
Metric Ton Adjustment (CO2 metric tons/year):	10,023.36	0.00	
Pavley Regulation Adjustment (CO2 metric tons/year):	8,557.04	0.00	
US EPA Adjustment (CO2e metric tons/year):	9,007.41	0.00	
Low Carbon Fuels Adjustment (CO2e metric tons/year):	8,358.87	0.00	
Total (CO2e metric tons/year):			**8,358.87**

PROJECT MOBILE WITH TDM

Mitigated Transportation

Target Year:	2020	2011	
	Project	**Baseline**	**Project-Baseline**
Operational Vehicles from URBEMIS (CO2 tons/year):	9,930.20	0.00	
Metric Ton Adjustment (CO2 metric tons/year):	9,011.07	0.00	
Pavley Regulation Adjustment (CO2 metric tons/year):	7,692.84	0.00	
US EPA Adjustment (CO2e metric tons/year):	8,097.72	0.00	
Low Carbon Fuels Adjustment (CO2e metric tons/year):	7,514.69	0.00	
Total (CO2e metric tons/year):			**7,514.69**

	Mitigated Natural Gas		
	Project	**Baseline**	**Project-Baseline**
CO2 metric tons/year:	680.702	0.000	
CH4 metric tons/year:	0.064	0.000	
N2O metric tons/year:	0.001	0.000	
CO2e metric tons/year:	682.446	0.000	
CO2e metric tons/year:			**682.45**


NINE COUNTY JURISDICTION OF THE BAAQMD
Climate Zone 4
Napa
Sonoma
Solano
Contra Costa
SF
Climate Zone 5
Alameda
San Mateo
Santa Clara

Project Climate Zone Location:	○ Zone 4	◉ Zone 5

Mitigated Area Source

	Project	Baseline	Project-Baseline
Landscaping Emissions from URBEMIS (CO_2 metric tons/year):	0.227	0.000	
Hearth Emissions from URBEMIS (CO_2 metric tons/year):	0.000	0.000	
Wood Burning Fireplaces (N_2O metric tons/year):	0.000	0.000	
Natural Gas Fireplaces (N_2O metric tons/year):	0.000	0.000	
Wood Burning Stoves (CH_4 metric tons/year):	0.000	0.000	
Natural Gas Fireplaces (CH_4 metric tons/year):	0.000	0.000	
Total (CO_2e metric tons/year):	0.227	0.000	
Total (CO_2e metric tons/year):			**0.227**

	Mitigated Solid Waste		
	Project	**Baseline**	**Project - Baseline**
Truck Haul CO2 (metric tons/year):	11.03	0.00	
Truck Haul CH4 (metric tons/year):	0.0001	0.0000	
Truck Haul CO2e (metric tons/year):	11.04	0.00	
Landfill Offgasing (CO2e metric tons/year):	395.80	0.00	
Total Solid Waste (CO2e metric tons/year):	406.84	0.00	
Total Solid Waste (CO2e metric tons/year):			**406.84**

***** Select Mitigation Measures on the Mitigation Tab ===>** Mitigation

Baseline Landfill disposal option:

Select 1 of 3 options

- ○ Landfilling only
- ◉ Landfilling with Flaring to Burn Methane
- ○ Landfilling with Energy Recovery

Greenhouse Gas (GHG) Emissions

Indirect Greenhouse Gas (GHG) Emissions from Proposed Plan Electricity (Power Plant Emissions)

Estimated Proposed Plan Annual Electrical Use: 18,429,894 kWh (kilowatt hours)/year
18,430 mWh (megawatt hours)/year

		Annual		CO2	Annual
Indirect GHG gases	Emission Factor lb/mWh	Proposed Plan Electricity mWh	GHGs metric tons	Equivalent Factor	CO2 Equivalent Emissions (metric tons)
eCO2	524	18,430	4,380	1	4380
Nitrous Oxide (N2O)	0	18,430	0.0	296	0
Methane (CH4)	0	18,430	0.0	23	0
		Total Indirect GHG Emissions from Project Electricity Use=			**4380**
		Net Increase in GHG Emissions (Project -Existing to be Demolished) =			**3099**

Greenhouse Gas (GHG) Emissions from Existing

Indirect Greenhouse Gas (GHG) Emissions from Existing use of Electricity (Power Plant Emissions)

Estimated Project Annual Electrical Use: 4,443,600 kWh (kilowatt hours)/year
4,444 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Project Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
Carbon Dioxide Eq. (eCO2)	635.67	4,444	1,281	1	1281
Nitrous Oxide (N2O)	0	4,444	0.0	296	0
Methane (CH4)	0	4,444	0.0	23	0

Total Indirect GHG Emissions from Existing to be dmolished Electricity Use= 1281

(2007 PG&E eCO2rate) ALT A Percentage = 102.50

Water Useage Emissions

Water Demand =	0.1136	MGD	(assumes 0.142 MGD of demand and 20 % reduction from CALGREEN standards
	0.025	MGD	water demand for existing uses to be demolished
Water useage =	0.0886	MGD	
=	32.339	MG/year	

Energy use factor = 1450 kWh/MG from CEC 2006 & BAAQMD 2009

Electrical consumption =

4.69E+04 kW-hr/yr
4.69E+01 MW-hr/yr

Emission factors for electricity use from California Climate Action Registry General Reporting Protocol January 2009 Version 3.1

	CO2		**CH4**		**N2O**	
CALI Subregion	724.12	lbs/MW-hr	0.0302	lbs/MW-hr	0.0081	lbs/MW-hr
Total Emissions =	3.40E+04	lb/yr	1.42E+00	lb/yr	3.80E-01	lb/yr

Total emissions as eCO2 =

	3.40E+04	lb/yr	2.97E+01	lb/yr	1.18E+02	lb/yr	
	1.70E+01	ton/yr	1.49E-02	ton/yr	5.89E-02	ton/yr	
	1.54E+01	MT/yr	1.35E-02	MT/yr	5.34E-02	MT/yr	1.55E+01

TOTAL WATER USAGE EMISSIONS AS eCO2 = 3.41E+04 lb/yr

1.55E+04 kg/yr

16 MT/yr

WasteWater Useage Emissions

Water Output =	0.102285	MGD	(assumes 0.128 MGD of output and 20 % reduction from CALGREEN standards
	0.0225	MGD	water output for existing uses to be demolished
Water outpflow =	0.079785	MGD	
=	29.12145	MG/year	

Energy use factor = 2500 kWh/MG from CEC 2006 & BAAQMD 2009

Electrical consumption =

7.28E+04 kW-hr/yr
7.28E+01 MW-hr/yr

Emission factors for electricity use from California Climate Action Registry General Reporting Protocol January 2009 Version 3.1

	CO2		**CH4**		**N2O**	
CALI Subregion	724.12	lbs/MW-hr	0.0302	lbs/MW-hr	0.0081	lbs/MW-hr
Total Emissions =	5.27E+04	lb/yr	2.20E+00	lb/yr	5.90E-01	lb/yr

Total emissions as eCO2 =

5.27E+04	lb/yr	4.62E+01	lb/yr	1.83E+02	lb/yr
2.64E+01	ton/yr	2.31E-02	ton/yr	9.14E-02	ton/yr
2.39E+01	MT/yr	2.09E-02	MT/yr	8.29E-02	MT/yr

TOTAL WasteWATER USAGE EMISSIONS AS eCO2 = 5.29E+04 lb/yr

2.41E+04 kg/yr

24 MT/yr

APPENDIX J
Alternatives Data

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Memorandum

TABLE 1
PROJECT WEEKDAY PERSON-TRIP GENERATION

	Original Project Description				Alternative 1: South Tower Build Only				Alternative 2: Onsite Max Reduced Impacts			
Land Use	**Size (KSF)**	**Daily Total**	**AM Peak Hour**	**PM Peak Hour**	**Size (KSF)**	**Daily Total**	**AM Peak Hour**	**PM Peak Hour**	**Size (KSF)**	**Daily Total**	**AM Peak Hour**	**PM Peak Hour**
Office (North Tower)	768	7,438	1,111	1,090	0	0	0	0	0	0	0	0
Office (South Tower)	552	5,766	854	809	552	5,766	854	809	222	2,860	412	379
Retail	46	5,210	285	521	46	5,210	285	521	46	5,210	285	521
Existing Retail (to be removed)[a]	(48)	(5,210)	(285)	(521)	(48)	(5,210)	(285)	(521)	(48)	(5,210)	(285)	(521)
Net New Person-Trips		**13,204**	**1,965**	**1,899**		**5,766**	**854**	**809**		**2,860**	**412**	**379**

[a] Assumed to be no greater than trips generated by newly proposed retail uses under the Project.

SOURCE: AECOM, 2010.

AECOM

TABLE 2
PROJECT WEEKDAY VEHICLE-TRIP GENERATION [a]

	Original Project Description				Alternative 1: South Tower Build Only				Alternative 2: Onsite Max Reduced Impacts			
Land Use	**Size (KSF)**	**Daily Total**	**AM Peak Hour**	**PM Peak Hour**	**Size (KSF)**	**Daily Total**	**AM Peak Hour**	**PM Peak Hour**	**Size (KSF)**	**Daily Total**	**AM Peak Hour**	**PM Peak Hour**
Office (North Tower)	768	4,487	671	657	0	0	0	0	0	0	0	0
Office (South Tower)	552	3,479	516	487	552	3,479	516	487	222	1,726	248	229
Retail	46	5,002	246	449	46	5,002	246	449	46	5,002	246	449
Existing Retail (to be removed)[b]	(48)	(5,002)	(246)	(449)	(48)	(5,002)	(246)	(449)	(48)	(5,002)	(246)	(449)
Net New Person-Trips		**7,966**	**1,187**	**1,144**		**3,479**	**516**	**487**		**1,726**	**248**	**229**

a Vehicle-trip calculations based on 70 percent auto mode split and Average Vehicle Occupancy of 1.16.

b Assumed to be no greater than trips generated by newly proposed retail uses under the Project.

SOURCE: AECOM, 2010.

TABLE 3
CUMULATIVE (2030) PLUS PROJECT INTERSECTION LEVELS OF SERVICE

#	Intersection	Traffic Cont.	Cumulative (2030) without Project Conditions				Cumulative (2030) plus Project Conditions				ALTERNATIVE 1: Cumulative plus Project Conditions (South Tower Only)				ALTERNATIVE 2: Cumulative plus Project Conditions (Onsite Maximum Reduced Impacts)			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			LOS	Del.[a]	LOS	Del.[a]	LOS	Del.[a]	LOS	Del.[a]	LOS	Del.[a]	LOS	Del.[a]	LOS	Del.[a]	LOS	Del.[a]
Outside Downtown																		
2	Oakland Ave. / Perry Pl. / I-580 EB Ramps	Signal	E	65.9	F	>120	**F**	**83.7**	**F**	**>120**	**E**	**74.3**	**F**	**>120**	C	27.7	F	>120
45	Grand Avenue / El Embarcadero	Signal	C	23.4	F	>120	C	23.9	**F**	**>120**	C	23.6	F	>120	C	23.4	F	>120
47	Grand Avenue / MacArthur Blvd. (EB)	Signal	E	68.3	F	>120	E	68.6	**F**	**>120**	E	68.3	F	>120	E	68.3	F	>120
48	Lakeshore Avenue / MacArthur Blvd. (EB)	Signal	F	94.5	F	>120	F	94.4	**F**	**>120**	F	94.4	F	>120	F	94.5	F	>120
50	Harrison Street / MacArthur Blvd. (WB)	Signal	F	83.2	C	21.3	**F**	**102.1**	C	21.5	**F**	**88.8**	C	21.4	F	83.6	C	20.8
Within Downtown																		
12	Harrison St. / Grand Ave.	Signal	F	93.8	F	>120	**F**	**>120**	**F**	**>120**	**F**	**>120**	**F**	**>120**	D	53.5	F	>120
13	Harrison St. / 21st St.	Signal	A	7.5	B	19.9	B	11.5	**F**	**98.7**	A	9.8	D	50.7	A	9.0	C	21.0
44	Oak Street / 5th Street / I-880 SB On-Ramp	Signal	F	>120	F	>120	**F**	**>120**	**F**	**>120**	F	>120	F	>120	E	77.3	F	>120

Bold indicates significant impact.
Project contributions under Alternative 2 would not exceed thresholds of significance and, therefore, Alternative 2 would not result in significant impacts at the above locations.

[a] The LOS and delay for signalized intersections represent the average delay for all traffic movements.

SOURCE: AECOM, 2010.

TABLE 4
CUMULATIVE (2030) PLUS PROJECT (PHASE I AND PHASE II) ROADWAY SEGMENT LEVELS OF SERVICE

					Cumulative (2030) without Project Conditions						Cumulative (2030) plus Project (Phase I and Phase II) Conditions					
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
No.	Roadway Segment	Dir.	Ln.	Capacity (veh/hr)	LOS	Vol.	v/c	LOS	Vol.	v/c	LOS	Vol.	v/c	LOS	Vol.	v/c
Caltrans Facilities																
3	**I-880** from Oak Street to 5th Avenue	EB	4	8,000	E	7,390	0.92	E	7,920	0.99	E	7,405	0.93	**F**	**8,014**	**1.00**
		WB	4	8,000	E	7,925	0.99	E	7,217	0.90	**F**	**8,029**	**1.00**	E	7,237	0.90
Non-Caltrans Facilities																
9	**Grand Avenue** from Harrison St. to El Embarcadero	EB	2	1,800	C	936	0.52	F	2,284	1.27	C	940	0.52	**F**	**2,425**	**1.35**
		WB	2	1,800	E	1,782	0.99	D	1,326	0.74	**F**	**2,010**	**1.12**	D	1,373	0.76
10	**Harrison Street / Oakland Avenue** from I-580 to 27th Street	NB	2	1,800	E	1,718	0.95	F	2,342	1.30	E	1,776	0.99	**F**	**2,614**	**1.45**
		SB	2	1,800	E	1,571	0.87	C	987	0.55	**F**	**1,808**	**1.00**	C	1,027	0.57

					ALTERNATIVE 1: Cumulative plus Project Conditions (South Tower Only)						ALTERNATIVE 2: Cumulative plus Project Conditions (Onsite Maximum Reduced Impacts)					
					AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
No.	Roadway Segment	Dir.	Ln.	Capacity (veh/hr)	LOS	Vol.	v/c	LOS	Vol.	v/c	LOS	Vol.	v/c	LOS	Vol.	v/c
Caltrans Facilities																
3	**I-880** from Oak Street to 5th Avenue	EB	4	8,000	E	7,405	0.93	**F**	**8,014**	**1.00**	E	7,393	0.92	E	7,939	0.99
		WB	4	8,000	**F**	**8,029**	**1.00**	E	7,237	0.90	E	7,946	0.99	E	7,221	0.90
Non-Caltrans Facilities																
9	**Grand Avenue** from Harrison St. to El Embarcadero	EB	2	1,800	C	940	0.52	**F**	**2,425**	**1.35**	C	937	0.52	F	2,312	1.28
		WB	2	1,800	**F**	**2,010**	**1.12**	D	1,373	0.76	E	1,789	0.99	D	1,335	0.74
10	**Harrison Street / Oakland Avenue** from I-580 to 27th Street	NB	2	1,800	E	1,776	0.99	**F**	**2,614**	**1.45**	E	1,730	0.96	F	2,396	1.33
		SB	2	1,800	**F**	**1,808**	**1.00**	C	1,027	0.57	E	1,618	0.90	C	995	0.55

Bold indicates significant impact.
Project contributions under Alternative 2 would not exceed thresholds of significance and, therefore, Alternative 2 would not result in significant impacts at the above locations.

SOURCE: AECOM, 2010.

GHG EMISSIONS INVENTORY AND DATA – ALTERNATIVE 1

Mitigated Transportation	Target Year:	2015	2011	
		Project	**Baseline**	**Project-Baseline**
Operational Vehicles from URBEMIS (CO2 tons/year):		4,831.10	0.00	
Metric Ton Adjustment (CO2 metric tons/year):		4,383.94	0.00	
Pavley Regulation Adjustment (CO2 metric tons/year):		4,053.25	0.00	
US EPA Adjustment (CO2e metric tons/year):		4,266.58	0.00	
Low Carbon Fuels Adjustment (CO2e metric tons/year):		4,189.78	0.00	
Total (CO2e metric tons/year):				**4,189.78**

	Mitigated Natural Gas		
	Project	**Baseline**	**Project-Baseline**
CO2 metric tons/year:	680.702	0.000	
CH4 metric tons/year:	0.064	0.000	
N2O metric tons/year:	0.001	0.000	
CO2e metric tons/year:	682.446	0.000	
CO2e metric tons/year:			**682.45**

	Mitigated Solid Waste		
	Project	**Baseline**	**Project - Baseline**
Truck Haul CO2 (metric tons/year):	4.84	0.00	
Truck Haul CH4 (metric tons/year):	0.0001	0.0000	
Truck Haul CO2e (metric tons/year):	4.85	0.00	
Landfill Offgasing (CO2e metric tons/year):	165.52	0.00	
Total Solid Waste (CO2e metric tons/year):	170.36	0.00	
Total Solid Waste (CO2e metric tons/year):			**170.36**

***** Select Mitigation Measures on the Mitigation Tab ===>** Mitigation

Baseline Landfill disposal option:

Select 1 of 3 options

- ○ Landfilling only
- ◉ Landfilling with Flaring to Burn Methane
- ○ Landfilling with Energy Recovery

Indirect Greenhouse Gas (GHG) Emissions from Alternative 1 Electricity (Power Plant Emissions)

Estimated Proposed Plan Annual Electrical Use: 8,689,936 kWh (kilowatt hours)/year
8,690 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Proposed Plan Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
eCO2	524	8,690	2,065	1	2065
Nitrous Oxide (N2O)	0	8,690	0.0	296	0
Methane (CH4)	0	8,690	0.0	23	0

Total Indirect GHG Emissions from Project Electricity Use= 2065

Net Increase in GHG Emissions (Alt A -Existing to be Demolished) = 1995

Alternative 1
Water Useage Emissions

Water Demand =	0.049984	MGD	(assumes 44% of Project 0.142 MGD of demand based on area and 20 % reduction from CALGREEN standards
	0.002	MGD	water demand for existing uses to be demolished (0.92% less than project
Water useage =	0.047984	MGD	
=	17.51416	MG/year	

Energy use factor = 1450 kWh/MG from CEC 2006 & BAAQMD 2009

Electrical consumption =

2.54E+04 kW-hr/yr
2.54E+01 MW-hr/yr

Emission factors for electricity use from California Climate Action Registry General Reporting Protocol January 2009 Version 3.1

	CO2		**CH4**		**N2O**	
CALI Subregion	724.12	lbs/MW-hr	0.0302	lbs/MW-hr	0.0081	lbs/MW-hr
Total Emissions =	1.84E+04	lb/yr	7.67E-01	lb/yr	2.06E-01	lb/yr

Total emissions as eCO2 =

1.84E+04	lb/yr	1.61E+01	lb/yr	6.38E+01	lb/yr
9.19E+00	ton/yr	8.05E-03	ton/yr	3.19E-02	ton/yr
8.34E+00	MT/yr	7.30E-03	MT/yr	2.89E-02	MT/yr

TOTAL WATER USAGE EMISSIONS AS eCO2 = 1.85E+04 lb/yr

8.40E+03 kg/yr

8 MT/yr

Alternative 1
Waste Water Useage Emissions

			(assumes 44% of Project 0.128 MGD output based on area
Water Outflow =	0.045005	MGD	and 20 % reduction from CALGREEN standards
	0.002	MGD	water demand for existing uses to be demolished (92% less than project)
Water Outflow =	0.043005	MGD	
=	15.69694	MG/year	

Energy use factor = 2500 kWh/MG from CEC 2006 & BAAQMD 2009

Electrical consumption =

3.92E+04 kW-hr/yr
3.92E+01 MW-hr/yr

Emission factors for electricity use from California Climate Action Registry General Reporting Protocol January 2009 Version 3.1

	CO2		**CH4**		**N2O**	
CALI Subregion	724.12	lbs/MW-hr	0.0302	lbs/MW-hr	0.0081	lbs/MW-hr
Total Emissions =	2.84E+04	lb/yr	1.19E+00	lb/yr	3.18E-01	lb/yr

Total emissions as eCO2 =

	2.84E+04	lb/yr	2.49E+01	lb/yr	9.85E+01	lb/yr
	1.42E+01	ton/yr	1.24E-02	ton/yr	4.93E-02	ton/yr
	1.29E+01	MT/yr	1.13E-02	MT/yr	4.47E-02	MT/yr

TOTAL WATER USAGE EMISSIONS AS eCO2 = 2.85E+04 lb/yr

1.30E+04 kg/yr

13 MT/yr

GHG EMISSIONS INVENTORY AND DATA – ALTERNATIVE 2

Mitigated Transportation

Target Year:	2015	2011	
	Project	**Baseline**	**Project-Baseline**
Operational Vehicles from URBEMIS (CO2 tons/year):	2,396.29	0.00	
Metric Ton Adjustment (CO2 metric tons/year):	2,174.49	0.00	
Pavley Regulation Adjustment (CO2 metric tons/year):	2,010.47	0.00	
US EPA Adjustment (CO2e metric tons/year):	2,116.28	0.00	
Low Carbon Fuels Adjustment (CO2e metric tons/year):	2,078.19	0.00	
Total (CO2e metric tons/year):			**2,078.19**

Mitigated Natural Gas			
	Project	**Baseline**	**Project-Baseline**
CO2 metric tons/year:	273.760	0.000	
CH4 metric tons/year:	0.026	0.000	
N2O metric tons/year:	0.001	0.000	
CO2e metric tons/year:	274.462	0.000	
CO2e metric tons/year:			**274.46**

	Mitigated Solid Waste		
	Project	**Baseline**	**Project - Baseline**
Truck Haul CO2 (metric tons/year):	1.95	0.00	
Truck Haul CH4 (metric tons/year):	0.0000	0.0000	
Truck Haul CO2e (metric tons/year):	1.95	0.00	
Landfill Offgasing (CO2e metric tons/year):	66.57	0.00	
Total Solid Waste (CO2e metric tons/year):	68.52	0.00	
Total Solid Waste (CO2e metric tons/year):			**68.52**

***** Select Mitigation Measures on the Mitigation Tab ===>** Mitigation

Baseline Landfill disposal option:

Select 1 of 3 options

- ○ Landfilling only
- ◉ Landfilling with Flaring to Burn Methane
- ○ Landfilling with Energy Recovery

Indirect Greenhouse Gas (GHG) Emissions from Alternative 2 Electricity (Power Plant Emissions)

Estimated Proposed Plan Annual Electrical Use: 296,769 kWh (kilowatt hours)/year
297 mWh (megawatt hours)/year

Indirect GHG gases	Emission Factor lb/mWh	Annual Proposed Plan Electricity mWh	Annual GHGs metric tons	CO2 Equivalent Factor	Annual CO2 Equivalent Emissions (metric tons)
eCO2	524	297	71	1	70.5
Nitrous Oxide (N2O)	0.0037	297	0.0	296	0.00E+00
Methane (CH4)	0.0067	297	0.0	23	0.00E+00
		Total Indirect GHG Emissions from Project Electricity Use=			**71**

No Demolition

Alternative 2
Water Useage Emissions

Water Demand =	0.02272	MGD	(assumes 20% of Project 0.142 MGD of demand based on area and 20 % reduction from CALGREEN standards
	0	MGD	water demand for existing uses to be demolished
Water useage =	0.02272	MGD	
=	8.2928	MG/year	

Energy use factor = 1450 kWh/MG from CEC 2006 & BAAQMD 2009

Electrical consumption =

1.20E+04 kW-hr/yr
1.20E+01 MW-hr/yr

Emission factors for electricity use from California Climate Action Registry General Reporting Protocol January 2009 Version 3.1

	CO2		**CH4**		**N2O**	
CALI Subregion	724.12	lbs/MW-hr	0.0302	lbs/MW-hr	0.0081	lbs/MW-hr
Total Emissions =	8.71E+03	lb/yr	3.63E-01	lb/yr	9.74E-02	lb/yr

Total emissions as eCO2 =

8.71E+03	lb/yr	7.63E+00	lb/yr	3.02E+01	lb/yr
4.35E+00	ton/yr	3.81E-03	ton/yr	1.51E-02	ton/yr
3.95E+00	MT/yr	3.46E-03	MT/yr	1.37E-02	MT/yr

TOTAL WATER USAGE EMISSIONS AS eCO2 = 8.75E+03 lb/yr

3.98E+03 kg/yr

4.E+00 MT/yr

Alternative 2
Water Useage Emissions

Water Outflow =	0.020457	MGD	(assumes 20% of Project 0.142 MGD of demand based on area and 20 % reduction from CALGREEN standards
	0	MGD	water demand for existing uses to be demolished
Water Outflow =	0.020457	MGD	
=	7.46679	MG/year	

Energy use factor = 2500 kWh/MG from CEC 2006 & BAAQMD 2009

Electrical consumption =

1.87E+04 kW-hr/yr
1.87E+01 MW-hr/yr

Emission factors for electricity use from California Climate Action Registry General Reporting Protocol January 2009 Version 3.1

	CO2		**CH4**		**N2O**	
CALI Subregion	724.12	lbs/MW-hr	0.0302	lbs/MW-hr	0.0081	lbs/MW-hr
Total Emissions =	1.35E+04	lb/yr	5.64E-01	lb/yr	1.51E-01	lb/yr

Total emissions as eCO2 =

1.35E+04	lb/yr	1.18E+01	lb/yr	4.69E+01	lb/yr
6.76E+00	ton/yr	5.92E-03	ton/yr	2.34E-02	ton/yr
6.13E+00	MT/yr	5.37E-03	MT/yr	2.13E-02	MT/yr

TOTAL WATER USAGE EMISSIONS AS eCO2 = 1.36E+04 lb/yr

6.17E+03 kg/yr

6.17E+00 MT/yr