OAKLAND BICYCLE MASTER PLAN

Draft Environmental Impact Report

State Clearinghouse No. 2005092011

Prepared for:
City of Oakland CEDA

March 2007

ESA

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TABLE OF CONTENTS

Oakland Bicycle Master Plan
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		Page
1.	**Introduction**	
	A. Project Overview	1-1
	B. Environmental Review	1-1
	C. Organization of the Draft EIR	1-4
2.	**Summary**	
	A. Project Description	2-1
	B. Environmental Impacts and Mitigations Measures	2-2
	C. Alternatives	2-3
3.	**Project Description**	
	A. Project Location and Context	3-1
	B. Policy Framework and Plan Components	3-3
	C. Required Actions and Other Planning Considerations	3-8
4.	**Environmental Setting, Impacts and Mitigation Measures**	
	A. Transportation, Circulation and Parking	4.A-1
	B. Air Quality	4.B-1
5.	**Alternatives**	
	A. Criteria for Selecting Alternatives	5-1
	B. Alternatives Selected for Consideration	5-2
	C. Description and Analysis of Alternatives	5-2
	Alternative 1a: No Project / Existing Conditions	5-2
	Alternative 1b: No Project / Implement 1999 Bicycle Master Plan	5-3
	Alternative 2: Fewer Bikeways	5-3
	Alternative 3: No Lane Conversions	5-4
	D. Environmentally Superior Alternative	5-5
	E. Project Alternatives Considered but Rejected for Further Analysis in this EIR	5-6
6.	**Other Statutory Sections**	
	A. Significant and Unavoidable Environmental Impacts	6-1
	B. Growth-Inducing Impacts	6-1
	C. Cumulative Impacts	6-2
7.	**Report Preparation**	
	A. EIR Preparers	7-1

Page

Appendices

A.	Notice of Preparation and Initial Study	A-1
B.	Comments on the Notice of Preparation	B-1
C.	Air Quality Carbon Monoxide Concentration Calculations	C-1
D.	Standard Conditions of Approval (Uniformly Applied Development Standards under CEQA Guidelines Section 15183)	D-1
E.	Illustrative Example of Plan Implementation: Broadway Corridor Bikeway Feasibility Study	E-1
F.	Revisions to the Preliminary Proposed Bikeway Network	F-1
G.	11x17 Color Maps	G-1

List of Tables

2-1	Summary of Environmental Impacts and Mitigation Measures for the Oakland Bicycle Master Plan	2-5
4.A-1	Proposed On-street Bikeways Requiring Travel Lane Removal	4.A-15
4.A-2	Proposed On-Street Bikeways on MTS Segments Requiring Lane Removal	4.A-16
4.A-3	Proposed Bikeways on Transit Streets for Additional Study	4.A-23
4.A-4	On-Street Bikeways that Would Require Parking Removal	4.A-25
4.B-1	Criteria Air Pollutant Sources and Health Effects	4.B-2
4.B-2	State and National Air Quality Standards and Bay Area Attainment Status	4.B-3
4.B-3	Air Quality Data Summary for the Project Area	4.B-7
5-1	Summary of Bikeway Network by Alternative	5-7
5-2	Summary of Impacts: Project and Alternatives	5-8

List of Figures

3-1	Existing Bikeways	Appendix G
3-2	Proposed Bikeway Network	Appendix G
4.A-1	Regional and Local Roadways	Appendix G
5-1	1999 Recommended Bikeway Network	Appendix G
5-2	Primary Bikeways	Appendix G

CHAPTER 1
Introduction

A. Project Overview

The City of Oakland is updating its 1999 Bicycle Master Plan. The proposed project is referred to throughout this document as the "Plan" or "Project". Adoption of the resulting Plan will continue to ensure Oakland's eligibility for funding for bicycle facilities and programs from the State's Bicycle Transportation Account and other bicycle grant programs. The Plan serves as the official policy document addressing the development of facilities and programs to enhance the role of bicycling as a viable and appropriate transportation choice in Oakland. Through a General Plan amendment, the City will adopt the updated Plan as part of the Land Use and Transportation Element (LUTE) of the Oakland General Plan. The Plan would implement General Plan LUTE Policy T4.4 which recommends the preparation, adoption, and implementation of a Bicycle Master Plan.

The Bicycle Master Plan contains the following key components that are relevant to the environmental review presented in this program EIR:

- Vision, goals, objectives, and policies
- Proposed Bikeway Network
- Citywide feasibility analysis of proposed bikeways
- Coordination with local, county, and regional planning

As part of the General Plan LUTE, the Bicycle Master Plan has the comprehensive scope and jurisdictional authority required to coordinate all bicycle-related plans, programs, and projects within Oakland in a manner consistent with regional, state, and federal guidelines.

B. Environmental Review

The City of Oakland has conservatively determined that preparation of an environmental impact report (EIR) would be appropriate for the Bicycle Master Plan since implementation of the Plan may result in significant environmental impacts. Consistent with the California Environmental Quality Act (CEQA), this EIR is a public information document for use by governmental agencies and the public to identify and evaluate potential environmental consequences of the proposed project, to recommend mitigation measures and/or standard conditions of approval to lessen or eliminate adverse impacts, and to examine feasible alternatives to the project. Pursuant to CEQA Guidelines Section 15168, this EIR presents a program-level analysis since the individual projects that comprise the Plan would be "carried out under the same authorizing statutory or regulatory agency (City of Oakland) and have generally similar environmental effects

which can be mitigated in similar ways." Consistent with Section 15168, this EIR examines the types of projects contained in the Bicycle Master Plan and establishes a framework for the study of potential environmental impacts associated with each project type. This EIR also specifies mitigation measures and/or standard conditions for those potential impacts that would be applied to reduce any significant impacts to a less-than-significant level.

Given the specificity of this program-level analysis, the City does not anticipate that further project-level analysis (beyond what is provided in this EIR) would be required in most cases.[1] In other words, the program-level impacts, mitigation measures and/or standard conditions of approval identified in this EIR encompass and address impacts that could occur with the implementation of specific projects identified by the Plan. While the City has made every effort in preparing this EIR to address all of the anticipated effects of bicycle projects (CEQA Section 15168[c]), each project is "site specific" and could include issues that are not specifically addressed by this program EIR. Such projects would require additional environmental review to address the issues that are not included within the framework established by this program EIR.

The City will review and consider the information contained in the EIR prior to taking action on the Bicycle Master Plan Update or amending the General Plan.

Notice of Preparation and Initial Study Checklist

On September 6, 2005, the City sent a Notice of Preparation (NOP) and Initial Study Checklist (IS) to government agencies, organizations, and individuals interested in the Project. The NOP and IS are included as Appendix A to this EIR. The NOP requested that agencies with regulatory authority over any aspect of the Project describe that authority and identify the relevant environmental issues that should be addressed in the EIR. Interested members of the public were also invited to comment. Responses to the NOP and IS are included as Appendix B. The IS prepared for the Project conservatively identified transportation, circulation, and parking and air quality as environmental issues for which implementation of the Project could result in a potentially significant impact. These two environmental topics are addressed in this EIR. The IS determined that implementation of the Project would result in less-than-significant impacts for all other environmental issues, and thus they are excluded from further analysis in this Draft EIR.

This Draft EIR is available for public review for the period identified on the notice inside the front cover of the document, during which time written comments on the Draft EIR analysis may be submitted to the City of Oakland, Community and Economic Development Agency, Planning and Zoning Division, at the address indicated on the notice. Public comments may also be submitted during the public hearing on the Draft EIR. Responses to all comments received on the environmental analysis in the Draft EIR and submitted within the specified review period will be prepared and included in the Final EIR.

[1] This program EIR is not intended to provide CEQA clearance for portions of Telegraph Avenue (Aileen Street to 20th Street) and International Boulevard (54th Avenue to 82nd Avenue) – where the installation of Bicycle Lanes (Class 2) would require the removal of continuous two-way center turn lanes – because these segments are only provisionally designated as part of the Proposed Bikeway Network. The provisional designation will only be lifted, and those segments automatically incorporated into the Proposed Bikeway Network, if further environmental review is performed and appropriate CEQA findings are adopted by the City.

Changes to the EIR Scope since the NOP

Revisions to the Proposed Bikeway Network

Subsequent to publication of the NOP, the City revised the Preliminary Proposed Bikeway Network that was described in the NOP in Figures 1 through3 and Tables 1through 3. (See Appendix A to this EIR.) The revisions were made in response to the results of a planning-level citywide feasibility analysis that evaluated potential bikeways with consideration given to street grades, street widths, traffic volumes, and bicycle/bus interactions, as well as to community input received during initial outreach on the preliminary network. The resulting modifications to the Proposed Bikeway Network would maximize bicyclist safety and access while minimizing potential disruptions to motor vehicle traffic, curbside parking, and bus operations. I

Table 1 of the NOP and IS noted that Telegraph Avenue was undergoing environmental review as a separate project from the Bicycle Master Plan Update. The analysis of Telegraph Avenue (Aileen Street to 20th Street) is not included in this EIR because it is a bikeway project type (removal of a continuous two-way center turn lane) that is not addressed by the program-level analysis herein. Although not specifically noted in the NOP, International Boulevard (54th Avenue to 82nd Avenue) involves the same type of bikeway project and is therefore not addressed by this EIR. Further, this program EIR is not intended to provide CEQA clearance for these two roadway segments because these segments are provisionally designated as part of the Proposed Bikeway Network. The provisional designation will only be lifted, and those segments automatically incorporated into the Proposed Bikeway Network, if further environmental review is performed and the City adopts appropriate CEQA findings.

The citywide feasibility analysis referred to above is described in Chapter 3 (Project Description), throughout the analysis in Chapter 4 (Environmental Setting, Impacts and Mitigation Measures), and is summarized in Appendix F to this Draft EIR. In particular, Table F-1 notes the specific changes to Table 1 (Preliminary Proposed Bicycle Lanes for Inclusion in the Bicycle Master Plan Update) that was included in the NOP and IS.

Inclusion of Bicycle Paths (Class 1 Facilities)

The NOP published for this EIR indicated that the environmental analysis would include the potential impacts of the Proposed Bikeway Network and, in particular, proposed Bicycle Lanes (Class 2). The NOP indicated that the Draft EIR would *not* address the potential environmental impacts of Bicycle Paths (Class 1). Bicycle Paths would not be addressed because the specific alignment of these projects would not be known during preparation of the Draft EIR. The NOP further indicated that future Bicycle Paths may receive environmental review as part of a larger project (such as Measure DD or a specific development project such as the Oak to Ninth Avenue Development Project). Otherwise, proposed Bicycle Paths would be subject to project-level environment review as determined by the City and pursuant to CEQA. The NOP acknowledged that the proposed Bicycle Paths were largely undefined within the Proposed Bikeway Network and could result in potentially significant impacts to the environment.

Upon further consideration of the scope of the environmental analysis for the Bicycle Master Plan Update, the City included a program-level analysis of Bicycle Paths in this Draft EIR. The analysis gives broad consideration to the potential environmental effects that could result from implementing the approximately 19 miles of new Bicycle Paths identified in the Proposed Bikeway Network. It also specifies program-level impacts along with mitigation measures and standard conditions of approval that would address these potential impacts. Once the specific alignment of a particular Bicycle Path is known, the City may determine that the environmental analysis provided in this EIR addresses the potential impacts of the particular project. Alternately, if the potential impacts exceed the scope of this program EIR, the City would complete additional project-level analysis pursuant to CEQA.

C. Organization of the Draft EIR

The *Summary* (Chapter 2) includes a brief project description and an overview table of the environmental impacts identified by this EIR. The summary table lists the environmental impacts, proposed mitigation measures (including standard conditions), and the level of significance after mitigation. Detailed analysis of these impacts and mitigations is provided in Chapter 4 (Environmental Setting, Impacts and Mitigation Measures).

The *Project Description* (Chapter 3) describes the project location, policy framework, and key characteristics of the Bicycle Master Plan including the Proposed Bikeway Network. This chapter also includes and a list of the City's required project approvals and other agencies that may consider aspects of the Project.

Environmental Setting, Impacts and Mitigation Measures (Chapter 4) contains a discussion of the setting (existing conditions and regulatory framework) and the environmental impacts (including cumulative impacts) that could result from the Project. It includes the criteria used to assess the significance of adverse environmental effects. The chapter also identifies the mitigation measures and/or standard conditions of approval that would reduce or eliminate these adverse impacts. The impact discussions include the significance of the each impact both with and without implementation of mitigation measures and/or standard conditions.

Alternatives (Chapter 5) evaluates a range of alternatives to the proposed Project and identifies an environmentally superior alternative, consistent with the requirements of CEQA. The alternatives analyzed are "Alternative 1a: No Project – Existing Conditions," "Alternative 1b: No Project – Implement the 1999 Bicycle Master Plan," "Alternative 2: Fewer Bikeways," and "Alternative 3: No Lane Conversions."

Impact Overview (Chapter 6) describes the impacts identified in Chapter 4 and describes the project's potential for inducing growth.

Report Preparation (Chapter 7) identifies the authors of the EIR. Persons and documents consulted during preparation of the EIR are listed at the end of each analysis section (Sections 4.A and 4.B).

Appendices. The NOP and Initial Study Checklist, comment letters received on the NOP, as well as supporting documents and technical information for the impact analyses are presented in Appendices A through F.

All reference documents listed at the end of each analysis section (Chapter 4) are available for review by the public. Documents are available under Case Number ER05-104, GP05-450 at the City of Oakland, Community and Economic Development Agency, Planning and Zoning Division, 250 Frank Ogawa Plaza Suite 3315, Oakland, CA 94612.

CHAPTER 2
Summary

A. Project Description

The City of Oakland is updating its 1999 Bicycle Master Plan ("Plan" or "Project"). Adoption of the resulting Plan will continue to ensure Oakland's eligibility for funding for bicycle facilities and programs from the State's Bicycle Transportation Account and other bicycle grant programs. The Plan serves as the official policy document addressing the development of facilities and programs to enhance the role of bicycling as a viable and appropriate transportation choice in Oakland. Through a General Plan amendment, the City will adopt the updated Plan as part of the Land Use and Transportation Element (LUTE) of the Oakland General Plan. The Plan would implement General Plan LUTE Policy T4.4 which recommends the preparation, adoption, and implementation of a Bicycle Master Plan. While the updated Bicycle Master Plan provides a planning vision for approximately twenty years (through 2027), it may need to be updated or reaffirmed five years after its adoption to comply with State requirements.

The Plan contains the following key components that are relevant to the environmental review presented in this program EIR:

- Vision, goals, objectives, and policies;
- Proposed Bikeway Network;
- Citywide feasibility analysis of proposed bikeways; and
- Coordination with local, county, and regional planning.

Specifically, the Proposed Bikeway Network includes approximately 216 miles of bikeways in Oakland, primarily on-street bikeways to be constructed within the curb-to-curb width of existing streets. At completion, the Proposed Bikeway Network would include:

- 34 miles of Bicycle Paths (Class 1 facilities that provide for bicycle travel on a paved right-of-way that is completely separated from the street);
- 91 miles of Bicycle Lanes (Class 2 facilities that are striped lanes on streets, designated with specific signage and stencils, for the use of bicyclists);
- 22 miles of Bicycle Routes (Class 3 facilities for bicycle travel using lanes shared with motor vehicles and indicated by signage only);
- 39 miles of Arterial Bicycle Routes (Class 3A facilities that may be necessary on some arterial streets where Bicycle Lanes [Class 2] are not feasible and parallel streets do not provide adequate connectivity); and
- 30 miles of Bicycle Boulevards (Class 3B facilities on residential streets that prioritize through trips for bicyclists).

The network also includes improvements to existing bikeways that would affect 165 miles of roadway and paths. The new and improved bikeways include approximately:

- 19 miles of Bicycle Paths (Class 1);
- 73 miles of Bicycle Lanes (Class 2);
- 4 miles of Bicycle Routes (Class 3);
- 38 miles of Arterial Bicycle Routes (Class 3A); and
- 30 miles of Bicycle Boulevards (Class 3B).

B. Environmental Impacts and Mitigation Measures

As provided in Appendix A to this EIR, the City of Oakland prepared an Initial Study for the Plan that conservatively identified transportation, circulation and air quality as environmental issues for which implementation of the Plan could result in potentially significant impacts. These two topics are addressed in this EIR, and to the extent that implementation of the Plan may affect other environmental issues, they are identified, discussed, and mitigated as appropriate and feasible.

Potentially significant environmental impacts of the proposed Plan are summarized in Table 2-1 provided at the end of this chapter. This table lists the impacts identified throughout this EIR for the Plan in three categories: significant impacts that would remain significant even with implementation of mitigation measure(s) (significant and unavoidable); significant impacts that could be mitigated to a less than significant level with implementation of mitigation measure(s) (significant but mitigable); and impacts that would not be significant and thus not require implementation of mitigation measure(s) (less than significant). For each significant impact identified for the Plan, the table lists the mitigation measure(s) identified throughout this EIR and indicates the level of significance after implementation of mitigation measures. A complete discussion of each impact and associated mitigation measure is provided in Chapter 4, *Environmental Setting, Impacts, and Mitigation Measures*.

Non-CEQA Issues

In addition to the physical environmental impacts analyzed pursuant to CEQA, this EIR also addresses the following topics that are relevant to the implementation of the Proposed Bikeway Network: Transit Facilities and On-street Parking.

Transit Facilities

The Proposed Bikeway Network would reduce the number of travel lanes on various segments of existing roadways in the city. Altering the roadway configuration by reducing the number of travel lanes on roadways where transit routes operate could increase transit vehicle delays. Transit vehicles that operate in the paved right-of-way would experience the same delay, if any, as other motor vehicles due to localized congestion at controlled intersections. This issue is addressed through the impacts, standard conditions, and mitigation measures identified for the potentially significant impact that could result with travel lane removal. In addition, transit vehicles could experience increased delays associated with accessing bus stops.

While there are no established methods of study that the City of Oakland employs to assess the potential effects of travel lane removal on transit operations under CEQA, this EIR analysis identifies measures that will provide a more comprehensive accounting of the individual projects' effects; guide decision-making on project feasibility, development, and implementation; and allow for ongoing City and AC Transit strategies to address the effects resulting from implementing on-street bikeways on key transit streets.

On-street Parking

The Proposed Bikeway Network would not generate additional motor vehicle trips or result in new land uses, and therefore would not increase the demand for motor vehicle parking. However, proposed on-street bikeways would require the removal of on-street parking along 3.6 miles (two percent) of the Proposed Bikeway Network (see Table 4.A-5). While the removal of parking is not considered an environmental impact, the City of Oakland routinely presents parking-related effects in its environmental documents for informational purposes. Overall, the Proposed Bikeway Network would encourage bicycle transportation and increase the potential that trips currently made by car would instead be made by bicycle, potentially resulting in a reduction in parking demand.

C. Alternatives

Consistent with Section 15126.6 of the CEQA Guidelines, Chapter 5 of this EIR analyzes a range of reasonable alternatives to the proposed project, including the no project alternatives required by CEQA. The project alternatives are described below.

No Project / Existing Conditions

The No Project / Existing Conditions Alternative would maintain the bicycle network in Oakland under its current conditions; no improvements or additions would be made. This Alternative would avoid or substantially reduce all project-related impacts identified with the Proposed Bikeway Network.

No Project / Implement 1999 Bicycle Master Plan

The No Project / 1999 Implement 1999 Bicycle Master Plan ("No Project / 1999 Plan") Alternative would continue implementation of the adopted 1999 Bicycle Master Plan. The No Project / 1999 Plan Alternative would have significant transportation impacts because the 1999 Plan would alter the roadway network to accommodate on-street bikeways with little consideration for the existing roadway characteristics. When compared to the Proposed Bikeway Network, the No Project / 1999 Plan Alternative would have more or greater impacts than the proposed project as it doesn't account for roadway characteristics, including traffic patterns and topography.

Fewer Bikeways

Under the Fewer Bikeways Alternative, the Proposed Bikeway Network would be reduced to only include the primary bikeways – a network of 127 miles compared to the proposed 216 miles. The primary bikeways would provide a skeletal citywide network with bikeways spaced at greater intervals and serving fewer destinations. The impacts would remain essentially the same as with the Proposed Bikeway Network. However, they would only be applicable to the primary bikeways, and thus the potential impacts would occur in fewer locations.

No Lane Conversions

The No Lane Conversions Alternative includes the proposed bikeways in the same locations as identified for the Proposed Bikeway Network. However, it modifies the proposed bikeway types so as not to include projects that would require the removal of travel lanes. This would include bikeways on streets where the existing lane configuration cannot accommodate a Bicycle Lane (Class 2) or a wide outer travel lane for an Arterial Bicycle Route (Class 3A). Under the No Lane Conversion Alternative, bicyclists and drivers would share travel lanes of standard width on designated Bicycle Routes (Class 3). This alternative would maintain the overall mileage of the Proposed Bikeway Network.

Environmentally Superior Alternative

According to CEQA, the Environmentally Superior Alternative would most avoid or substantially reduce one of more of the significant effects that would occur with the project and the other evaluated alternatives. Notwithstanding the No Project / Existing Conditions Alternative pursuant to CEQA *Guidelines,* Section 15126.6(e), the No Lane Conversions Alternative would be considered the Environmentally Superior Alternative since it would reduce the significant but mitigable environmental impacts associated with traffic operations identified with the Proposed Bikeway Network by excluding bikeway facilities that would require the elimination of a travel lane. According to CEQA, this alternative is identified in this EIR as environmentally superior although it would not promote safe and convenient bicycle access throughout the city.

TABLE 2-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE OAKLAND BICYCLE MASTER PLAN

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
A. Transportation, Circulation, and Parking		
A.1: Implementation and use of new off-street bikeways, as proposed in the Bicycle Master Plan, could cause potential environmental impacts within the Plan area.	**Standard Condition A.1:** The project shall incorporate all of the City's uniformly-applied Standard Conditions (provided in Appendix D to this EIR and incorporated in this Standard Condition by reference).	Less than Significant
A.2: Adding bikeway signage and striping to existing roadways in the Plan area, as proposed in the Bicycle Master Plan, could affect traffic operations.	None required.	Beneficial
A.3: Removing a travel lane within the Plan area to accommodate on-street bikeways, as proposed in the Bicycle Master Plan, could increase traffic congestion on local roadways.	**Mitigation Measure A.3a:** If the removal of a travel lane would cause an intersection on a proposed bikeway to operate at an unacceptable level of service, the project shall be redesigned to maintain the operating conditions at an acceptable level of service on the affected intersection approach. Otherwise, the City shall prepare further environmental review that identifies significant and unavoidable impacts for which the City must adopt a statement of overriding considerations. **Standard Condition A.3b**: Implementation of Standard Condition A.1 (Incorporation of all uniformly-applied Standard Conditions).	Less than Significant
A.4: Removing a travel lane within the Plan area to accommodate on-street bikeways, as proposed in the Bicycle Master Plan, could increase traffic congestion on CMP MTS segments.	**Mitigation Measure A.4a:** If the removal of a travel lane would cause a roadway segment on the Metropolitan Transportation System to operate at an unacceptable volume-to-capacity ratio, the project shall be redesigned to maintain the operating conditions at an acceptable volume-to-capacity ratio on the affected roadway segment. Otherwise, the City shall prepare further environmental review that identifies significant and unavoidable impacts for which the City must adopt a statement of overriding considerations. **Standard Condition A.4b:** Implementation of Standard Condition A.1 (Incorporation of all uniformly-applied Standard Conditions).	Less than Significant
A.5: Altering existing roadway configurations in the Plan area to accommodate the Proposed Bikeway Network and support facilities, as proposed in the Bicycle Master Plan, could affect pedestrian facilities.	None required.	Beneficial
A.6: Altering existing roadway configurations in the Plan area to accommodate the Proposed Bikeway Network, as proposed in the Bicycle Master Plan, could affect existing bikeways.	None required.	Beneficial

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE OAKLAND BICYCLE MASTER PLAN

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
A.7: Altering existing roadway configurations in the Plan area to accommodate the Proposed Bikeway Network, as proposed in the Bicycle Master Plan, could affect transit service.	**Mitigation Measure A.7a:** Implement Mitigation Measure A.3a (Redesign to maintain acceptable levels of service). **Mitigation Measure A.7b**: Implement Mitigation Measure A.4a (Redesign to maintain acceptable volume-to-capacity ratios). **Standard Condition A.7c:** Implementation of Standard Condition A.1 (Incorporation of all uniformly-applied Standard Conditions).	Less than Significant
A.8: Altering existing roadway configurations in the Plan area to accommodate the Proposed Bikeway Network, as proposed in the Bicycle Master Plan, would cause construction impacts.	**Standard Condition A.8:** Prior to commencing any construction or alterations related to the project, the construction contractor shall meet with the Transportation Services Division of the Oakland Public Works Agency and other appropriate City of Oakland agencies to determine traffic management strategies to reduce, to the maximum extent feasible, traffic congestion that may result during construction of this project and other nearby projects that could be simultaneously under construction. Specifically: • The construction contractor shall not block roadways or sidewalks so that adjacent residents or occupants would be adversely affected from getting to and from their respective property. Notify adjacent property owners and public safety personnel regarding when major (temporary) detours and or lane closures will occur due to construction activities. Notification shall occur not less than 48 hours before commencing such activities. • The construction contractor shall locate construction staging areas for materials, equipment, and vehicles in areas as to not impede safe pedestrian and vehicular traffic. • The construction contractor shall identify haul routes for movement of construction vehicles that would minimize impacts on vehicular and pedestrian traffic, circulation and safety. • The construction contractor shall remove trash generated by project construction activity. • The construction contractor shall clearly display contractor contact information pertaining to construction activity, including identification of an on-site complaint manager, for the purpose of tracking any complaints regarding construction activity impacts.	Less than Significant
A.9: Requiring and erecting bicycle parking and support facilities in the Plan area, as proposed in the Bicycle Master Plan, could affect bicycle ridership.	None required.	Beneficial

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE OAKLAND BICYCLE MASTER PLAN

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
A.10: Implementing bicycle education programs, as proposed in the Bicycle Master Plan, could increase bicycle awareness.	None required.	Beneficial
A.11: Implementing policies, as proposed in the Bicycle Master Plan, could increase bicycling in the City of Oakland.	None required.	Beneficial
A.12: Implementing the Proposed Bikeway Network, as proposed in the Bicycle Master Plan, could cause cumulative impacts.	**Mitigation Measure A.12a:** The City shall integrate proposed bikeway projects into overlapping and concurrent roadway projects such that the construction staging occurs as a single project. Where the integration of such projects is not feasible, the City shall schedule the implementation of the projects to avoid any cumulative impacts to transportation that would be caused by the simultaneous staging of multiple projects. **Standard Condition A.12b:** Implementation of Standard Condition A.1 (Incorporation of all uniformly-applied Standard Conditions).	Less than Significant
B. Air Quality		
B.1: Construction activities associated with the implementation of the Bicycle Master Plan could generate short-term emissions of criteria pollutants.	**Standard Condition B.1:** Dust Control Measures – During all construction activities, applicable dust control measures shall be instituted and maintained during construction to minimize air quality impacts. The measures are consistent with, but are not limited to, the BAAQMD Basic and Enhanced dust control measures recommended for sites larger than 4 acres and include: • Watering all active construction areas at least twice daily to control dust; • Covering stockpiles of debris, soils, or other material if blown by the wind; • Sweeping adjacent public rights of way and streets daily if visible soil material or debris is carried onto these areas; • Sweeping daily all paved access roads, parking areas, and staging areas at the construction site; • Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard; • Hydroseed or apply non-toxic soil stabilizers to inactive construction areas;	Less than Significant

TABLE 2-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES FOR THE OAKLAND BICYCLE MASTER PLAN

Environmental Impact	Mitigation Measures	Level of Significance after Mitigation
	• Enclose, cover, water twice daily or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.); • Install sandbags or other erosion control measures to prevent silt runoff onto public roadways; • Replant vegetation in disturbed areas as quickly as possible; • Limit traffic speeds on unpaved roads/driveways to 15 miles per hour; • Install wheel washers for all exiting trucks or wash off the tires or tracks of all trucks and equipment leaving the construction site; • Install wind breaks at the windward sides of the construction areas; and • Suspend excavation and grading activities when wind (as instantaneous gusts) exceed 25 miles per hour. • Perform low- NOx tune-ups on all diesel-powered construction equipment greater than 50 horsepower (no more than 30 days prior to the start of use of that equipment). Periodic tune-ups (every 90 days) should be performed for such equipment used continuously during the construction period.	
B.2: The implementation of proposed bikeways within the Plan area, as proposed in the Bicycle Master Plan, could affect traffic operations and thereby affect emissions at sensitive receptor locations.	None required.	Less than Significant
B.3: Implementing the Proposed Bikeway Network, as proposed in the Bicycle Master Plan, could cause cumulative impacts.	None required.	Beneficial

CHAPTER 3
Project Description

The City of Oakland has prepared this document to identify potential environmental effects that may result from implementation of the Bicycle Master Plan (also referred to throughout this document as the "Plan" or the "Project"). This chapter provides background and setting information for the Plan and describes the Proposed Bikeway Network, Project objectives, and other actions required to adopt and implement the Plan.

A. Project Location and Context

Oakland, California is located on the eastern shore of San Francisco Bay in northwestern Alameda County. It covers approximately 55 square miles at an average elevation of approximately 42 feet. Oakland is bound by the cities of Emeryville and Berkeley to the north/northwest, unincorporated Contra Costa and Alameda counties to the east/northeast, the city of San Leandro to the south, and San Francisco Bay to the west. The island city of Alameda is located across the Oakland Estuary to the south[1].

Oakland's major natural features are San Francisco Bay, the Oakland Estuary, Lake Merritt, and the Oakland hills along the city's northeastern boundary. Downtown Oakland is a few blocks inland from the estuary and immediately west of Lake Merritt. Most residential districts are to the north, east, and southeast of downtown, and industrial areas are to the west and southeast, primarily along Interstate 880 (I-880). Other notable large-scale land uses include the chain of open spaces in the hills, the Oakland International Airport, and the Port of Oakland seaport along the estuary. The Proposed Bikeway Network extends across the entire city, from the estuary and the Oakland airport to the Oakland hills, and from the seaport and Bay Bridge to east Oakland neighborhoods.

Bikeway Definitions

Bikeways are streets or corridors that include either Bicycle Paths (Class 1), Bicycle Lanes (Class 2), or Bicycle Routes (Class 3). These three bikeway types are defined by the California Department of Transportation (Caltrans) in Chapter 1000 of the Highway Design Manual.

- Bicycle Paths (Class 1) provide for bicycle travel on a paved right-of-way that is completely separated from the street. They are often located along waterfronts, creeks, railroad rights-of-way (active or abandoned), or freeways where there are a limited number

[1] For the purposes of this study, Interstate 880, Embarcadero, and other parallel roadways are assumed to be oriented east-west. Other roadways, such as Harrison Street and Broadway are assumed to be oriented north-south.

of cross streets and driveways that create conflict points. They are typically shared with pedestrians and often called mixed-use paths.

- Bicycle Lanes (Class 2) are striped lanes on streets, designated with specific signage and stencils, for the use of bicyclists. Bicycle Lanes (Class 2) are the preferred treatment for all arterial and collector streets on the Proposed Bikeway Network. Bicycle Lanes (Class 2) should not be installed on low-volume, low-speed residential streets where, because of driveways, bicyclists are safer riding in the middle of the travel lane.

- Bicycle Routes (Class 3) identify preferred streets for bicycle travel using lanes shared with motor vehicles. While the only required treatment is signage, Bicycle Routes (Class 3) are designated because they are suitable for sharing with motor vehicles and provide better connectivity than other streets.

The following two bikeway types are included in the Bicycle Master Plan as improvements to the typical signage-only Bicycle Route (Class 3):

- Arterial Bicycle Routes (Class 3A): Bikeways may be necessary on some arterial streets where Bicycle Lanes (Class 2) are not feasible and parallel streets do not provide adequate connectivity. These streets should promote shared use with lower posted speed limits (preferably 25mph), shared lane bicycle stencils, wide curb lanes, and signage.

- Bicycle Boulevards (Class 3B): Bicycle boulevards are bikeways on residential streets that prioritize through trips for bicyclists. The route should appeal to cyclists of varied skill levels by providing direct connections on streets with low traffic volumes. The route should reduce delay to bicyclists by assigning right-of-way to travel on the route. Traffic calming should be introduced as needed to discourage drivers from using the boulevard as a through route. Intersections with major streets should be controlled by traffic signals with bicycle actuation.

These five types of bicycle facilities are collectively called “bikeways.” “Off-street bikeways” include Bicycle Paths (Class 1). “On-street bikeways” include Bicycle Lanes (Class 2), Bicycle Routes (Class 3), Arterial Bicycle Routes (Class 3A), and Bicycle Boulevards (Class 3B).

Existing Bikeway Network

The City of Oakland’s Public Works Agency has installed bikeways throughout the city, including Bicycle Lanes (Class 2) on 73rd Avenue, Bancroft Avenue, Grand Avenue, MacArthur Boulevard, Market Street, and Telegraph Avenue. Examples of Bicycle Routes (Class 3) include Webster/Shafter Streets, Washington/Clay Streets, and Skyline Boulevard. Bicycle Paths (Class 1) include the Shephard Canyon Path and completed sections of the San Francisco Bay Trail. Other completed segments of the San Francisco Bay Trail include Bicycle Lanes (Class 2) or Bicycle Routes (Class 3) on Mandela Pkwy, 2nd/3rd Streets, Embarcadero, and East 7th Street. The City’s bicycle facilities include those within the jurisdiction of the Port of Oakland and also link to bicycle facilities within the jurisdiction of the East Bay Regional Park District, namely Martin Luther King, Jr. Regional Shoreline and Temescal Regional Recreation Area. (See Figure 3-1, in Appendix G.) Currently, Oakland has approximately 80 miles of bikeways located throughout the city.

Of California cities with populations over 150,000, Oakland has the third highest cycling rate for commute trips (tied with Anaheim at 1.2 percent), following San Francisco (2.0 percent) and Sacramento (1.4 percent) (Bicycle Master Plan Update, 2006).

B. Policy Framework and Plan Components

The Bicycle Master Plan is the citywide, long-range policy document for promoting bicycling as a viable means of transportation and recreation in Oakland. Policy T4.4 of *Envision Oakland* (1998), the Land Use and Transportation Element (LUTE) of the Oakland General Plan, recommended the preparation, adoption, and implementation of a Bicycle Master Plan. To be eligible for funding from the State's Bicycle Transportation Account, local jurisdictions must complete bicycle transportation plans and update or reaffirm those plans every five years (Streets and Highways Code 890-894.2). Oakland's original Bicycle Master Plan was completed in 1999 and reaffirmed by the City Council in 2005. While the proposed updated Bicycle Master Plan provides a planning vision for approximately twenty years (through 2027), it may need to be updated or reaffirmed five years after its adoption to comply with State funding eligibility requirements.

Through approval of a General Plan amendment, the City proposes to adopt the updated Bicycle Master Plan and incorporate it as part of the Oakland General Plan LUTE, consistent with existing General Plan policies. As part of the General Plan LUTE, the Bicycle Master Plan has the comprehensive scope and jurisdictional authority required to coordinate all bicycle-related plans, programs, and projects within Oakland in a manner consistent with regional, state, and federal guidelines. The Bicycle Master Plan contains the following key components that are relevant to the environmental review presented in this program EIR:

- Vision, goals, objectives, and policies
- Proposed Bikeway Network
- Citywide feasibility analysis of proposed bikeways
- Coordination with local, county, and regional planning

Each of these plan components is summarized in the following subsections.

Vision, Goals, Objectives, and Policies (CEQA Project Objectives)

The Plan proposes the following vision statement: "Oakland will be a city where bicycling is fully integrated into daily life, providing transportation and recreation that are both safe and convenient."

The Plan proposes the following three goals to promote this vision:

> *Goal 1: Infrastructure* – Develop the physical accommodations, including a network of bikeways and support facilities, which provide for safe and convenient access by bicycle.
>
> *Goal 2: Education* – Improve the safety of bicyclists and promote bicycling skills through education, encouragement, and community outreach.

Goal 3: Coordination – Provide a policy framework and implementation plan for the routine accommodation of bicyclists in Oakland's projects and programs.

For each of these goals, the Plan specifies policies and actions to formulate how the goals are to be achieved. (See Chapter 3 of the Bicycle Master Plan.) These policies address the "Bikeway Network," "Routine Accommodation," "Safe Routes to Transit," "Parking and Support Facilities," "Education," "Enforcement," "Resources," "Project Development," and "Public Review".

To measure progress toward these goals, the Plan proposes the following objective: "Publicly strive to become a Bicycle Friendly Community by 2012, as recognized by the League of American Bicyclists." The following Project objectives are gleaned from the Plan's policies and other aims that are consistent with the Oakland General Plan:

- To ensure Oakland's ongoing eligibility for regional, state, and federal funding for bicycle facilities and programs by complying with the requirements of the State of California's Bicycle Transportation Account.
- To provide the City with systematic methodologies and evaluation criteria to assess the feasibility and potential environmental impacts of proposed bikeway projects.
- To provide a framework for the City to consider requirements for the provision of bikeways and/or bicycle facilities (or an in-lieu fee) with future development projects.
- To support the City's efforts to become more environmentally, economically, and socially sustainable.

Proposed Bikeway Network

The Proposed Bikeway Network analyzed in this Draft EIR reflects incremental modifications to the recommended bikeway network included in the 1999 Bicycle Master Plan. (See **Figure 5-1**, in Appendix G.) The following criteria provide the overarching rationale for the Proposed Bikeway Network:

1. *Connectivity* – Connect major transit stations, downtown, commercial districts, neighborhoods, and adjoining jurisdictions with a citywide network of bikeways.
2. *Coverage* – Identify bikeways spaced at one-half mile intervals (on average) to ensure coverage throughout Oakland.
3. *Safety* – Designate arterial and collector streets as bikeways where bicycle lanes, wide curb lanes, or shared lane treatments are feasible.
4. *Convenience* – Select direct connections using the most level streets available.
5. *Ability* – Include a mixture of bicycle paths, lanes, and routes as part of the overall network to support cyclists of differing experience levels.
6. *Feasibility* – Propose bikeways that meet the evaluation criteria identified by the plan's citywide feasibility analysis.

On average, bikeways spaced at one-half mile intervals result in four miles of bikeway per square mile of land area, or approximately 220 miles of bikeway throughout Oakland's 55 square miles.

The Proposed Bikeway Network includes approximately 216 miles of bikeways in Oakland. Most of the proposed bikeways are on-street bikeways and would be constructed within the curb-to-curb width of existing streets. At completion, the Proposed Bikeway Network would include:

- 34 miles of Bicycle Paths (Class 1)
- 91 miles of Bicycle Lanes (Class 2)
- 22 miles of Bicycle Routes (Class 3)
- 39 miles of Arterial Bicycle Routes (Class 3A)
- 30 miles of Bicycle Boulevards (Class 3B)

These numbers include new bikeways and additional improvements to existing bikeways that would affect 165 miles of roadway and pathway. In other words, the existing 80-mile bikeway network would be extended and improved over 165 miles for a completed network of 216 miles. The new and improved bikeways include approximately:

- 19 miles of Bicycle Paths (Class 1),
- 73 miles of Bicycle Lanes (Class 2),
- 4 miles of Bicycle Routes (Class 3),
- 38 miles of Arterial Bicycle Routes (Class 3A), and
- 30 miles of Bicycle Boulevards (Class 3B).

The Proposed Bikeway Network indicates the recommended alignments and bikeway types for developing a citywide network of bikeways. The proposed bikeways are conceptual in nature and will require feasibility studies (including engineering analysis and design) prior to implementation. To illustrate this process, the City has completed a feasibility study for the Broadway Corridor (which includes portions of Webster Street and Franklin Street in the downtown). This "Broadway Corridor Bikeway Feasibility Study" is included as Appendix E to this EIR. It provides an illustrative example of how the framework established by this program EIR would apply to the development and environmental clearance of other proposed bikeways within the citywide network.

Citywide Feasibility Analysis

As previously mentioned, the Proposed Bikeway Network reflects modifications to the 1999 bikeway network that are based on outcomes of a citywide feasibility analysis as described below.

The citywide feasibility analysis applied criteria to all streets on the recommended bikeway network from the 1999 Bicycle Master Plan plus a number of additional streets that were evaluated as potential alternatives. A list of possible alternatives was included as Table 3 of the Notice of Preparation and Initial Study (see Appendix A). The NOP and IS also noted that proposed Bicycle Lanes (Class 2) with significant environmental impacts may be relocated to another street in the same travel corridor if that relocation would reduce the overall impacts. In total, approximately 700 segments of potential bikeway were analyzed. Segments were defined as lengths of roadway with uniform characteristics including width, lane configuration, and parking

configuration. The segments are commonly one-third mile in length although some are as short as one block. The citywide feasibility analysis consisted of the following components:

Street Grade Analysis developed guidelines for hills that are appropriate on the bikeway network. For particular streets, the average slope and maximum slope were computed using overlapping Geographic Information Systems (GIS) layers for the street grid and contour lines. A difficulty factor relates the steepness and length of a given hill through the following expression: (total elevation gain) x slope x slope x 10. This factor helps account for the relationship between steepness and length that shapes overall difficulty. The factor is normalized such that most hills in Oakland have a difficulty between 0 and 40, where the higher numbers indicate more difficult hills. All significant hills on the network were screened by these three criteria. In general, a hill was excluded from the network if it exceeded two or three of the criteria.

Street Width Analysis inventoried the curb-to-curb street width for all bikeway segments on collector and arterial streets. The bulk of these data were from high-resolution aerial photographs. Additional data were gathered from fieldwork, feasibility studies, and the final design for new and pending projects. The analysis identified proposed cross-sections based on the following "minimum" lane widths: 7-foot parking lanes, 5-foot bike lanes, 11-foot outer travel lanes, 10-foot inner travel lanes, and 10-foot two-way center turn lanes. On streets with Rapid Bus Lines, a minimum 11 foot inner travel lane is necessary. A minimum of 11 feet is also required for turn lanes used by fixed route bus service. In general, "recommended" lane widths include 11-foot travel lanes and 9-foot parking lanes when adjacent to bicycle lanes (to encourage cyclists to ride outside of the door zone). "Maximum" lane widths identify a possible right-of-way allocation for which the next widest cross-section would also be feasible (using the "minimum" lane widths associated with that cross-section). These cross-sections are included in Chapter 4 of the Bicycle Master Plan. For arterial and collector streets, proposed bikeways without adequate width to accommodate Bicycle Lanes (Class 2) were either rerouted to parallel streets or identified as Class 3A (shared lane treatment with wide outer lanes).

Capacity Analysis was completed for all segments in which the proposed cross-section would require the conversion of travel lanes to Bicycle Lanes (Class 2) or Arterial Bicycle Routes (Class 3A) with wide outer curb lanes. (A number of the streets on the Proposed Bikeway Network have enough width to accommodate the proposed cross-section without converting travel lanes.) Peak hour vehicle trip volumes were compared to a threshold based on the service volumes for urban streets specified by the Highway Capacity Manual (2000, p. 10-10). Under the most urbanized conditions (Class IV) operating at a level of service(LOS) grade E, each travel lane can be expected to accommodate roughly 800 motor vehicles per hour. This analysis used 1,080 motor vehicles per lane per hour as the capacity threshold, 135 percent of the 800 vehicles specified by the Highway Capacity Manual. This threshold is deliberately conservative (i.e., greater than 100 percent) such that potentially feasible bikeway projects are not eliminated unnecessarily by this citywide analysis. The viability of these borderline cases would be determined through the required feasibility studies. Thus, the capacity analysis does not determine the ultimate feasibility of such lane conversion projects. Rather, it provides planning-level guidance as to which segments merit an engineering level of analysis to determine the

operational viability of those proposed projects. The segments that failed the capacity analysis were either rerouted to a different street or the proposed cross-sections were changed to accommodate the motor vehicle volumes.

Bicycle/Bus Interactions compared potential bikeways to existing AC Transit bus routes (plus the Emery-Go-Round and AirBART) to minimize the potential complications in both design and operations of having designated bikeways on heavily used transit streets. Bus lines were categorized into a hierarchy of four groups based on their headways and ridership. Where parallel streets exist, the designated bikeways were chosen to avoid the most heavily used transit streets: those with "rapid/trunk lines" and "major lines." In some cases, this solution was not possible due to Oakland's irregular street grid that puts significant pressure on the limited number of streets that provide the only cross-town connections for buses, bicycles, and cars. Where proposed bikeways overlap with existing bus lines, the proposed cross-sections were chosen in part to minimize potential impacts on bus operations. In particular, an effort was made to minimize proposed cross-sections that would require lane conversions resulting in only one travel lane per direction on heavily used transit streets.

As previously discussed in this document, the Preliminary Proposed Bikeway Network included in the NOP and IS was revised based on this citywide feasibility analysis to improve bicyclist safety and access while reducing potential impacts. The Proposed Bikeway Network examined in this EIR preserves major elements of the Recommended Bikeway Network from the 1999 Bicycle Master Plan as well as the Preliminary Proposed Bikeway Network from the NOP and IS. However, incremental modifications have been made throughout the Proposed Bikeway Network. Table F-1 in Appendix F to this Draft EIR notes the changes to proposed bikeways between the NOP and the EIR.

Coordination with Local, County, and Regional Planning

Development of Oakland's Bicycle Master Plan benefited from significant public outreach and coordination with other agencies. (See Appendix C of the Bicycle Master Plan.) Outreach included neighborhood groups and merchants associations, local transit operators, adjoining jurisdictions, as well as countywide and regional agencies. Within Oakland, the Plan was coordinated with overlapping neighborhood plans and streetscape proposals. Appendix C of the Plan includes an itemized list and explanation of these overlapping planning documents. Appendix D of the Plan lists all bicycle-related policies and actions from all elements of Oakland's General Plan, while Appendix E notes all bicycle-related references in the Oakland Municipal Code.

The Plan's policy emphasis on transit led to close coordination with Bay Area Rapid Transit (BART), AC Transit, and Emery-Go-Round[2] during development of the proposed network. With respect to BART, the Plan specifies bikeway connections to every BART station from four directions surrounding the station, consistent with BART's Bicycle Access and Parking Plan, Station Access Plans, and Transit-oriented Development Policy. For AC Transit and Emery-Go-

[2] The Emery Go Round is a free, private shuttle to Emeryville California from MacArthur BART and Emeryville Amtrak train stations. Buses run every day, with a frequency of 10-12 minutes during weekday commute hours.

Round, the primary issue during development of the proposed network was coordinating with existing and proposed bus and transit lines to minimize potential complications with the design and operations of these transit use streets.

Additionally, the Plan's proposals were coordinated with adjoining jurisdictions to help ensure direct and intuitive bikeways across jurisdictional borders. In particular, Oakland shares borders with the cities of Alameda, Berkeley, Emeryville, Piedmont, and San Leandro. It also adjoins land under the jurisdiction of the Port of Oakland and the East Bay Regional Park District. Coordination also included the Alameda County Congestion Management Agency's Alameda Countywide Bicycle Plan and the Metropolitan Transportation Commission's Regional Bicycle Plan. The in-depth planning for Oakland's Proposed Bikeway Network will help inform future updates to bikeways of countywide and regional significance located within Oakland.

C. Required Actions and Other Planning Considerations

As discussed in Chapter 1, the City of Oakland is the Lead Agency responsible for preparation of this EIR (pursuant to CEQA Guidelines Section 15051). This EIR is intended to be used for all required discretionary actions for the Bicycle Master Plan. The required actions and other considerations required for the Project include the following, without limitation:

City of Oakland

General Plan Amendment (Oakland Planning Code Chapter 17.01) - The City would be required to amend the Land Use and Transportation Element of the Oakland General Plan to incorporate the updated Bicycle Master Plan (which would supercede the 1999 Plan). The Planning Commission would be required to review the Plan and General Plan Amendment and forward its recommendation to the City Council for final decision.

Oakland Planning Code Amendment – The City would be required to amend the Oakland Planning Code to incorporate a Bicycle Parking Ordinance, if developed.

Plan Implementation – The City would implement proposed bikeways, if approved, following the requirements for bikeway feasibility studies and public review as specified by the Plan.

Other Agencies and Considerations

Implementation of specific aspects of the Plan may require review and approval by other public and quasi-public agencies and jurisdictions. These other agencies may also consider this EIR in their review and decision-making processes.

California Department of Transportation (Caltrans) – Segments of the Proposed Bikeway Network are located along the following streets that are also state highways: Doolittle Drive (State Route 61), Webster and Posey Tubes (State Route 61), International Boulevard (State Route 185), and Tunnel Road (State Route 13).

East Bay Regional Parks District (EBRPD) – Segments of the Proposed Bikeway Network are located within Martin Luther King Jr. Shoreline Park and Temescal Regional Recreation Area.

San Francisco Bay Conservation and Development Commission (BCDC) – Portions of the Proposed Bikeway Network are within 100 feet of the "shoreline band" that surrounds San Francisco Bay (along the Oakland Estuary) in which BCDC has review and permit authority.

Port of Oakland – Portions of the Proposed Bikeway Network are within the jurisdiction of the Port of Oakland. The Port of Oakland is subject to the City of Oakland's General Plan.

Although not a Responsible Agency under CEQA, the Alameda – Contra Costa Transit District (AC Transit) is a stakeholder in the development and implementation of the Proposed Bicycle Master Plan. Segments of the Proposed Bikeway Network are located on streets with AC Transit bus lines. While AC Transit does not have jurisdiction over streets in Oakland, these streets require careful coordination with AC Transit because of that agency's planning and operations as well as the transit-related policies in Oakland's General Plan and Oakland's transit-first policy (Resolution 73036, 1996).

CHAPTER 4
Environmental Setting, Impacts and Mitigation Measures

A. Transportation, Circulation and Parking

This section presents the program-level transportation impact analysis of implementing the proposed update to the Bicycle Master Plan, including the Proposed Bikeway Network (Oakland, 2006a). The following sections describe the physical setting of Oakland's transportation infrastructure, provide the relevant significance criteria for transportation-related issues, and specify the potential impacts, proposed mitigation measures, and standard conditions of approval associated with Plan implementation. The final section addresses on-street parking and additional issues with bus operations, which the City of Oakland does not consider CEQA considerations or impacts.

Local Roadways

Streets: Oakland has approximately 2,300 lane miles of local roadways (Oakland, 2006b). These roadways are categorized by the following hierarchy. "Arterial streets" serve through-traffic, take traffic to and from expressways and freeways, and provide access to adjacent properties. "Residential arterial streets" serve the same basic functions but are fronted by residential properties with connecting driveways located on both sides of the roadway. "Collector streets" distribute local traffic to and from arterial streets and provide access to adjacent properties. "Local streets" are minor roadways that provide access to adjacent properties only.

Intersection Control: The City maintains 671 traffic signals to manage intersection operations (Oakland, 2006b). These operations are measured in terms of a grading system called Level of Service (LOS), which is based on the average motor vehicle delay experienced at a given intersection. That delay is a function of motor vehicle volumes, lane configuration, and signal timing, among other factors.

Pedestrian Facilities: Oakland's roadways include 1,500 miles of linear sidewalk (the distance from Oakland to Dallas, Texas) and connect to over 150 blocks of pedestrian walkways (Oakland, 2006b). Sidewalks and walkways generally range from 6 to 15 feet in width, and the widest sidewalks are located downtown. Many roadways include street trees and planting strips between the sidewalk and curb to separate pedestrians from vehicular traffic and provide aesthetic benefit. Crosswalks and pedestrian signals exist at most of the city's major intersections. Curb ramps are

located at many corners throughout the city while audible pedestrian signals are concentrated in the downtown and neighborhood commercial districts.

Bicyclist Facilities: Existing bikeways (i.e., Classes 1 through 3 and Classes 3A and 3B) are described in Chapter 3 (Project Description). The public right-of-way throughout Oakland also includes over 850 bicycle racks (accommodating over 1,700 bicycles) that have been installed since 1999. The City installed most of these racks through the CityRacks program that places racks based on requests from the public. In 2006, eight multi-user bicycle lockers (known as "eLockers") were installed at 14th Street and Broadway in downtown. As of preparation of this analysis, an additional set of eight lockers are planned for installation at Broadway and 20th Street.

On-street Parking: Most Oakland streets include curbside parking, and metered parking is typical in downtown and commercial districts. Oakland's streets with on-street parking may include parallel parking, diagonal parking, and perpendicular parking configurations. Un-metered (or otherwise unrestricted) on-street parking is generally available in residential areas except for those in proximity to downtown, commercial districts, major transit stations, and major institutions. Residential parking permits are common in the se areas.

Transit

Oakland is well-served with public transportation provided by AC Transit, BART, Capitol Corridor, Oakland/Alameda Ferry, and various shuttle operators. AC Transit operates roughly 105 bus lines and has approximately 6,500 bus stops in its service area. Key transit streets include the 11th/12th Street couplet, Broadway, College Avenue, Foothill Boulevard, Grand Avenue, International Boulevard, MacArthur Boulevard, San Pablo Avenue, and Telegraph Avenue. BART provides regional rail service with 43 stations in the East Bay, San Francisco, and the Peninsula. Eight stations are located within Oakland: 12th Street, 19th Street, Coliseum, Fruitvale, Lake Merritt, MacArthur, Rockridge, and West Oakland. The Capitol Corridor provides rail service between the cities of San Jose and Sacramento with Oakland stations at the Coliseum and Jack London Square. The Oakland/Alameda Ferry connects Jack London Square with the San Francisco Ferry Terminal via Alameda. Shuttle services include Emery-Go-Round (connecting MacArthur BART to Emeryville), AirBART (connecting Coliseum BART to the Oakland Airport), Caltrans Bay Bridge Bicycle Shuttle (connecting MacArthur BART to the San Francisco Transbay Terminal), and other shuttles that connect BART stations to local hospitals.

Bicycles are allowed on buses, trains, and ferries although each provider has specified restrictions. Bike Stations provide attended bicycle parking at Fruitvale BART Station, Downtown Berkeley BART Station, Embarcadero BART Station, and Palo Alto Caltrain Station. Bicycle parking is available at all Oakland BART stations. The Bicycle Master Plan includes a comprehensive discussion of the relationship between bicycling and transit.

Freeways and Other State Highways

The following freeways and state highways are located within Oakland (Figure 4.A-1 in Appendix G): Interstates 80, 580, 880, and 980; and Highways 13 and 24. State highways on

local surface streets include State Routes 13 (portions of Tunnel Road), 61 (Doolittle Drive, Webster/Posey Tubes), 123 (portions of San Pablo Avenue), and 185 (portions of International Boulevard). Generally, the freeways disconnect the local street grid and provide limited crossing opportunities for bicyclists. Second, the crossings that do exist typically include barriers to bicycle access, such as narrow bridges and dark underpasses as well as heavy motor vehicle traffic and high speed turning movements at on-ramps and off-ramps.

Transportation Impacts

Significance Criteria

Intersection Peak-Hour Level of Service

The Project (implementation of the proposed Bicycle Master Plan) would have a significant effect at analysis intersections if it would cause an increase in traffic that is substantial in relation to the baseline traffic load and capacity of the street system (i.e., result in a substantial increase in either the volume-to-capacity ratio on roads, or delay [congestion] at intersections), or change the condition of an existing street (i.e., street closures, changing direction of travel) in a manner that would have a substantial impact on access or traffic load and capacity of the street system.

Specifically, the Project would have a significant impact if it would:

- Cause the baseline level of service (LOS) to degrade to worse than LOS D (i.e., LOS E or F) at a signalized intersection that is located *outside* the Downtown area;[1,2]

- Cause the total intersection average vehicle delay to increase by four or more seconds, or degrade to worse than LOS E (i.e., LOS F) at a signalized intersection *outside* the Downtown area where the baseline level of service is LOS E;

- Cause the baseline LOS to degrade to worse than LOS E (i.e., LOS F) at a signalized intersection that is located *within* the Downtown area;

- Cause an increase in the average vehicle delay for any of the critical movements of six seconds or more, or degrade to worse than LOS E (i.e., LOS F) at a signalized intersection *for all areas* where the baseline level of service is LOS E;

- At a signalized intersection *for all areas* where the baseline level of service is LOS F, cause:

    (a) The total intersection average vehicle delay to increase by two or more seconds,

    (b) An increase in average vehicle delay for any of the critical movements of four seconds or more, or

1 Downtown is defined in the Land Use Transportation Element of the General Plan (page 67) as the area generally bound 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.

2 LOS and delay are based on the 2000 *Highway Capacity Manual*, Transportation Research Board, National Research Council, 2000.

(c) An increase in the volume-to-capacity ("v/c") ratio that exceeds three percent (but only if the delay values cannot be measured accurately);

- Add ten or more vehicles, and after project completion satisfy the Caltrans peak-hour volume warrant at an unsignalized intersection *for all areas*;

- A project's contribution to cumulative impacts is considered "considerable" (i.e., significant) when the project contributes five (5) percent[3] or more of the cumulative traffic increase as measured by the difference between "Existing" and "2025 with Project" conditions and results in a substantial increase in traffic. In other words, the project must contribute 5 percent or more of the incremental growth and exceed at least one of the thresholds listed above.

Regional Roadway Segments

The Project would have a significant effect on regional roadways if it would cause a roadway segment on the Metropolitan Transportation System to operate at LOS F or increase the v/c ratio by more than three percent for a roadway segment that would operate at LOS F without the project.[4] The roadway analysis uses future year forecasts from the ACCMA Countywide Travel Demand Forecasting Model, which capture the cumulative effects of future growth on the regional roadways. (The Broadway Corridor Bikeway Feasibility Study [included as Appendix E as an illustrative example] uses 2010 and 2025 as the future year scenarios.)

Transit

The Project would have a significant effect on transit services if it would generate added transit ridership that would:

- Increase the average ridership on AC Transit lines by three percent at bus stops where the average load factor with the project in place would exceed 125 percent over a peak 30-minute period;

- Increase the peak-hour average ridership on BART by three percent where the passenger volume would exceed the standing capacity of BART trains; or

- Increase the peak-hour average ridership at a BART station by three percent where average waiting time at fare gates would exceed one minute.

Potential impacts associated with bus transit vehicle delays are addressed by the significance criteria for intersection peak-hour level of service in that they apply to all motor vehicles. Potential issues with vehicle delay that are exclusive to bus operations (i.e., bus stop ingress and egress) are discussed under "Other Considerations (Non-CEQA)."

Traffic, Circulation and Safety

The project would have a significant effect on circulation if it would increase traffic hazards to motor vehicles, bicycles, or pedestrians due to a design feature (e.g., sharp curves or dangerous

[3] The five percent threshold is based on the fact that day-to-day traffic volumes can fluctuate by as much as ten percent, and therefore a variation of less than five percent is unlikely to be perceptible to the average motorist.

[4] LOS and delay are based on the *Highway Capacity Manual*, Transportation Research Board, National Research Council, 1985, as required by the Alameda County CMA.

intersections) that does not comply with Caltrans design standards (as defined by the latest edition of the *Caltrans Highway Design Manual*), or due to incompatible uses.[5] For the purposes of this study, when Caltrans design standards were unavailable or unclear, then other documents, such as *A Policy on Geometric Design of Highways and Streets,* the *Manual of Uniform Traffic Control Devices* (MUTCD), and other design manuals, were used (AASHTO, 2001; FHWA, 2000).

The project would have a significant effect on pedestrian safety if it would substantially increase traffic hazards to pedestrians due to introduction of incompatible uses or to a design feature (e.g., sharp curves or dangerous intersections) that does not comply with Caltrans design standards.

Construction Period

The project would have a significant, though temporary, effect on the environment if it would result in interim significant impacts based on the criteria above during the construction period. For purposes of this analysis, the potential impacts resulting from phasing and staging of project construction, and cumulative construction, have been assessed.

Local Plans and Policies

The project would have a significant effect on the environment if it would fundamentally conflict with adopted policies, plans, or programs supporting alternative transportation. General Plan policies that are also significance criteria or contain a regulatory threshold, which the project must meet, are addressed in this section.

Approach to the Analysis of Impacts

Pursuant to CEQA Guidelines Section 15168, this program EIR provides a framework for the environmental review and clearance of the Bicycle Master Plan. The Plan includes the Proposed Bikeway Network that is composed of individual projects that are similar in nature and thus would likely have similar environmental effects that could be mitigated in a similar manner. The projects would be carried out under the regulatory authority of the City of Oakland. Although bicycle education and bicycle parking are not environmental issues in and of themselves, they are included in this analysis as they are an integral part of the Plan.

The analysis of the Proposed Bikeway Network is organized by "Off-street Bikeways" and "On-street Bikeways". Off-street bikeways are Bicycle Paths (Class 1). On-street bikeways include Bicycle Lanes (Class 2), Arterial Bicycle Routes (Class 3A), and Bicycle Boulevards (Class 3B). (The classes of bikeways are defined at the beginning of Chapter 3.) The proposals for off-street bikeways are conceptual in nature with potential impacts relating to hazardous materials, tree resources, biological resources, cultural resources, and water resources. The on-street bikeways include specific proposals based on the Bicycle Master Plan's citywide feasibility analysis. Most of the proposed on-street bikeways involve the addition of bikeway signage and striping and do not necessitate other roadway modifications. These projects would be categorically exempt from

[5] Bicyclists are legally allowed on all roads in Oakland except for the freeways (including the Caldecott Tunnel and the Webster Tube).

CEQA as per Sections 15301(c) and 15304(h). However, these projects are conservatively included in this EIR to provide a comprehensive review of the Bicycle Master Plan. Some of the proposed on-street bikeways would require the removal of travel lanes that could result in potentially significant impacts to intersection operations and/or roadway segments on the Metropolitan Transportation System. Proposed bikeways requiring the removal of travel lanes are thus addressed as a type of bikeway project within the framework of this program EIR analysis.

The program EIR does not include proposed bikeways that would require the removal of a continuous two-way center turn lane. This project type was identified by the Bicycle Master Plan's citywide feasibility analysis and it includes two segments of roadway: Telegraph Ave (Aileen Street to 20th Street) and International Boulevard (54th Avenue to 82nd Avenue). This program EIR is not intended to provide CEQA clearance for these proposed bikeways because these segments are provisionally designated as part of the Proposed Bikeway Network. The provisional designation will only be lifted, and those segments automatically incorporated into the Proposed Bikeway Network, if further environmental review is performed and the City adopts appropriate CEQA findings.

In addition to the potential CEQA impacts, this EIR includes a discussion of on-street transit operations and on-street parking as non-CEQA issues. The City of Oakland does not consider these areas to be sources of potential CEQA impacts and thus they are not included in the thresholds of significance listed above. Note, however, that on-street transit operations are addressed by the thresholds for intersection operations as well as for roadway segments on the Metropolitan Transportation System. The non-CEQA issues are included in this EIR for the purpose of public disclosure in that these issues are relevant to the public and agency stakeholders. These non-CEQA issues are also addressed in the process established by the Bicycle Master Plan for the study, design, public notification, and approval of proposed bikeway projects.

Feasibility Study Requirements

For all proposed bikeways, the City of Oakland's Public Works Agency requires the preparation of a feasibility study prior to project design and implementation. The Bicycle Master Plan establishes and explains these requirements in Chapter 6 of the Plan. All proposed bikeway projects would be required to complete a set of study requirements while projects of particular types would require additional study to address issues that are specific to those project types. These study requirements were developed to address the potential impacts and non-CEQA issues that are identified in this program EIR. The required feasibility studies thereby provide the mechanism by which the potential impacts of particular projects would be identified and mitigated, if necessary. If the project's potential impacts are foreseen by this program EIR, the completion of the feasibility study would provide the project's environmental clearance by identifying any significant impacts identified in this document and applying the proposed mitigation measures or standard conditions identified in this document to reduce those impacts to a less than significant level. The Broadway Corridor Bikeway Feasibility Study is included as Appendix E to this EIR to provide an illustrative example of how the framework established by this program EIR would be applied to particular projects for environmental clearance.

The feasibility study requirements address the potentially significant impacts that could arise from proposed bikeways that include the following components:

- The removal of one or more travel lanes could affect intersection operations.
- The removal of one or more travel lanes could affect volume-to-capacity ratios for roadway segments on the Metropolitan Transportation System.

The feasibility study requirements also address the following non-CEQA issues that could arise from proposed bikeways that include the following components:

- The removal of one or more travel lanes could affect bus operations on key transit streets.
- The removal of on-street parking spaces could affect the availability of parking with respect to localized demand.

The feasibility study requirements do not address the potentially significant impacts that could arise from proposed bikeways that include the following component, as previously discussed:

- The removal of a continuous two-way center turn lane.

Impacts Analysis

Impacts of Off-Street Bikeways

Impact A.1 (off-street bikeways): Implementation and use of new off-street bikeways, as proposed in the *Bicycle Master Plan*, could cause potential environmental impacts within the Plan area. (Potentially Significant)

Off-street bikeways are Bicycle Paths (Class 1) that are separated from roadways and commonly shared with pedestrians. The construction-related impacts from the installation of Bicycle Paths (Class 1) could result in significant environmental effects depending on the design, location, and environmental setting of the specific facility. Although the Plan envisions implementing approximately 19 miles of new Bicycle Paths (Class 1) throughout the city, the specific and detailed alignments, locations, lengths, and widths of these paths are currently not known and therefore not detailed as part of the Bicycle Master Plan. The Bicycle Paths (Class 1) included in the Proposed Bikeway Network illustrate the proposed linkages that these paths would contribute to the overall network. The alignment of any specific path would be determined by project development and analysis that would consider site-specific circumstances including available right-of-way, topography, watersheds, habitat, trees, and the like. Therefore, specific environmental impacts that would result with specific Bicycle Path (Class 1) projects are not known in detail at this time, and thus, for this program-level analysis, it is appropriately assumed that implementation of Bicycle Paths (Class 1), generally, could result in potentially significant impacts.

The Bicycle Paths (Class 1) listed below (in alphabetical order) are included in the Proposed Bikeway Network and would be further refined through the implementation of the Plan.

Environmental review has already been completed for some of these facilities, and other programmatic or project-level environmental review is currently underway for others.

- *Bay Bridge Connector Path* would link the Bicycle Path on the new eastern span of the Bay Bridge to the bikeway networks in Oakland and Emeryville, with possible connections to West Grand Avenue, Mandela Parkway, and Shellmound Street.

- *Bay Trail Bridge at Oyster Bay Slough* would connect Bicycle Paths at the Oakland International Airport (near Airport Drive and Ron Cowan Parkway) to Bicycle Paths in Oyster Bay Regional Shoreline. (Environmental review for this project is currently underway and the City of San Leandro is the lead agency.)

- *Coliseum BART to Bay Trail Connector Path* would link San Leandro Street at 73rd Avenue to Oakport Street at 66th Avenue along Damon Slough. (Environmental review for this project is currently underway and Alameda County is the lead agency.)

- *East Bay Greenway* would create a linear park between Oakland's San Antonio neighborhood (around 16th Avenue) and the Fremont BART Station along the BART right-of-way and/or Union Pacific Railroad right-of-way. In Oakland, the proposed greenway would include a Bicycle Path from Fruitvale BART to the San Leandro border, parallel to San Leandro Street.

- *Lake Merritt Path and Channel Path* would connect the Oakland Estuary to Lake Merritt via the Lake Merritt Channel and provide a continuous Bicycle Path around Lake Merritt. (The City of Oakland completed the environmental review for this project as part of the EIR Addendum [2002] for the Oakland Clean Water, Safe Waterfront Parks and Recreation Trust Fund Ballot Measure [Measure DD] – an addendum to the General Plan Land Use and Transportation Element EIR [1998], Estuary Policy Plan EIR [1998], and Open Space, Conservation and Recreation Element Mitigated Negative Declaration [1995]. An EIR is currently underway to provide additional environmental review for Measure DD projects, including these Bicycle Paths.)

- *Lake Temescal Bridge* would link the Lake Temescal Path to Tunnel Road near the interchange of Highways 24 and 13.

- *Leona Quarry Path* would connect Mountain Boulevard at Edwards Avenue to Mountain Boulevard at Kunhle Avenue, parallel to I-580.

- *Maritime Street Path* would parallel Maritime Street from 7th Street to West Grand Avenue. (Environmental review for this project was completed as part of the Oakland Army Base Reuse Plan EIR).

- *Martin Luther King Jr. Regional Shoreline Path* would parallel Doolittle Drive along Airport Channel from Swan Way to Harbor Bay Parkway.

- *Middle Harbor Road Path* would parallel Middle Harbor Road from 7th Street to the Adeline Street overpass near 3rd Street.

- *Oakland Waterfront Trail* would connect Jack London Square to Martin Luther King, Jr. Regional Shoreline along the Oakland Estuary. (This Bicycle Path was addressed conceptually in the Estuary Policy Plan EIR [1998]. It is being implemented in segments and environmental review is being conducted on a segment by-segment basis at the time of project design.)

- *Park Boulevard Path* would parallel Park Boulevard along Dimond Canyon from Leimert Boulevard to Monterey Boulevard.

- *San Leandro Creek Path* would connect Hegenberger Road to 98th Avenue along San Leandro Creek.

As indicated on the preceding list and in Figure 3-2, off-street bikeways are proposed in a wide range of settings throughout the city, including locations near water resources (Oakland Estuary, Damon and Oyster Bay Sloughs, San Leandro Creek, etc.) and associated potential biological resources (riparian habitats, wetlands, etc.), or in areas that potentially present contaminated soil conditions given their proximity to areas of historical heavy industry uses (railroad rights-of-way, certain properties along the estuary). Un-named Bicycle Paths (Class 1) presumably could also affect cultural resources or significant tree resources.

As per the "Requirements for Bikeway Feasibility Studies," all off-street bikeways would be designed, to the extent feasible, to avoid creating any significant environmental effects. (See Appendix G of the Bicycle Master Plan.) In particular, the specific locations, alignments, widths, and lengths of proposed Bicycle Paths (Class 1) would be developed to avoid or mitigate significant impacts. Implementation of specific projects would also employ all applicable Standard Conditions of Approval that the City of Oakland uniformly applies to all development projects. Implementation of the City's standard conditions would reduce the potentially significant impacts to less than significant**.** In particular, Bicycle Path (Class 1) projects shall implement standard conditions to address potential impacts to water resources, biological resources, tree resources, hazardous materials, and cultural resources which can reasonably be expected to occur based on the programmatic list of Bicycle Path (Class 1) projects as well as other locations citywide where Bicycle Path (Class 1) projects could occur. If a future Bicycle Path (Class 1) project were to result in environmental impacts not covered by this program EIR and these standard conditions, that project would require separate environmental review, as required by CEQA.

The topics for which the development of Bicycle Paths (Class 1) could result in potentially adverse impacts are discussed below. Each topic includes a summary of applicable standard conditions of approval that, if implemented, would reduce the potentially significant impact to less than significant.

Water Resources

Development of Bicycle Paths (Class 1) could affect the quality of water resources during and after construction. Development of paths would involve construction activities that could involve grading and/or use of heavy equipment. These activities could result in erosion or disturb contaminated soils that, if not properly controlled, could adversely affect water quality. Erosion could cause sedimentation or pollutants to enter the storm drainage system. After construction, depending on the type of surface of the path (which are typically asphalt or concrete), new impervious surfaces could marginally increase the rate of storm water runoff. If the path is introduced in an area of existing or proposed vegetation, marginal increases in runoff would be reduced by the adjacent, pervious (e.g., vegetated) areas. However, if introduced in areas with existing or planned impervious surfaces, the increased runoff would contribute to the cumulative

uncontrolled runoff from adjacent areas and may adversely affect water quality. Many open space areas adjacent to waterways in Oakland are designated within the Resource Conservation Area General Plan land use classification (as established by the Oakland General Plan LUTE). This designation essentially prohibits development, and therefore these areas would not include the development of new Bicycle Paths (Class 1).

Oakland's standard conditions of approval address significant impacts to water resources for projects that create or replace more than 10,000 square feet of impervious surface area. Specifically, the standard conditions ensure compliance with all local and regional requirements and programs that address water quality (i.e., Oakland Grading Permit, Alameda Countywide Clean Water Program [ACCWP], and National Pollution Discharge Elimination System [NPDES] permits issued by the San Francisco Regional Water Quality Control Board [RWQCB]). Bicycle Path (Class 1) segments could potentially require implementation of the applicable standard conditions that require identification and incorporation of best management construction practices and control measures (interim and permanent). These measures would prevent pollutants from entering the storm drainage system as well as minimize erosion, storm water runoff, and sedimentation – all of which could otherwise result in adverse effects to water quality. Standard conditions also prescribe further requirements specifically aimed at water quality for activities occurring near creeks. These conditions prescribe treatments for work in areas sloping down toward the waterway, construction practices that minimize disturbances near creek channels, and post-construction treatment of soils and native vegetation that may have been removed or destroyed during construction. Overall, implementation of the City's standard conditions would reduce potentially significant water resources impacts that could result with the implementation of Bicycle Paths (Class 1) to less than significant. (See Appendix D for the Standard Conditions of Approval applicable to water quality impacts.)

Biological Resources, Sensitive Habitats and Trees

Bicycle Paths (Class 1) are envisioned throughout the city, including areas that may be near wetlands, riparian habitats, or other sensitive natural areas with special status species (vegetation and/or wildlife). Development near wetlands and associated habitat is limited pursuant to state and federal regulations and laws, as well as through conditions associated with the required City's Creek Protection Permit and General Plan. The development of Bicycle Paths (Class 1) in proximity to creeks and waterways may result in increased public access (authorized or unauthorized) near these sensitive areas and thereby have the potential for adverse impacts to biological resources. Increased public access, particularly unauthorized access, can disturb or damage special status plants as well as habitats suitable for certain protected species. Incidence of litter and debris due to human activity in protected areas can also result in potentially significant adverse effects to biological resources.

Development of Bicycle Paths (Class 1) may require the removal of existing trees, which can have adverse effects, primarily temporary. The removal of special status plant/tree species having local or regional protections and/or trees that are listed by California Department of Fish and Game (CDFG) or U.S. Fish and Wildlife Service (USFWS) may result in a potentially significant impact. Additionally, the removal of substantial numbers or concentrations of trees considered to

provide high-value habitat for special status species birds, bats, or raptors may also result in significant adverse effects to biological resources.

Significant impacts to biological resources would be reduced to less than significant with implementation of standard conditions of approval that require adherence to existing local, regional, state and federal regulations and laws intended to avoid or minimize impacts to waterways and associated wetland habitat areas subject to the federal Clean Water Act. In particular, standard conditions specify that projects obtain and comply with regulatory permits and authorizations established by the U.S. Army Corps of Engineers (Corps), RWQCB, and CDFG. Standard conditions also prescribe further requirements aimed at biological resources near creeks and waterways and require the installation of barriers to prevent unauthorized access near sensitive habitat areas.

Specific Bicycle Path (Class 1) projects that could potentially impact special status species pursuant to local and regional plans and/or the CDFG and USFWS could result in a significant impact and would be analyzed at a project level to identify appropriate project-specific mitigation measures to reduce the impact to less than significant, if feasible. However, standard conditions address the potential impacts that may occur to nesting birds and raptors through implementation of pre-construction surveys and avoidance measures consistent with CDFG guidelines.

Standard conditions also require that a project obtain a tree protection permit (in accordance with the Oakland Tree Ordinance) if it would affect a "protected tree"[6], in addition to adherence to protection measures intended to avoid inadvertent damage to trees (protected and non-protected) not intended for removal. Standard conditions also prescribe measures to ensure suitable growing conditions during and after construction, actions in case of inadvertent damage to protected trees, and specifications for appropriate and adequate replacement plantings for the removal of protected trees.

Overall, implementation of the City's standard conditions would reduce potentially significant impacts to biological resources that could result with the implementation of Bicycle Paths (Class 1) to less than significant. (See Appendix D for the Standard Conditions of Approval applicable to biological resource impacts.)

Hazardous Materials

Bicycle Paths (Class 1) may occur on or near areas with contaminated soils. These areas include locations that, historically, were used for heavy industry including railroad rights-of-way and properties along the Oakland-Alameda Estuary with military, industrial, and manufacturing uses. While many of these sites have experienced environmental cleanup for reuse, some areas that remain undeveloped or have not experienced redevelopment may still have original or residual contaminants in soils and possibly groundwater. While it is unlikely that construction of Bicycle Paths (Class 1) would involve excavation or grading to existing groundwater levels, even minimal

6 As defined by the Oakland Tree Ordinance (Title 12, Chapter 12.36 of the Oakland Municipal Code), "protected" trees include coast live oak (*Quercus agrifolia*) four inches or larger in diameter at breast height, or any other native species nine inches in diameter or larger, except eucalyptus (*Eucalyptus globulus*) and Monterey pine (*Pinus radiata*).

grading or other site preparation can disturb existing contaminated soils, thereby posing potential hazards to construction workers, the public, and the environment.

Significant impacts involving hazardous materials would be reduced to less than significant with implementation of standard conditions of approval that identify specific measures for identifying the status of onsite contaminants, and if required, implementation of appropriate clean-up activities. These standard conditions would require that subsequent clearances are secured and are consistent with all applicable standards, regulations, and conditions pursuant to local, regional, state, and federal agency requirements, laws, and authorities (e.g., RWQCB, State Department of Toxic Substances [DTSC], Alameda County Department of Environmental Health [ACDEH], Oakland Fire Department-Office of Emergency Services, etc.). Standard conditions also address the required preparation, handling, and disposal of contaminated materials. Overall, implementation of the City's standard conditions would reduce potentially significant hazardous materials impacts that could result with the implementation of Bicycle Paths (Class 1) to less than significant. (See **Appendix D** for the Standard Conditions of Approval applicable to hazardous materials impacts.)

Cultural Resources

Potentially significant impacts to cultural resources may result if a project causes an adverse change (including demolition) in the significance of an historical resource (as defined by CEQA). These include adverse changes to the significance of archaeological resources, the destruction of paleontological resources, or the disturbance of human remains. While it is unlikely that construction of Bicycle Paths (Class 1) would involve extensive excavation or grading, all earthmoving activities have the potential to adversely affect these resources and result in a significant impact to cultural resources. While it is unlikely that an historical resource would be altered or demolished to accommodate new Bicycle Paths (Class 1), the *setting* of an historical resource may be affected by introducing new facilities in proximity to the resource and thereby result in a potential significant impact. Historical resources can include open spaces, trees (i.e., heritage trees), or landscaping – in and of themselves – or as part of an historical structure's setting.

Significant impacts to cultural resources would be reduced to less than significant with implementation of the standard conditions of approval which specify measures for halting or diverting construction in the event that prehistoric or historic subsurface cultural resources or human remains are discovered. The standard conditions require that appropriate and qualified professionals are consulted and that avoidance measures or other mitigations are identified and implemented. The conditions also require that reporting and documentation are prepared and submitted to applicable agencies or organizations in accordance with established professional standards and CEQA Guidelines. Overall, implementation of the City's standard conditions would reduce to less than significant those potentially significant impacts on cultural resources that could result from the implementation of Bicycle Paths (Class 1). (See Appendix D for the Standard Conditions of Approval applicable to cultural resources impacts.)

Summary

Bicycle Path (Class 1) projects would be required to implement the following standard condition to reduce the potentially significant impacts that may result to less than significant.

> **Standard Condition A.1:** The project shall incorporate all of the City's uniformly-applied Standard Conditions (provided in Appendix D to this EIR and incorporated in this Standard Condition by reference).

Significance after Implementation of Standard Condition A.1: Less than Significant.

Impacts of On-street Bikeways

Impact A.2 (signage and striping): Adding bikeway signage and striping to existing roadways in the Plan area, as proposed in the *Bicycle Master Plan*, could affect traffic operations. (Beneficial)

Most of the proposed on-street bikeways involve the addition of bikeway signage and striping and do not necessitate other roadway modifications. These projects would be categorically exempt from CEQA as per Sections 15301(c) and 15304(h) of the state CEQA guidelines. These projects include all of the proposed Bicycle Routes (Class 3) and Bicycle Boulevards (Class 3B). They also include all of the proposed Bicycle Lanes (Class 2) and Arterial Bicycle Routes (Class 3A) that would not require the removal or travel lanes, curbside parking, or continuous two-way center turn lanes. In total, these proposed bikeways comprise approximately 108 miles of roadway, accounting for two-thirds of the Proposed Bikeway Network that is not yet built.

For all of these projects, the on-street bikeways would include bicycle wayfinding signage. For Bicycle Lanes (Class 2), the projects would also include the regulatory signage specified by the Manual of Uniform Traffic Control Devices (MUTCD). Roadway striping would include the shared roadway bicycle marking ("sharrow") for Arterial Bicycle Routes (Class 3A) and Bicycle Boulevards (Class 3B). Bicycle Lanes (Class 2) would include the roadway striping and stencils specified by the MUTCD. The addition of this signage and striping to existing roadways would improve wayfinding for bicyclists, alert drivers to the presence of bicyclists, and help roadway users more effectively share the public right-of-way. These additions would not adversely affect motor vehicle operations because they would not change the existing lane configurations. These additions would not create traffic hazards because they would follow established design standards, guidelines, and best practices. (See Chapter 4 of the Bicycle Master Plan.) In fact, such signing and striping would improve traffic safety by providing additional guidance to bicyclists and drivers. Therefore, bikeway signage and striping would have a beneficial affect on traffic operations.

Mitigation: None required.

Impact A.3 (travel lane removal): Removing a travel lane within the Plan area to accommodate on-street bikeways, as proposed in the *Bicycle Master Plan,* could increase traffic congestion on local roadways. (Potentially Significant)

On-street bikeways include Bicycle Lanes (Class 2), Bicycle Routes (Class 3), Arterial Bicycle Routes (Class 3A), and Bicycle Boulevards (Class 3B). The majority of the on-street bikeways included in the Proposed Bikeway Network would clearly meet the requirements for CEQA exemption since they would only require signage or pavement markings. However, some of the proposed bikeways would alter the existing lane configuration of the roadway by removing one or more travel lanes. On-street bikeways that could potentially have a significant environmental impact due to lane removal are presented in Table 4.A-1. Projects implementing on-street bikeways would be required to implement the following mitigation measure and standard condition to reduce the potentially significant impacts that may result to less than significant.

> **Mitigation Measure A.3a:** If the removal of a travel lane would cause an intersection on a proposed bikeway to operate at an unacceptable level of service, the project shall be redesigned to maintain the operating conditions at an acceptable level of service on the affected intersection approach. Otherwise, the City shall prepare further environmental review that identifies significant and unavoidable impacts for which the City must adopt a statement of overriding considerations.
>
> **Standard Condition A.3b:** Implementation of Standard Condition A.1 (Incorporation of all uniformly-applied Standard Conditions).

Significance after Implementation of Mitigation Measure A.3a and Standard Condition A.3b: Less than Significant.

Impact A.4 (travel lane removal on MTS segments): Removing a travel lane within the Plan area to accommodate on-street bikeways, as proposed in the *Bicycle Master Plan,* could increase traffic congestion on CMP MTS segments. (Potentially Significant)

Some of the proposed on-street bikeways would be located on roadways included in the Metropolitan Transportation System (MTS) which is monitored by the Alameda County Congestion Management Agency (ACCMA) as part of the Congestion Management Program (CMP). This system includes the freeways, state routes, and several major arterials. The CMA requires the reporting of impacts for major projects or General Plan Amendments that would affect the Metropolitan Transportation System (MTS).

Many of the proposed on-street bikeways on the MTS system would meet the requirements for CEQA exemption since they would only require signage or pavement markings. However, some of the proposed bikeways would alter the existing lane configuration by removing one or more travel lanes. On-street bikeways that could potentially have a significant environmental impact due to lane removal on a MTS segment are presented in Table 4.A-2. With implementation of the following mitigation measure and standard condition, the potentially significant impacts that may result would be reduced to a less than significant.

TABLE 4.A-1
PROPOSED ON-STREET BIKEWAYS REQUIRING TRAVEL LANE REMOVAL

Roadway	From	To	Length (Miles)
10th Street	Madison Street	Oak Street	0.07
14th Avenue	E 31st Street	E 19th Street	0.83
14th Street	Brush Street	Lakeside Drive	0.97
17th Street	Clay Street	Telegraph Avenue	0.12
22nd/23rd Aves	Foothill Boulevard	Kennedy Street	0.94
27th Street	San Pablo Avenue	Harrison Street	0.89
40th Street	Adeline Street	MLK Jr Way	0.55
66th Avenue	San Leandro Street	Coliseum Way	0.28
7th Street	Castro Street	MLK Jr Way	0.06
8th Street	MLK Jr Way	Jefferson Street	0.07
8th Street	Harrison Street	Oak Street	0.29
9th Street	MLK Jr Wy	Clay Street	0.14
Adeline Street	Genoa Street	47th Street	0.62
Adeline Street	36th Street	5th Street	1.77
Bancroft Avenue	66th Avenue	82nd Avenue	1.00
Broadway	Keith Avenue	I-580	1.68
Claremont Avenue	Alcatraz Avenue	Telegraph Avenue	1.16
Clay Street	17th Street	9th Street	0.41
E 12th Street	2nd Avenue	Fruitvale Avenue	2.23
Foothill Boulevard	14th Avenue	23rd Avenue	0.68
Franklin Street	21st Street	8th Street	0.77
Fruitvale Avenue	Foothill Boulevard	E 12th Street	0.55
Golf Links Road	Grass Valley Road	Scotia	0.28
Grand Avenue	Market Street	Mandela Parkway	0.61
Harrison Street	27th Street	20th Street	0.37
High Street	E 12th Street	Alameda border	0.68
Lakeshore Avenue	I-580	Foothill Boulevard	0.89
Lakeshore Avenue	Winsor Avenue	Mandana Boulevard	0.39
Lakeside Drive	Harrison Street	14th Street	0.52
MacArthur Boulevard	Market Street	Fairmount Avenue	1.21
MacArthur Boulevard	High Street	Buell Street	0.46
MacArthur Boulevard	73th Avenue	Foothill Boulevard	1.75
Madison Street	Lakeside Drove	5th Street	0.74
Market Street	MacArthur Boulevard	24th Street	0.84
Market Street	18th Street	3rd Street	0.81
MLK Jr Way	20th Street	2nd Street	0.97
Mountain Boulevard	Keller Avenue	Fontaine overcrossing	0.36
Oak Street	14th Street	7th Street	0.26
Oak Street	2nd Street	Embarcadero	0.05
Park Boulevard	Grosvenor Place	E 18th Street	1.13
Seminary Avenue	Sunnymere Avenue	MacArthur Boulevard	0.78
Telegraph Avenue	20th Street	Broadway	0.29
Webster Street	25th Street	8th Street	1.14
West Street	52nd Street	MacArthur Boulevard	0.67
Total Potentially Impacted Roadway			**31.28**

SOURCE: WSA (2006)

TABLE 4.A-2
PROPOSED ON-STREET BIKEWAYS ON MTS SEGMENTS REQUIRING LANE REMOVAL

Roadway	From	To	Length (Miles)
14th Street	Brush Street	Lakeside Drive	0.97
7th Street	Castro Street	MLK Jr. Way	0.06
8th Street	MLK Jr Way	Jefferson Street	0.07
Adeline Street	Genoa Street	47th Street	0.62
Adeline Street	36th Street	Grand Avenue	0.80
Broadway	Keith Avenue	I-580	1.68
Claremont Avenue	Alcatraz Avenue	Telegraph Avenue	1.16
E 12th Street	2nd Avenue	Fruitvale Avenue	2.23
Fruitvale Avenue	Foothill Boulevard	E 12th Street	0.55
Golf Links Road	Grass Valley Road	Scotia	0.28
Grand Avenue	Market Street	Mandela Parkway	0.61
Harrison Street	27th Street	20th Street	0.37
High Street	E 12th Street	Alameda border	0.68
MacArthur Boulevard	Market Street	Fairmount Avenue	1.21
MacArthur Boulevard	High Street	Buell Street	0.46
MacArthur Boulevard	73rd Avenue	98th Avenue	1.29
MLK Jr Way	20th Street	5th Street	0.74
Park Boulevard	Grosvenor Place	E 18th Street	1.13
Telegraph Avenue	20th Street	Broadway	0.29
Webster Street	14th Street	8th Street	0.30
Total Potentially Impacted Roadway			**15.5**

SOURCE: WSA (2006)

Mitigation Measure A.4a: If the removal of a travel lane would cause a roadway segment on the Metropolitan Transportation System to operate at an unacceptable volume-to-capacity ratio, the project shall be redesigned to maintain the operating conditions at an acceptable volume-to-capacity ratio on the affected roadway segment. Otherwise, the City shall prepare further environmental review that identifies significant and unavoidable impacts for which the City must adopt a statement of overriding considerations.

Standard Condition A.4b: Implementation of Standard Condition A.1 (Incorporation of all uniformly-applied Standard Conditions).

Significance after Implementation of Mitigation Measure A.4a and Standard Condition A.4b: Less than Significant.

Impacts on Pedestrian Facilities

Impact A.5 (pedestrian facilities): Altering existing roadway configurations in the Plan area to accommodate the Proposed Bikeway Network and support facilities, as proposed in the *Bicycle Master Plan*, could affect pedestrian facilities. (Beneficial)

Implementing the Proposed Bikeway Network would not require modification or removal of pedestrian facilities such as sidewalks, crosswalks, or refuge islands. The installation of new bicycle racks in the public right-of-way would follow established placement standards to ensure that those racks do not infringe on pedestrian circulation. The Proposed Bikeway Network would provide a beneficial impact to pedestrian facilities. Off-street bikeways are often used by pedestrians as paved trails. Bicycle Lanes (Class 2) provide an added buffer between the sidewalk and the motor vehicle travel lanes. In addition, on-street bikeways that propose a travel lane removal would decrease the number of motor vehicle lanes a pedestrian would need to traverse when crossing the street. This results in fewer conflict points, thus reducing (or eliminating) the risk of multiple threat collisions. The proposed on-street bikeway network helps the City meet its adopted policy of converting under used travel lanes as outlined in the *Land Use and Transportation Element* of the Oakland General Plan (Policy T4.10) and in the Pedestrian Master Plan (Action 2.1.6). Therefore, the Proposed Bikeway Network would have a beneficial impact on pedestrian facilities.

Mitigation: None required.

Impacts on Existing Bikeways

Impact A.6 (existing bikeways): Altering existing roadway configurations in the Plan area to accommodate the Proposed Bikeway Network, as proposed in the *Bicycle Master Plan*, could affect existing bikeways. (Beneficial)

As funding becomes available, the City would implement (i.e., design and construct) new bikeways as outlined in the Bicycle Master Plan. The Proposed Bikeway Network includes new bikeways on various roadways throughout the city that would connect to existing bikeways. In general, existing Bicycle Routes (Class 3) below Mountain Blvd are proposed to be upgraded to Arterial Bicycle Routes (Class 3A) or Bicycle Boulevards (Class 3B) to improve bicycle access. In a limited number of cases, existing bikeways are proposed to be relocated to another street in the same corridor because the new street would provide more opportunities for bicycle access improvements. (These modifications are described in Appendix F of the Bicycle Master Plan.) These revisions to the Proposed Bikeway Network are designed to enhance existing facilities by creating new or improved connections.

Implementation of the Plan would improve bicycling conditions in the city. The addition of on-street bikeways would alert motorists to the likelihood of bicyclists on the road, thus improving the function of city roadways as multimodal facilities. Proposed wayfinding signage would provide direction for bicyclists to major destinations and intersecting bikeways.

Therefore, implementation of the Plan would have a beneficial impact on existing bikeways.

Mitigation: None required.

Impacts on Transit Service

Impact A.7 (transit service): Altering existing roadway configurations in the Plan area to accommodate the Proposed Bikeway Network, as proposed in the *Bicycle Master Plan*, could affect transit service. (Potentially Significant)

Implementing the Proposed Bikeway Network would improve bicycle access to transit stations and require the reconfiguration of some transit streets. While the 1999 Bicycle Master Plan emphasized connections to transit, this update integrates "Safe Routes to Transit" as a key policy in identifying and prioritizing capital improvements. For each major transit station, the proposed bikeway network includes a bikeway connecting from each cardinal direction surrounding the station. These streets are explicitly named and prioritized because of their potential to increase transit ridership while connecting cyclists to destinations throughout the region. While the Plan would improve bicycle access to transit, it would not create a significant impact on transit by creating crowded conditions on transit vehicles. As described in Chapter 2 of the Bicycle Master Plan, bicycle access is a relatively small fraction of the overall mode share to major transit stations in Oakland. Improvements in bicycle access to these stations are likely to increase transit ridership but not to a level that would create crowding. Furthermore, increases in bicycle mode share are likely to arise in part from people shifting from other transportation modes, most notably the "drive alone" mode share. This analysis is consistent with the Oakland General Plan and BART's station area access policies and it reflects the growing emphasis on station area planning and transit-oriented development.

Some of the proposed bikeways would require the removal of one or more travel lanes on streets with bus and/or fixed route shuttle service. These projects would have a significant impact if they caused an intersection to perform at an unacceptable level of service or caused a roadway segment on the Metropolitan Transportation System to have an unacceptable volume-to-capacity ratio. Because buses and shuttles operate in mixed-flow travel lanes, they would be subject to the potential delays experienced by other motor vehicles on these roadways. These issues are addressed above by the impacts and mitigations for travel lane removal and travel lane removal on an MTS segment, respectively. Additionally, transit operations with respect to bus stop access and incident delays caused by double-parked vehicles are addressed in the following section on Other Considerations (Non-CEQA). The removal of one or more travel lanes on streets without bus and/or fixed route shuttle service would not affect transit service.

> **Mitigation Measure A.7a:** Implement Mitigation Measure A.3a (Redesign to maintain acceptable levels of service).
>
> **Mitigation Measure A.7b:** Implement Mitigation Measure A.4a (Redesign to maintain acceptable volume-to-capacity ratios).

Standard Condition A.7c: Implementation of Standard Condition A.1 (Incorporation of all uniformly-applied Standard Conditions).

Significance after Implementation of Mitigation Measures A.7a and A.7b and Standard Condition A.7c: Less than Significant.

Impacts of Construction

Impact A.8 (construction): Altering existing roadway configurations in the Plan area to accommodate the Proposed Bikeway Network, as proposed in the *Bicycle Master Plan*, would cause construction impacts. (Potentially Significant)

Although it is likely that implementation of the bikeway improvements proposed throughout the city would occur in multiple phases, even if implemented in a single phase of work, the resulting construction-related impacts would be temporary. The proposed project would require restriping existing lanes and reconfiguring lanes at certain intersections. Restriping of the existing lanes would be conducted during off-peak periods to minimize any potential impacts. Additionally, projects will implement standard construction management practices consistent with the standard conditions of approval that the City uniformly applies to construction projects (provided in Appendix D). Implementation of the following standard conditions would reduce the potentially significant impact to less than significant.

Standard Condition A.8: Prior to commencing any construction or alterations related to the project, the construction contractor shall meet with the Transportation Services Division of the Oakland Public Works Agency and other appropriate City of Oakland agencies to determine traffic management strategies to reduce, to the maximum extent feasible, traffic congestion that may result during construction of this project and other nearby projects that could be simultaneously under construction. Specifically:

- The construction contractor shall not block roadways or sidewalks so that adjacent residents or occupants would be adversely affected from getting to and from their respective property. Notify adjacent property owners and public safety personnel regarding when major (temporary) detours and or lane closures will occur due to construction activities. Notification shall occur not less than 48 hours before commencing such activities.

- The construction contractor shall locate construction staging areas for materials, equipment, and vehicles in areas as to not impede safe pedestrian and vehicular traffic.

- The construction contractor shall identify haul routes for movement of construction vehicles that would minimize impacts on vehicular and pedestrian traffic, circulation and safety.

- The construction contractor shall remove trash generated by project construction activity.

- The construction contractor shall clearly display contractor contact information pertaining to construction activity, including identification of an on-site complaint manager, for the purpose of tracking any complaints regarding construction activity impacts.

Significance after Implementation of Mitigation Measure A.8: Less than Significant.

Impacts of Bicycle Parking and Support Facilities

Impact A.9 (support facilities): Requiring and erecting bicycle parking and support facilities in the Plan area, as proposed in the *Bicycle Master Plan*, could affect bicycle ridership. (Beneficial)

Bicycle parking is an essential component of bicycle usage, and having a safe and convenient place to secure a bicycle supports bicycling as a mode of transportation. The *Bicycle Master Plan* encourages the prioritization of new bicycle parking: (1) at transit stations and major activity centers; and (2) by citizen and merchant requests. In addition, support facilities (i.e., showers, lockers and restrooms) are encouraged and support longer commutes by providing storage and changing areas.

The *Bicycle Master Plan* recommends that the City adopt a bicycle parking ordinance and incorporate it into the City's development plan review process conducted by the Planning and Zoning Division. In addition, the City's "Bicycle Parking Placement Guidelines" (October, 2004) and the recommendations of the Association of Pedestrian and Bicycle Professionals "Bicycle Parking Guidelines" (2002) are set forth as standards for bicycle parking placement.

Providing accessible and secure bicycle parking and support facilities would potentially increase bicycle ridership. This would be a beneficial impact.

Mitigation: None required.

Impacts of Bicycle Education

Impact A.10 (education): Implementing bicycle education programs, as proposed in the *Bicycle Master Plan*, could increase bicycle awareness. (Beneficial)

The *Bicycle Master Plan* promotes bicycling through awareness and safety education. Resources and programs including brochures, courses, events, maps, and online resources have been active or developed since the adoption of Oakland's 1999 *Bicycle Master Plan*. In addition, the Plan summarizes regulations on the operation of bicycles as outlined in the *California Vehicle Code* and the Oakland Municipal Code. Encouraging, educating, and enforcing safe bicycling would increase ridership by enhancing bicycle awareness and safety for the bicyclist. This would be a beneficial impact.

Mitigation: None required.

Impacts of Bicycle Master Plan Policies

Impact A.11 (policies): Implementing policies, as proposed in the *Bicycle Master Plan*, could increase bicycling in the City of Oakland. (Beneficial)

The *Bicycle Master Plan* includes policies, goals, and actions that would promote bicycling in Oakland through improvements to infrastructure, education, and coordination. The policies outlined in the Plan are as follows:

> *BMP Policy 1A*: Bikeway Network: Work to develop and improve Oakland's bikeway network.
>
> *BMP Policy 1B*: Routine Accommodation: Address bicycle safety and access in the design and maintenance of all streets.
>
> *BMP Policy 1C*: Safe Routes to Transit: Improve bicycle access to transit, bicycle parking at transit facilities, and bicycle access on transit vehicles.
>
> *BMP Policy 1D*: Parking and Support Facilities: Promote secure and conveniently located bicycle parking at destinations throughout Oakland.
>
> *BMP Policy 2A*: Education: Work with public agencies and the private sector to improve bicycle education, enforcement, and promotional programs.
>
> *BMP Policy 2B*: Enforcement: Prioritize the enforcement of traffic laws that protect bicyclists.
>
> *BMP Policy 3A*: Resources: Seek the necessary staff and funding to implement the Bicycle Master Plan.
>
> *BMP Policy 3B*: Project Development: Prioritize and design bicycle projects in cooperation with key stakeholders.
>
> *BMP Policy 3C*: Public Review: Prior to the implementation of bikeway projects, affected residents, merchants, and property owners shall be notified of the project's costs and benefits.

Implementation of these policies would increase ridership by providing a bikeway network that is carefully constructed with the safety and convenience of the cyclist in mind. Implementation of the Bicycle Master Plan policies would enhance opportunities for public involvement in developing Oakland's Proposed Bikeway Network. Adopting and implementing the Plan policies would be a beneficial impact.

Mitigation: None required.

Cumulative Impacts

Impact A.12 (cumulative): Implementing the Proposed Bikeway Network, as proposed in the *Bicycle Master Plan*, could cause cumulative impacts. (Potentially Significant)

Altering existing roadways throughout the city to include bikeway signage and pavement markings would not have a significant cumulative impact. However, removing travel lanes to accommodate bikeways would reduce the motor vehicle capacity of intersections and roadway segments. These issues are addressed through the prior impacts, standard conditions, and mitigation measures for travel lane removal. The Plan requires that each lane removal project complete a feasibility study to assess these potential impacts under current conditions and a future year scenario that includes forecasts for future traffic growth. Projects that would have a significant impact for a particular intersection or roadway segment would be redesigned to avoid that impact. Because these intersections and segments would operate at an acceptable level of service both in the current and future cases, the removal of a travel lane would not cause significant delay or congestion within the project area. By not causing significant delay or congestion in the project area, the project would not create traffic diversion onto adjoining roadways outside of the project area. Therefore the project would not create a cumulative effect with nearby bikeway projects. Even if some diversion were to occur, the cumulative effect of that diversion would be studied as part of the future implementation of nearby bikeways. Because the Proposed Bikeway Network would be implemented over time as discrete segments, the analysis of each segment would include the cumulative effects of other bikeway projects that were previously implemented. The standard conditions and mitigations for travel lane removal would ensure that intersections on proposed bikeways as well as roadway segments on the Metropolitan Transportation System would continue to operate at acceptable levels of service.

Other roadway or development projects may occur simultaneously during the implementation of specific bikeway projects. The combination of these projects could have significant but temporary cumulative effects by reducing the capacity of the roadway in the short-term. In the prioritization of projects, the Bicycle Master Plan encourages the installation of new bikeways in coordination with resurfacing projects, streetscape improvements, major development, and major roadway reconstruction (like bridge replacement). The coordination of such projects provides cost savings, better design through integrated projects, and less disruption due to construction staging. There may be cases where a proposed bikeway could not be coordinated with a nearby project and the combination of those projects could have a cumulative effect on transportation due to the construction staging. In such cases, the projects would be scheduled for implementation so as to minimize the overlap in the construction staging and thereby avoid a cumulative impact.

Implementation of the following mitigation measure and standard condition would reduce any potential impact to a less than significant level.

> **Mitigation Measure A.12a:** The City shall integrate proposed bikeway projects into overlapping and concurrent roadway projects such that the construction staging occurs as a single project. Where the integration of such projects is not feasible, the City shall schedule the implementation of the projects to avoid any cumulative impacts to transportation that would be caused by the simultaneous staging of multiple projects.

Standard Condition A.12b: Implementation of Standard Condition A.1 (Incorporation of all uniformly-applied Standard Conditions).

Significance after Mitigation: Less than Significant.

Other Considerations (Non-CEQA)

Evaluation of Transit Facilities

AC Transit operates roughly 105 bus lines and has approximately 6,500 bus stops in its service area. The AC Transit fleet includes 709 vehicles that are all equipped with bicycle racks (with exception of the 41 paratransit vehicles). (AC Transit, 2006)

The Proposed Bikeway Network would reduce the number of travel lanes on various segments of existing roadways in the city. Reductions in the number of travel lanes on roadways that are not transit routes would not affect transit service. However, a reduction in the number of travel lanes on roadways where transit routes do operate could create transit vehicle delays. In particular, projects that would remove travel lanes and result in one travel lane per direction may create transit issues on rapid, trunk, or major bus lines. (See Chapters 4 and 6 of the Bicycle Master Plan for additional discussion of these distinctions.)

Nine bikeway segments totaling 8.19 miles in length would require the removal of a travel lane that would result in one travel lane in each direction on a rapid, trunk, or major bus line. These roadway segments are presented in Table 4.A-3.

TABLE 4.A-3
PROPOSED BIKEWAYS ON TRANSIT STREETS FOR ADDITIONAL STUDY

Roadway	From	To	Length (Miles)
14th Avenue	E 31st Street	E 19th Street	0.83
40th Street	Adeline Street	MLK Jr Way	0.55
66th Avenue	San Leandro Street	Coliseum Way	0.28
Adeline Street	36th Street	5th Street	1.77
Foothill Boulevard	14th Avenue	23rd Avenue	0.68
Fruitvale Avenue	Foothill Boulevard	E 12th Street	0.55
MacArthur Boulevard	High Street	Buell Street	0.46
MacArthur Boulevard	73rd Avenue	Foothill Boulevard	1.94
Park Boulevard	Grosvenor Place	E 18th Street	1.13
Total Potentially Affected Roadways			**8.19**

SOURCE: WSA (2006)

Altering the roadway configuration by reducing the number of travel lanes on roadways where transit routes operate could increase transit vehicle delays. Transit vehicles that operate in the

paved right-of-way would experience the same delay as other motor vehicles. This issue is addressed through the impacts, standard conditions, and mitigation measures for travel lane removal. In addition, transit vehicles could experience increased delays associated with accessing bus stops.

Mitigation would require that an acceptable level of service be maintained with the implementation of the proposed bikeway network. In addition, the City would require contractors to implement the uniformly-applied Standard Condition of Approval (as presented in Appendix D), which would reduce any delays to transit during construction. As per the Bicycle Master Plan, the implementation of a proposed bikeway would require the completion of a feasibility study to address both the potential CEQA impacts and non-CEQA effects specified by this EIR. For the proposed bikeways listed in Table 4.A-3, the City of Oakland would require that the following considerations regarding the non-CEQA effects on bus operations be included in the project's feasibility study:

1. *Bus Travel Times*: What is the sum of the delays created by the proposed project at the controlled intersections in the project area and along the bus line?

2. *Bus Stop Access*: Given one travel lane per direction, what is the effect of queue lengths on the bus accessing its stops? What is the effect on traffic gaps for bus egress from the stop?

3. *Incident Delays*: How will double-parked vehicles (including delivery vans, garbage trucks, private vehicles, and the like) affect bus movements?

4. *Total Travel Delay*: What is the bus's total travel delay in the project area associated with bus travel times, bus stop access, and incident delays?

5. *Cumulative Effects*: What other bikeway and/or streetscape projects are proposed on the rapid, trunk, or major bus line in question? Would those projects have similar effects on bus travel times?

Some of these issues – like incident delays and cumulative effects – do not have established methods of study. Ongoing dialogue and cooperation between the stakeholders are necessary for making progress on these issues with the available tools. By working to address these issues with on-street transit, these additional requirements for feasibility studies will provide a more comprehensive accounting of the individual project's effects and thus guide decision-making on project feasibility, development, and implementation. The City will continue to work directly with AC Transit on these strategies to address the concerns created by the implementation of on-street bikeways on key transit streets.

Evaluation of On-street Parking

The Proposed Bikeway Network would not generate additional motor vehicle trips or result in new land uses, and therefore would not increase the demand for motor vehicle parking. However, the proposed on-street bikeways would require the removal of on-street parking along 3.6 miles (two percent) of the Proposed Bikeway Network (see Table 4.A-4). The majority of roadway

TABLE 4.A-4
ON-STREET BIKEWAYS THAT WOULD REQUIRE PARKING REMOVAL

Roadway	From	To	Length (Miles)
Broadway Terrace	Lake Temescal Path	Duncan Way	0.3
Edwards Avenue	Mountain Boulevard	Sunnymere Avenue	0.2
East 12th Street	40th Avenue	High Street	0.2
66th Avenue	International Blvd	San Leandro Street	0.6
Broadway	Golden Gate Avenue	Brookside Avenue	0.1
Mountain Blvd	Blackwood Street	Golf Links Road	0.8
MacArthur Boulevard	High Street	Seminary Avenue	1.1
San Leandro Street	54th Avenue	Seminary Avenue	0.3
Total Potentially Affected Roadways			**3.6**

SOURCE: WSA (2006)

segments that would require parking removal to accommodate bikeways are relatively short. These segments were identified by the Bicycle Master Plan's citywide feasibility analysis that considered, among other factors, the curb-to-curb right-of-way of streets. For this limited number of proposed bikeway segments, parking removal is recommended as the least disruptive alternative for developing the bikeway. In these cases, existing lane widths and traffic volumes do not allow for safe bicycle access. Additionally, there are not underused travel lanes or alternative alignments on nearby streets. Parking removal is recommended only where the immediately adjoining land uses are not generating significant parking demand. Examples include roadways that abut freeways and industrial areas as well as adjoining parcels that include off-street parking.

The Bicycle Master Plan would require that all proposed bikeways complete a feasibility study to assess the potential CEQA impacts and non-CEQA effects identified in this EIR. The proposed bikeways specified in Table 4.A-4 would require completion of a parking occupancy study as part of their feasibility studies. This analysis would establish the parking supply and demand in the project area and evaluate how the proposed bikeway would affect that supply. Further, the analysis would determine the number of parking spaces that would need to be removed to accommodate the proposed bikeway. For most of these projects, parking removal would be considered on one side of the roadway, or approximately 50 percent of the spaces within the project area. The feasibility studies would determine exact numbers based on existing parking spaces, driveways, bus stops, red curb, and other parking restrictions. These results would be factored into the overall decision-making regarding the design and implementation of the project. The Bicycle Master Plan would also require that proposed bikeways that would remove 10 percent or more of the motor vehicle parking within the project area be subject to approval by the City Council.

The removal of parking is not considered an environmental impact. A Court of Appeal decision (regarding a challenge to San Francisco's treatment of parking as a social, not physical, effect) held that parking is not part of the permanent physical environment, and that parking conditions change

over time as people change their travel patterns. Unmet parking demand created by a project need not be considered a significant environmental effect under CEQA unless it would cause significant secondary effects.[7]

Parking deficits may be associated with secondary physical environmental impacts, such as air quality and noise effects, caused by congestion resulting from drivers circling as they look for a parking space. However, the absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit service, shuttles, taxis, bicycles, or travel by foot), may induce drivers to shift to other modes of travel, or change their overall travel habits. Any such resulting shifts to transit service, in particular, would be in keeping with the City's "Transit First" Policy (Resolution 73036, 1996). The Proposed Bikeway Network would encourage bicycle transportation and increase the potential that trips currently made by car would instead be made by bicycle, resulting in a reduction in parking demand.

Additionally, regarding potential secondary effects, cars circling and looking for a parking space in areas of limited parking supply is typically a temporary condition, often offset by a reduction in motor vehicle trips due to others who are aware of constrained parking conditions in a given area. Hence, any secondary environmental impacts that might result from a shortfall in parking in the vicinity of the proposed project are considered less than significant.

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[7] San Franciscans Upholding the Downtown Plan v. the City and County of San Francisco (2002) 102 Cal.App.4th 656.

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B. Air Quality

This section provides an overview of the existing air quality within the City of Oakland and surrounding region, the associated regulatory setting, and an analysis of potential impacts on air quality that would result from implementation of the Oakland Bicycle Master Plan. Bicycling has no associated emissions and the promotion of bicycling can reasonably be expected to reduce citywide emissions by shifting some motor vehicle trips to bicycle trips. While these are reasonably foreseeable benefits of implementing the Bicycle Master Plan, this program EIR conservatively considers the potential air quality impacts that may be associated with project construction and any second-order effects associated with motor vehicle operations. In particular, proposed bikeways that reduce roadway capacity could cause localized motor vehicle congestion that could result in localized air quality impacts. These issues are addressed in the discussion of potential impacts associated with construction, operations, and cumulative effects.

Regulatory Setting

Federal

The Federal Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (EPA) to define National Ambient Air Quality Standards (NAAQS) to protect national public health and welfare. "Criteria" air pollutants are potentially harmful emitted compounds that have established national standards to protect sensitive receptors, including the elderly, young children, people with pre-existing illness, and individuals performing strenuous work or exercise. NAAQS have been established for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, and respirable particulate matter (PM10 and PM2.5, particulates less than 10 and 2.5 microns in diameter, respectively). Table 4.B-1 provides a brief discussion of the related health effects and principal sources for each pollutant. NAAQS are presented in Table 4.B-2.

Pursuant to the CAA Amendments of 1990, U.S. EPA requires each state to identify areas (air basins or portions thereof) within its borders as either "attainment" or "non-attainment" for each criteria air pollutant, based on whether the national standards had been met. The CAA also requires air quality management districts with non-attainment areas to prepare air quality plans that include strategies for achieving attainment. Air quality plans developed to meet federal requirements are referred to as State Implementation Plans (SIPs).

State

The California Air Resources Board (CARB) is the State's air quality management agency, which is responsible for establishing and reviewing the State ambient air quality standards, compiling the California State Implementation Plan and securing approval of that plan from U.S. EPA, and identifying toxic air contaminants (TACs). CARB also regulates mobile emissions sources in California, such as construction equipment, trucks, and automobiles, and oversees the activities of air quality management districts, which are organized at the county or regional level.

TABLE 4.B-1
CRITERIA AIR POLLUTANT SOURCES AND HEALTH EFFECTS

Pollutant	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when reactive organic gases (ROG) and nitrogen oxides (NO_X) react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
Carbon Monoxide	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
Nitrogen Dioxide	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
Sulfur Dioxide	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
Respirable Particulate Matter (PM10)	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
Fine Particulate Matter (PM2.5)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO_X, sulfur oxides, and organics.
Lead	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction.	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.

SOURCES: CARB. 2005. *ARB Fact Sheet: Air Pollution Sources, Effects and Control*, updated December 2005, http://www.arb.ca.gov/research/health/fs/fs2/fs2.htm.

The county or regional air quality management districts are primarily responsible for regulating stationary emissions sources at industrial and commercial facilities within their geographic area and for preparing the air quality plans that are required under the federal CAA and the California Clean Air Act (CCAA).

California Ambient Air Quality Standards (CAAQS) are stricter than the NAAQS, as depicted in Table 4.B-2. Similar to the federal CAA, the CCAA designates air basins, or portions thereof, in the State as either attainment or non-attainment based on whether the specified area meets the CAAQS. The CCAA also requires plans for non-attainment areas with respect to the CAAQS.

TABLE 4.B-2
STATE AND NATIONAL AIR QUALITY STANDARDS AND BAY AREA ATTAINMENT STATUS

Pollutant	Averaging Time	Air Quality Standards (Attainment Status)	
		State Standards[a]	National Standards[b]
Ozone	8 Hour	0.07 ppm[c] (Unclassified)	0.08 ppm (Nonattainment)
	1 Hour	0.09 ppm (Nonattainment)	–[d]
Carbon Monoxide	8 Hour	9.0 ppm (Attainment)	9 ppm (Attainment)
	1 Hour	20.0 ppm (Attainment)	35 ppm (Attainment)
Nitrogen Dioxide	Annual	–	0.053 ppm (Attainment)
	1 Hour	0.25 ppm (Attainment)	–
Sulfur Dioxide	Annual	–	0.03 ppm (Attainment)
	24 Hour	0.04 ppm (Attainment)	0.14 ppm (Attainment)
	1 Hour	0.25 ppm (Attainment)	–
Respirable Particulate Matter	Annual	20 µg/m^3 (Nonattainment)	50 µg/m^3 (Attainment)
	24 Hour	50 µg/m^3 (Nonattainment)	150 µg/m^3 (Unclassified)
Fine Particulate Matter	Annual	12 µg/m^3 (Nonattainment)	15 µg/m^3 (Attainment)
	24 Hour	–	65 µg/m^3 (Attainment)
Lead	Quarter	–	1.5 µg/m^3 (Attainment)
	Month	1.5 µg/m^3 (Attainment)	–

a California standards for ozone, CO (except Lake Tahoe), SO2 (1-hour and 24-hour), NOx, and PM_{10} are values that are not to be exceeded.
b National standards other than for ozone, particulates, and those based on annual averages or annual arithmetic means are not to be exceeded more than once a year.
c This standard was approved by the Air Resources Board on April 28, 2005 and became effective on May 17, 1006.
d The National 1-hour ozone standard was revoked by USEPA on June 15, 2005.

SOURCE: BAAQMD, 2006, Ambient Air Quality Standards and Bay Area Attainment Status, http://www.baaqmd.gov/pln/air_quality/ambient_air_quality.htm, updated May 18, 2006.

Thus, just as areas in California have two sets of attainment or non-attainment designations, many also have two sets of air quality plans: one to meet federal requirements relative to the NAAQS and one to meet state requirements relative to the CAAQS.

Regional

Rules and Regulations

The City of Oakland is located in Alameda County and is within the boundaries of the San Francisco Bay Area Air Basin (Bay Area). The regional agency primarily responsible for developing air quality plans for the Bay Area is the Bay Area Air Quality Management District (BAAQMD), the agency with permit authority over most types of stationary emission sources of air pollutants in the Bay Area. BAAQMD exercises permit authority through its *Rules and Regulations*. Both federal and State ozone plans rely heavily upon stationary source control measures set forth in BAAQMD's *Rules and Regulations*. In contrast to the ozone plans, the *Carbon Monoxide Maintenance Plan* relies heavily on mobile source control measures. With

respect to the construction phase of projects, applicable BAAQMD regulations relate to portable equipment (e.g., gasoline- or diesel-powered engines used for power generation, pumps, compressors, pile drivers, cranes, etc.), 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).

Bay Area Attainment Status and Plans

The Bay Area is in attainment or unclassified for all federal criteria pollutants, except for ozone. "Unclassified" is defined in the CAA Amendments as any area that cannot be classified, on the basis of available information, as meeting or not meeting the national primary and secondary air quality standard for the specified pollutant.

The area encompassed by the Bicycle Master Plan, namely the City of Oakland, is in attainment of most CAAQS for criteria pollutants. The Bay Area is in non-attainment for CAAQS for ozone, PM10, and PM2.5. Table 4.B-2 shows the attainment status of the Bay Area with respect to the federal and State ambient air quality standards for different criteria pollutants.

As noted earlier, the federal CAA and the CCAA require plans to be developed for areas designated as non-attainment (with the exception of areas designated as non-attainment for the State PM10 standard). Plans are also required under federal law for areas designated as "maintenance" for national standards. Such plans are to include strategies for attaining the standards. Plans are also required under federal law for areas designated as "maintenance" for national standards. Such plans include strategies for attaining the standards. Currently, there are four plans for the Bay Area:

- Ozone Attainment Plan for the 1-Hour National Ozone Standard (ABAG, 1999) developed to meet federal ozone air quality planning requirements;
- Bay Area 2000 Clean Air Plan (BAAQMD, 2000), the most recent triennial update of the *1991 Clean Air Plan* developed to meet planning requirements related to the state ozone standard; and
- Carbon Monoxide Maintenance Plan (ABAG, 1994) developed to ensure continued attainment of the national CO standard.
- Bay Area 2005 Ozone Strategy (BAAQMD, 2006), which was adopted by the BAAQMD Board of Directors on January 4, 2006, reviews the region's progress over the years in reducing ozone levels, describes current conditions, and charts a course for future actions to further reduce ozone levels in the Bay Area.

Local

Local Plans and Policies

The City of Oakland General Plan includes policies to improve air quality by reducing dependence on private motor vehicles through the promotion of walking, bicycling, and transit-riding. Specific references include the General Plan Land Use and Transportation Element (LUTE) (Objective T7) and the Open Space, Conservation, and Recreation (OSCAR) Element (Policy CO-12.1). Both the Pedestrian Master Plan and the Bicycle Master Plan, parts of the General Plan LUTE, address the air quality benefits of increased walking and bicycling. Additionally, Oakland's Transit-first Policy (Resolution 73036, 1996) declares the City of Oakland's support of public transit and other alternatives to single-occupant vehicles for the purpose of reducing air pollution, amongst other benefits.

Environmental Setting

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features that influence pollutant movement. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, and consequently affect air quality. This Setting section provides region-specific information related to climate and topography.

General Climate, Meteorology and Wind Conditions

The Bay Area Air Basin encompasses the nine-county region including all of Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin, and Napa Counties, and the southern portions of Solano and Sonoma Counties. The climate of the Bay Area is determined largely by a high-pressure system (i.e., warms as it descends, restricting the mobility of cooler marine-influenced air near the ground over the eastern Pacific Ocean). In winter, the Pacific high-pressure system shifts southward, allowing storms to pass through the region. During summer and fall, emissions generated within the Bay Area can combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are conducive to the formation of photochemical pollutants, such as ozone.

The City of Oakland is located within the Northern Alameda and Western Contra Costa Counties climatological subregion of the Bay Area Air Basin. This subregion stretches from Richmond to San Leandro with the San Francisco Bay as its western boundary and its eastern boundary defined by the Oakland-Berkeley Hills.

Average wind speeds in Oakland are highest during summer and lowest during winter months. However, strongest peak winds occur in winter. Data collected at the former U.S. Naval Air Station at the City of Alameda show that winds from the west, including the northwest and southwest sectors, are the most frequent in the Oakland area. These westerly winds average approximately nine miles per hour.

Temperatures in Oakland average 58 degrees Fahrenheit annually, ranging in the low to mid 40s on winter mornings to low 70s in the late summer afternoons. Daily and seasonal oscillations of temperature are small because of the moderating effects of the nearby ocean. Rainfall is highly variable and predominantly confined to the "rainy" period from early November to mid-April. Oakland averages 18 inches of precipitation annually.

Existing Air Quality

BAAQMD operates a regional monitoring network that measures the ambient concentrations of criteria pollutants. Existing and probable future general levels of air quality in the area of the Bicycle Master Plan can generally be inferred from ambient air quality measurements conducted by BAAQMD at its monitoring stations. The major pollutants of concern in the Bay Area are ozone, PM10, and PM2.5.

Background ambient concentrations of pollutants are determined by pollutant emissions in a given area, and influenced by wind patterns and other meteorological conditions in area. As a result, background concentrations can vary among different locations within an area. However, areas located close together and exposed to similar wind conditions can be expected to have similar background pollutant concentrations. Monitoring stations located in Oakland (and thus in the project area) are the International Boulevard, Alice Street, and West Oakland Residential monitoring stations. The International Boulevard and Alice Street stations monitor for ozone and CO, and the West Oakland station monitors for particulate matter (both PM10 and PM2.5). Table 4.B-3 shows a five-year (2001-2005) summary of available maximum concentration monitoring data collected from the International Street and Alice Street stations (ozone and CO), as well as the West Oakland (PM10 and PM2.5) station, compared with Ambient Air Quality Standards (AAQS).

Ozone

Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and that can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the atmosphere but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and nitrogen oxides (NOx). ROG and NOx are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours.

Ozone is a regional air pollutant because it is not emitted directly by sources but is formed downwind of ROG and NOx sources under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when the long sunny days combine with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds, like ozone. As shown in Table 4.B-3, no exceedances of either the 1 hour or 8 hour ozone standards were recorded in the project area during the five year monitoring period.

TABLE 4.B-3
AIR QUALITY DATA SUMMARY (2001-2005) FOR THE PROJECT AREA

Pollutant	Standard	Monitoring Data by Year				
		2001	2002	2003	2004	2005
Ozone: International Street						
Highest 1 Hour Average (ppm)		0.04	0.08	0.07	---	---
Days over State Standard	0.09	0	0	0	---	---
Highest 8 Hour Average (ppm)		0.03	0.06	0.05	---	---
Days over National Standard	0.08	0	0	0	---	---
Ozone: Alice Street						
Highest 1 Hour Average (ppm)		0.07	0.05	0.08	0.08	0.07
Days over State Standard	0.09	0	0	0	0	0
Highest 8 Hour Average (ppm)		0.04	0.04	0.05	0.06	0.05
Days over National Standard	0.08	0	0	0	0	0
Carbon Monoxide: International Street						
Highest 8 Hour Ave. (ppm)		3.2	5.1	4.4	---	---
Days over State Standard	9.0	0	0	0	---	---
Carbon Monoxide: Alice Street						
Highest 8 Hour Average (ppm)		4.0	3.3	2.8	2.6	2.4
Days over State Standard	9.0	0	0	0	0	0
Particulate Matter – PM 2.5*						
Highest 24 Hour Average (µg/m^3)		33.9	45.4	29.8	31.0	28.0
Days over National Standard	65	--	0	0	--	--
Particulate Matter – PM10*						
Highest 24 Hour Average (µg/m^3)		**60.9**	**67.5**	44.0	48.0	48.0
Days over State Standard	50	≥1	**3**	0	---	---
Days over National Standard	150	--	0	0	--	--

NOTE: Values in **bold** are in excess of the applicable standard; -- = Data unavailable; ppm = parts per million; and µg/m^3 = micrograms per cubic meter.

* PM2.5 and PM10 data are from the West Oakland (Residential) monitoring station. Incomplete data was available for years 2001 (September – December only), 2004 (May – December only), and 2005 (January – April only).

SOURCES: California Air Resources Board, 2006, *Summaries of Air Quality Data*, 2001 through 2002; http://www.arb.ca.gov/adam. Port of Oakland *West Oakland Particulate Air Quality Monitoring Program –Progress Reports;* http://www.portofoakland.com/environm/prog_04.asp.

Carbon Monoxide

CO is a non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicle traffic. High CO concentrations develop primarily during the winter when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also emit increased CO at low air temperatures. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia. As shown in Table 4.B-3, no exceedances of the eight hour CO standard were recorded in the project area during the five year monitoring period. In

fact, there have been no exceedances of the CO standard at any of the Bay Area monitoring stations since 1991 (BAAQMD, 1999 and CARB, 2006). The reduced concentrations of CO are mainly attributed to lower motor vehicle emissions from new cars and the elimination of older vehicles that emitted more CO than the newer model vehicles.

Particulate Matter

PM10 and PM2.5 consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. (A micron is one-millionth of a meter). PM10 and PM2.5 represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust- and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are more local in nature, while others, such as motor vehicle traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly, or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates also can damage materials and reduce visibility. The data presented in Table 4.B-3 indicates that PM10 exceeded the CAAQS at least once in 2001 and at least three times in 2002, with no exceedances recorded in 2003 through 2005. There were no exceedances of the PM2.5 standard recorded in the project area during the five year monitoring period.

Other Criteria Pollutants

The standards for NO_2, SO_2, and lead are being met in the Bay Area, and the latest pollutant trends suggest that these standards will not be exceeded in the foreseeable future (BAAQMD 1999). Ambient levels of airborne lead in the Bay Area are well below the State and federal standards and are expected to continue to decline.

Sensitive Receptors

Individuals sensitive to air pollutants include the elderly, young children, people with pre-existing illness, and individuals performing strenuous work or exercise. Sensitive receptors that may exist within the project area include land uses such as child-care centers, schools, playgrounds, retirement or convalescent homes, and hospitals that often house these sensitive individuals who are more susceptible to adverse effects to the respiratory system than the general public (BAAQMD, 1999). Individuals performing strenuous work or exercise are sensitive to air pollutants due to the greater intake of air pollutants during and after strenuous physical exertion. Occupants of residential areas are also sensitive to air pollutants because residents tend to be at home for prolonged periods of time and thus have the potential for extended exposure. Occupants of industrial and business areas are the least sensitive to air pollutants because of the general health of the working population and the short exposure periods.

Air Quality Impacts

Significance Criteria

The project (implementation of the proposed Bicycle Master Plan) would have a significant effect on the environment if it would result in any of the following:

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in total emissions of ROG, NOx, or PM10 of 15 tons per year or greater or 80 pounds per day or greater.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Contribute to CO concentrations exceeding the State ambient air quality standard of 9 ppm averaged over 8 hours and 20 ppm for 1 hour. Also, pursuant to BAAQMD significance criteria guidelines (BAAQMD 1999), localized CO concentrations should be estimated if:

    1. Vehicle emissions of CO would exceed 550 lb/day;
    2. Project traffic would impact intersections or roadway links operating at Level of Service (LOS) D, E, or F or would cause a decrease in LOS to D, E, or F; or
    3. Project traffic would increase traffic volumes on nearby roadways by 10 percent or more, unless the increase in traffic volume is less than 100 vehicles per hour.

Significance criteria related to objectionable odors as well as to conflicts with or obstructions to the implementation of applicable air quality plans are not presented in this EIR because the Initial Study Checklist prepared for the project (see Appendix A) identified these issues to be either less than significant or result in no impact.

Approach to Impact Analysis

This EIR analyzes potential air quality impacts with the short-term effects of bikeway construction, the long-term effects of bikeway operation, and the cumulative conditions associated with project implementation. Over the long term, implementation of the Bicycle Master Plan would not be expected to increase motor vehicle trips in the project area. In fact, implementation of the Plan would likely reduce motor vehicle trips and associated emissions (e.g., ROG, NOx, PM10, and CO) over time by promoting bicycle use. However, as indicated and discussed in the traffic analysis in Section 4.A, implementation could result in increased motor vehicle congestion which could cause increased local CO concentrations in those areas. Therefore, this analysis conservatively addresses this potential for second-order, localized CO impacts as well as potential impacts related bikeway construction.

Impacts Analysis

Impacts of Bikeway Construction

Impact B.1 (bikeway construction): Construction activities associated with the implementation of the *Bicycle Master Plan* could generate short-term emissions of criteria pollutants. (Less than Significant)

The construction of most proposed bikeways would be limited to pavement striping and sign installation. Some bikeway projects may include paving, resurfacing, or be bundled with resurfacing projects. These activities would result in small amounts of ROG, NO_x, CO, and PM10 emissions from equipment and vehicle exhaust, as well as from street painting activities. The BAAQMD CEQA Guidelines do not specify construction significance thresholds for the Bay Area because the BAAQMD encourages the implementation of dust control measures that would mitigate construction-related air quality impacts and eliminate the need to establish significance standards (BAAQMD, 1999). Although it is unlikely that the construction of bikeways would include significant ground-disturbance activities such as grading, trenching, or excavating, implementation of the following standard conditions would control the potential for fugitive dust.

The construction of proposed off-street bikeways could involve site preparation, earthmoving, excavation, and general construction. The proposed projects shall be subject to the dust control measures that the City of Oakland uniformly applies as standard conditions of approval for development projects. Implementation of the following standard conditions, which are consistent with the City's Standard Condition of Approval provided in Appendix D, would reduce impacts from fugitive dust to less than significant.

> **Standard Condition B.1:** Dust Control Measures – During all construction activities, applicable dust control measures shall be instituted and maintained during construction to minimize air quality impacts. The measures are consistent with, but are not limited to, the BAAQMD Basic and Enhanced dust control measures recommended for sites larger than 4 acres and include:
>
> - Watering all active construction areas *at least twice daily* to control dust;
> - Covering stockpiles of debris, soils, or other material if blown by the wind;
> - Sweeping adjacent public rights of way and streets daily if visible soil material or debris is carried onto these areas;
> - Sweeping daily all paved access roads, parking areas, and staging areas at the construction site;
> - Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard;
> - Hydroseed or apply non-toxic soil stabilizers to inactive construction areas;
> - Enclose, cover, water twice daily or apply non-toxic soil binders to exposed stockpiles (dirt, sand, etc.);
> - Install sandbags or other erosion control measures to prevent silt runoff onto public roadways;

- Replant vegetation in disturbed areas as quickly as possible;
- Limit traffic speeds on unpaved roads/driveways to 15 miles per hour;
- Install wheel washers for all exiting trucks or wash off the tires or tracks of all trucks and equipment leaving the construction site;
- Install wind breaks at the windward sides of the construction areas; and
- Suspend excavation and grading activities when wind (as instantaneous gusts) exceed 25 miles per hour.
- Perform low- NOx tune-ups on all diesel-powered construction equipment greater than 50 horsepower (no more than 30 days prior to the start of use of that equipment). Periodic tune-ups (every 90 days) should be performed for such equipment used continuously during the construction period.

Significance after Implementation of Standard Conditions: Less than Significant.

Impacts on Area Emissions

Impact B.2 (area emissions): The implementation of proposed bikeways within the Plan area, as proposed in the *Bicycle Master Plan*, could affect traffic operations and thereby affect emissions at sensitive receptor locations. (Beneficial)

Although the Plan envisions approximately 19 miles of new off-street bikeways in the city, the specific details of these proposed Bicycle Paths (Class 1) have not been defined as part of the Bicycle Master Plan. Therefore, specific environmental impacts that would result from specific Bicycle Path (Class 1) projects are not known at this time. However, for this program-level analysis, it is appropriately assumed that implementation of Bicycle Paths (Class 1) would not result in significant operational impacts to air quality due to increased motor vehicle emissions. Bicycle Paths (Class 1) are separated from roadways and thus would not affect motor vehicle operations by creating congestion. Furthermore, proposed Bicycle Paths (Class 1) would not generate a significant number of new motor vehicle trips.

Many of the on-street bikeways in the Proposed Bikeway Network would only require the addition of signage and pavement markings and would not affect motor vehicle operations. These projects would meet the CEQA requirements for categorical exemptions. However, some of the proposed bikeways would reduce the number of travel lanes or remove continuous two-way center turn lanes. The removal of such lanes could result in localized traffic congestion that could lead to localized, elevated levels of CO, or "hotspots." To evaluate this potential impact, a worst case scenario was developed based on the data from the Broadway Corridor Bikeway Feasibility Study. The Study is included as Appendix E to provide an illustrative example of how the framework established by this program EIR would be applied to the development and environmental clearance of proposed bikeway projects.

The Broadway Corridor Feasibility Study includes the analysis of 24 intersections within its project area. Of these 24 intersections, Broadway at 51st Street/Pleasant Valley Avenue has the poorest intersection performance and was thus chosen as a worst case scenario to test for this potential impact. Under existing conditions, the intersection operates at level of service (LOS) E (AM Peak) and LOS F (PM Peak). The removal of travel lanes on Broadway at 51st Street/Pleasant Valley Avenue would cause the intersection to operate at LOS F in both the AM Peak and PM Peak for both the existing and future year scenarios. However, the 1-hour and 8-hour CO concentrations at this intersection were found to be 7.02 ppm and 6.23 ppm, respectively. These concentrations are well under the State 1-hour and 8-hour standards for CO (i.e., 20 ppm and 9 ppm, respectively) (see Appendix C). In fact, even if the proposed bikeway reduced the number of travel lanes *and* caused motor vehicle volumes to double, the concentrations would continue to be well under the CO standards.

The worst case scenario developed above is a conservative example: it reduces the number of travel lanes and doubles the motor vehicle volumes at a major intersection that is already performing at an unacceptable level of service. However, the implementation of the Bicycle Master Plan would not generate new motor vehicle trips. By applying the mitigation measures and standard conditions developed in the *Transportation, Circulation and Parking* section of this EIR, the Proposed Bikeway Network would not cause significant impacts to intersection levels of service. By mitigating the potential for such traffic impacts, the Project would avoid significant contributions to localized congestion and thereby limit any contributions to localized emissions. Any localized congestion and emissions attributable to the Project would be well within the bounds established by this worst case scenario. Since the worst case scenario would not cause air quality impacts, it is thus reasonable to extrapolate from this example and conclude that the Bicycle Master Plan would not cause air quality impacts associated with traffic operations.

Bicycle travel is an environmentally friendly means of transportation as there are no tailpipe emissions, no evaporative emissions, no emissions from gasoline pumping or oil refining, and zero carbon dioxide or other greenhouse gases that contribute to global warming. Implementation of the Bicycle Master Plan would promote bicycling as a viable alternative to the private motor vehicle. In particular, the use of bicycles for short trips reduces the number of short trips made by automobile. These are high-polluting trips because of the car's cold start and the associated inefficient operation of the engine's catalytic converter. The Plan's policy emphasis on "Safe Routes to Transit" is explicitly focused on providing a viable alternative for people accessing regional transit and thereby reducing motor vehicle trips. Eliminating motor vehicle trips has a beneficial impact on air quality.

The BAAQMD supports the construction of bikeways and provides funding for bicycle facility projects through the Transportation Fund for Clean Air (TFCA) grant program. The TFCA program awards grants to public agencies for a wide range of projects to reduce emissions from motor vehicles. The TFCA program funds physical bicycle improvements with a high potential to improve bicycle access to transit stations, employment centers, shopping districts, and schools and colleges. The Air District is a strong proponent of cycling as a means to reduce motor vehicle travel and associated emissions and supports bicycle facilities as a means of reducing motor

vehicle trips. Therefore, the implementation and operation of off-street and on-street bikeways can be appropriately assumed to have a beneficial impact on air quality.

Mitigation: None required.

Cumulative Impacts

Impact B.3: Implementing the Proposed Bikeway Network, as proposed in the *Bicycle Master Plan*, could cause cumulative impacts. (Beneficial)

For projects like the Bicycle Master Plan that do not individually have significant operational air quality impacts, the BAAQMD recommends that the determination of significant cumulative impacts be based on an evaluation of the consistency of the project with the local general plan and of the general plan with the regional air quality plan. Implementation of the Plan would be consistent with the approach outlined in the Oakland General Plan and the *Bay Area 2005 Ozone Strategy*. It would also support transportation control measures identified in the *Bay Area 2000 Clean Air Plan* and would not be inconsistent with any applicable land use plan, policy, or regulation.

The BAAQMD supports the construction of bikeways and provides funding for bicycle facility projects through the Transportation Fund for Clean Air (TFCA) grant program. The TFCA program awards grants to public agencies for a wide range of projects to reduce emissions from motor vehicles. The TFCA program focuses on funding physical bicycle improvements with a high potential to improve bike access to transit stations, employment centers, shopping districts, and schools and colleges. The BAAQMD is a strong proponent of cycling as a means to reduce motor vehicle travel and associated emissions, and supports bikeway facilities as a means of reducing motor vehicle trips. Therefore, impacts resulting from implementation of the Bicycle Master Plan would not be cumulatively considerable, and cumulative impacts would be beneficial to air quality.

Mitigation: None required.

References – Air Quality

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CHAPTER 5
Alternatives

A. Criteria for Selecting Alternatives

The California Environmental Quality Act (CEQA) requires that the EIR compare the effects of a "reasonable range of alternatives" to the effects of the project. The alternatives selected for comparison would attain most of the basic objectives of the project and avoid or substantially lessen one or more significant effects of the project (CEQA Guidelines Section 15126.6). The "range of alternatives" is governed by the "rule of reason" which requires the EIR to set forth only those alternatives necessary to permit an informed and reasoned choice by the decision-making body and informed public participation (CEQA Guidelines Section 15126.6[f]). CEQA generally defines "feasible" to mean an alternative that is capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, technological, and legal factors.

The alternatives addressed in this EIR were selected based on the following factors:

- The extent to which the alternative would accomplish most of the basic objectives of the project (identified in Chapter 3 of this document);
- The extent to which the alternative would avoid or lessen any of the identified significant environmental effects of the project (discussed throughout Chapter 4 of this document);
- The feasibility of the alternative, taking into account site suitability, availability of infrastructure, general plan consistency, and consistency with other applicable plans and regulatory limitations;
- The extent to which an alternative contributes to a "reasonable range" of alternatives necessary to permit a reasoned choice; and
- The requirement of the CEQA Guidelines to consider a no project alternative and to identify an environmentally superior alternative in addition to the no-project alternative (CEQA Guidelines, Section 15126.6(e)).

The Bicycle Master Plan would result in less than significant transportation impacts (with the standard conditions of approval and mitigation measures) and would have a less than significant effect on air quality. The extent to which an alternative would avoid or lessen any of the identified significant environmental effects of the project is measured against these findings.

The significant environmental effects of the project and each alternative are summarized in Table 5-2 at the end of this chapter.

B. Alternatives Selected for Consideration

With consideration given to the above factors for selection, the City identified the following reasonable range of project alternatives to be addressed in this EIR:

- Alternative 1a: No Project / Existing Conditions (No Change)
- Alternative 1b: Implementation of the adopted 1999 Bicycle Master Plan
- Alternative 2: Fewer Bikeways / Primary Bikeways Only
- Alternative 3: No Lane Conversions

The City also considered other alternatives which were rejected as infeasible. These alternatives are discussed in Section E below.

C. Description and Analysis of Alternatives

In this section, a description of each alternative is followed by a discussion of its impacts and how it differs from those of the Project. As permitted by CEQA, the significant effects of the alternatives are discussed in less detail than are the effects of the Project (CEQA Guidelines Section 15126.6[d]). However, the analysis is conducted at a sufficient level of detail to provide City decision-makers adequate information to fully evaluate the alternatives and to approve any of the alternatives without further environmental review.

Unless indicated, the impacts associated with the Project and each alternative are for year 2025 buildout conditions and are stated as levels of significance *after* implementation of mitigation measures identified in Chapter 4. A summary of how the bikeway network would look under each alternative is presented in Table 5-1, at the end of this chapter.

Alternative 1a: No Project / Existing Conditions

In this scenario, the existing bikeway network would remain as described for the Existing Bikeways Network in the Project Description (Chapter 3) and as illustrated in Figure 3-1. The City would maintain the approximately 81 total miles of existing bikeways, including 16 miles of Bicycle Paths (Class 1),19 miles of Bicycle Lanes (Class 2), 46 miles of Bicycle Routes (Class 3), and 0.5 miles of Arterial Bicycle Routes (Class 3A). Additional bikeways or other improvements (e.g., way-finding signage, etc.) would not be developed.

Impacts

Compared to the Proposed Bikeway Network, the No Project / Existing Conditions Alternative would not create the significant but mitigable impacts that are discussed in Chapter 4 of this EIR. Conditions would remain as described in the setting sections of the impact analysis. In particular, the No Project / Existing Conditions Alternative would avoid the significant but mitigable transportation impacts associated with the project since it would not alter existing roadways to accommodate on-street bikeways. Additionally, this alternative would not attain the potential beneficial air quality effects to the extent identified for the proposed Plan. This alternative also would not meet the Bicycle Master Plan goals and objectives, including the development of a

citywide bikeway network and support facilities that provide for safe and convenient access throughout Oakland. In their current form, many arterial and collector streets do not provide adequate accommodation for bicyclists. This alternative would not address the existing barriers that keep bicycling from becoming a viable means of transportation and recreation in Oakland.

Therefore, this alternative does not meet the goals and objectives of the proposed Bicycle Master Plan.

Alternative 1b: No Project / Implement 1999 Bicycle Master Plan

In this scenario, the City would continue to implement the adopted *1999 Bicycle Master Plan* as adopted in June 1999, and illustrated in Figure 5-1 in Appendix G.

Impacts

The No Project / 1999 Plan Alternative would have significant transportation impacts associated with the project because the proposals would alter the roadway network to accommodate on-street bikeways without consideration for the existing conditions. When compared to the Proposed Bikeway Network, the No Project / 1999 Plan Alternative would have more or greater impacts than those described in Chapter 4 of this EIR because it includes substantially more bikeway segments (see Table F-1 of Appendix F) with steep grades, constrained rights-of-way, higher motor vehicle volumes, and key transit streets. This alternative includes roadway segments with street grades and/or existing cross-sections that cannot reasonably be modified to accommodate bicyclist safety and access. It also includes proposed bikeways on key transit streets that, if implemented, could cause disruption to transit operations and thus contradict the goals of the General Plan Land Use and Transportation Element and Oakland's Transit First Policy. By proposing bikeways that are infeasible, the 1999 Plan Alternative would not provide for a citywide bikeway network that provides for safe and convenient access by bicycle. Further, this alternative would not attain the potential beneficial air quality effects to the extent identified for the proposed Plan. This alternative would thereby not meet the proposed *Bicycle Master Plan* goals and objectives.

Alternative 2: Fewer Bikeways

In this scenario, the Proposed Bikeway Network would be reduced to include only the primary bikeways, which would result in fewer proposed bikeways. Primary bikeways are defined in the Bicycle Master Plan as the portion of the network that provides basic connectivity throughout

Oakland and includes only those segments that passed the citywide feasibility analysis.[1] As illustrated in Figure 5.2 in Appendix G, the primary bikeways would provide a skeletal citywide network with bikeways spaced at greater intervals and serving fewer destinations.

Impacts

Compared to the Proposed Bikeway Network, the Fewer Bikeways Alternative would result in fewer or reduced impacts than those described in Chapter 4 of this EIR. Impacts of this alternative would be as described for the Proposed Bikeway Network, however, impacts from the Fewer Bikeways Alternative would result in fewer potential (but migitable) impacts associated with the Project. This alternative would have fewer potential impacts because it would not alter as many roads to accommodate on-street bikeways, even though the potential beneficial air quality effects of the proposed Plan would be reached to a lesser extent. Like the Proposed Bikeway Network, the Fewer Bikeways Alternative would need to conform to the standard conditions and mitigation measures identified in this EIR to reduce impacts from implementation.

This alternative would not meet the proposed *Bicycle Master Plan* goals and objectives. It would not address many of the arterial and collector streets where proposed bikeways could significantly improve safety and access for bicyclists. By leaving these gaps in the network, this alternative would cause a greater proportion of any given bicycling trip to be on roadways that, in their current form, create barriers to bicycling. These barriers include the lack of space for bicyclists and the accompanying speeds and volumes of motor vehicle traffic. The decision of whether or not to bicycle is affected by the number and magnitude of barriers that one is likely to encounter as a part of one's trip. By increasing the distances between designated bikeways, this alternative would increase the number of such barriers and thereby decrease bicycling rates, especially amongst children, senior citizens, and less experienced bicyclists. This alternative would thus not meet the General Plan goals that call for the promotion of bicycling as a viable means of transportation and recreation. (See Appendix D of the Bicycle Master Plan for an inventory of these related policies.)

Alternative 3: No Lane Conversions

The No Lane Conversions Alternative is included in the EIR to allow consideration of a reduced impact scenario that could be implemented without reducing the proposed miles of bikeway (as with Alternative 2: Fewer Bikeways). In this alternative, the proposed bikeways would remain in the same locations as identified by the Proposed Bikeway Network explained in the Project Description (Chapter 3) and illustrated in Figure 3-1. However, the proposed bikeway types would be modified to eliminate proposals that include the removal of travel lanes. These proposals include streets where the existing lane configuration cannot accommodate a Bicycle Lane (Class 2) or a wide outer travel lane for an Arterial Bicycle Route (Class 3A). In this alternative, bicyclists and drivers would share travel lanes of standard width on designated

[1] All segments of the Proposed Bikeway Network are designated as either primary bikeways or secondary bikeways. The distinction is a prioritization tool, used to identify the relative important of various bikeway connections. The distinction is explained in Chapter 6 of the *Bicycle Master Plan*.

Bicycle Routes (Class 3). Approximately 50 miles of proposed bikeway would be affected under this alternative.

Impacts

As compared with the Proposed Bikeway Network, this alternative would not create many of the impacts described in Chapter 4 of this EIR. In particular, this alternative would avoid or reduce the significant but mitigable transportation impacts associated with the project since it would not convert travel lanes to accommodate on-street bikeways. Like the Proposed Bikeway Network, the No Lane Conversions Alternative would need to conform to the standard conditions and mitigation measures identified in this EIR to reduce those other impacts that are not associated with the removal of travel lanes.

This alternative would not meet the Bicycle Master Plan goals and objectives because it would not create a bikeway network that would provide for safe and convenient access throughout the city. Without lane conversions, some areas of the city imply would not be safe and accessible by bicycle. In particular, providing safe and convenient bicycle access on key streets requires the conversion of travel lanes to Bicycle Lanes (Class 2) or wide outer curb lanes for Arterial Bicycle Routes (Class 3B). These modifications create the necessary space for drivers and bicyclists to safely share the road. This alternative would continue to support the General Plan LUTE Policy T4.4, which recommends the preparation, adoption, and implementation of a Bicycle Master Plan. However, this alternative would not support the General Plan LUTE Policy T4.10 which calls for the conversion of underused travel lanes to improve conditions for pedestrians and bicyclists. Compared to the proposed Project, this No Lane Conversion Alternative would not provide adequate bikeways on many arterial and collector streets. The network would not serve as many potential riders because the extra width provided by Bicycle Lanes (Class 2) and Arterial Bicycle Routes (Class 3A) is important to less experienced riders. By not reaching as many riders, this alternative would not meet the goals of the Bicycle Master Plan and the General Plan LUTE.

D. Environmentally Superior Alternative

According to CEQA, the environmentally superior alternative would do the most to avoid or substantially lessen any of the significant effects as compared to the project and the other evaluated alternatives. Alternative 1a:Existing Conditions would avoid all significant impacts associated with the project and each of the other alternatives, and therefore would be the environmentally superior alternative. However, this alternative does not meet any of the objectives and goals of the Bicycle Master Plan (although implemented portions of the adopted 1999 Plan are part of the existing conditions).

CEQA requires that that a second alternative be identified when the “no project” alternative emerges as the Environmentally Superior Alternative (CEQA Guidelines, Section 15126.6(e)). Therefore, Alternative 3: No Lane Conversions would be considered the environmentally

superior alternative since it would reduce the significant but mitigable environmental impacts of the Proposed Bikeway Network by requiring roadway segments that require lane conversions to be reevaluated for another bikeway treatment that would not require the elimination of a travel lane. According to CEQA, this alternative would be environmentally superior even though it would not promote safe and convenient bicycle access throughout the city.

The environmentally superior alternative is the alternative with the fewest negative impacts under CEQA. However, the associated environmental benefits of the alternatives are not evaluated in determining the environmentally superior alternative. While all of these alternatives would have environmental benefits, the greatest net benefit would be achieved by the alternative with the most benefits and least negative impacts. In particular, the greatest environmental benefits would arise from the alternative that promotes bicycling as a viable means of transportation and is thus the most effective in reducing motor vehicle trips. By this broader accounting, the proposed Bicycle Master Plan would provide the greatest net environmental benefit by reducing the negative impacts associated with the 1999 Bicycle Master Plan while maintaining the overall quality of the Proposed Bikeway Network and associated support facilities.

E. Project Alternatives Considered but Rejected for Further Analysis in this EIR

Throughout the process to prepare the Proposed Bikeway Network delineated in the Bicycle Master Plan, the City considered and evaluated 140 potential bikeway segments on alignments that were not ultimately included in the proposed Project. As discussed in the Project Description (Chapter 3 of this EIR), the Initial Study / Notice of Preparation (NOP) issued for the project included a preliminary proposed bikeway network (both the existing and potential bikeways) and a preliminary list of potential Bicycle Lanes (Class 2) proposed for analysis as part of the Plan update (The Initial Study / NOP is provided in Appendix A to this EIR). Subsequent to publication of the NOP, the City conducted a citywide feasibility analysis to evaluate the preliminary proposed bikeway network and potential alternatives. The result of that analysis supported the elimination of a number of the preliminary bikeways from the proposed network, finding them unsuitable given the intended objectives of the Plan update.

The citywide feasibility analysis applied criteria to all streets on the recommended bikeway network from the 1999 Bicycle Master Plan (as presented in the Initial Study / NOP), plus a number of additional streets that were evaluated as potential alternatives. These streets were identified in Table 1 and Table 3 of the Initial Study. Overall, approximately 700 segments of potential bikeway were included in this feasibility analysis. They were vetted through fieldwork, a Citizens Advisory Committee, and discussions with neighborhood groups and merchants associations. Overall, approximately 140 segments of potential bikeway were considered but rejected through this process. The criteria addressed street grade, curb-to-curb street width, existing motor vehicle volumes, and bicycle/bus interactions to identify proposed bikeway alignments and recommended cross-sections for those streets.

The purpose of the analysis was to identify feasible proposals that maximize bicyclist safety and access while minimizing potential impacts on motor vehicle circulation, motor vehicle parking, and bus operations. Preliminary proposed bikeways that did not fully satisfy these key criteria were either rerouted to another street, changed to a different bikeway type to reduce potential impacts, or eliminated from the bikeway network now proposed and evaluated in this EIR. For the rerouting, bikeways were relocated to other streets in the same travel corridor where that relocation would reduce the potential impacts and still provide adequate accommodation for bicyclists. The overall methodology for this citywide feasibility analysis is detailed in Chapter 3 (Project Description) and in Chapter 4 of the Bicycle Master Plan. A summary of the results from the citywide feasibility analysis are presented in Table F-1 of Appendix F. This table identifies the preliminary bikeways listed in the NOP and IS and how those proposals were affected by the citywide feasibility analysis.

TABLE 5-1
SUMMARY OF BIKEWAY NETWORK BY ALTERNATIVE

	Project	Alternative 1a	Alternative 1b	Alternative 2	Alternative 3
Bikeway Type	**Proposed Bikeway Network**	**No Project: Existing Conditions**	**No Project: Implement 1999 Plan[a]**	**Fewer Bikeways**	**No Lane Conversions**
Bicycle Path (Class 1)	34.2	15.6	29.8	24.0	34.2
Bicycle Lane (Class 2)	91.0	19.1	119.7	53.2	62.9
Bicycle Route (Class 3)	22.0	45.5	57.1	20.2	22.0
Arterial Bicycle Route (Class 3A)	38.8	0.5	0.0	21.7	66.9
Bicycle Boulevard (Class 3B)	30.4	0.0	0.0	8.1	30.4
Total Bikeway Mileage	**216.4**	**80.7**	**206.6**	**127.2**	**216.4**

[a] The 1999 Bicycle Master Plan includes 12 miles of roadway designated as "Special Study Corridors." For this summary, these roadway miles are split equally between Bicycle Lanes (Class 2) and Bicycle Routes (Class 3).

TABLE 5-2
SUMMARY OF IMPACTS: PROJECT AND ALTERNATIVES

NOTE: Significance levels shown in the table reflect levels of significance *after standard conditions of approval and mitigation* and indicate maximum impact during buildout and operation, unless otherwise specified.	**Project**	**1A No Project**	**1B 1999 Plan**	**2 Fewer**	**3 No Conversions**
A. Transportation, Circulation, and Parking					
A.1: Implementation and use of new off-street bikeways, as proposed in the Bicycle Master Plan, could cause potential environmental impacts within the Plan area.	LSM	N	LSM⇩	LSM⇩	LSM
A.2: Adding bikeway signage and striping to existing roadways in the Plan area, as proposed in the Bicycle Master Plan, could affect traffic operations.	B	N	B ⇩	B ⇩	B ⇩
A.3: Removing a travel lane within the Plan area to accommodate on-street bikeways, as proposed in the Bicycle Master Plan, could increase traffic congestion on local roadways.	LSM	N	LSM⇧	LSM⇩	N
A.4: Removing a travel lane within the Plan area to accommodate on-street bikeways, as proposed in the Bicycle Master Plan, could increase traffic congestion on CMP MTS segments.	LSM	N	LSM⇧	LSM⇩	N
A.5: Altering existing roadway configurations in the Plan area to accommodate the Proposed Bikeway Network and support facilities, as proposed in the Bicycle Master Plan, could affect pedestrian facilities.	B	N	B⇧	B⇩	N
A.6: Altering existing roadway configurations in the Plan area to accommodate the Proposed Bikeway Network, as proposed in the Bicycle Master Plan, could affect existing bikeways.	B	N	B⇩	B⇩	B⇩
A.7: Altering existing roadway configurations in the Plan area to accommodate the Proposed Bikeway Network, as proposed in the Bicycle Master Plan, could affect transit service.	LSM	N	LSM ⇧	LSM ⇩	N
A.8: Altering existing roadway configurations in the Plan area to accommodate the Proposed Bikeway Network, as proposed in the Bicycle Master Plan, would cause construction impacts.	LSM	N	LSM ⇧	LSM ⇩	LSM ⇩
A.9: Requiring and erecting bicycle parking and support facilities in the Plan area, as proposed in the Bicycle Master Plan, could affect bicycle ridership.	B	N	B⇩	B	B
A.10: Implementing bicycle education programs, as proposed in the Bicycle Master Plan, could increase bicycle awareness.	B	N	B⇩	B	B
A.11: Implementing policies, as proposed in the Bicycle Master Plan, could increase bicycling in the City of Oakland.	B	N	B⇩	B⇩	B⇩
A.12: Implementing the Proposed Bikeway Network, as proposed in the Bicycle Master Plan, could cause cumulative impacts.	LSM	N	LSM⇧	LSM⇩	LSM⇩
B. Air Quality					
B.1: Construction activities associated with the implementation of the Bicycle Master Plan could generate short-term emissions of criteria pollutants.	LS	N	LS	LS	LS
B.2: The implementation of proposed bikeways within the Plan area, as proposed in the Bicycle Master Plan, could affect traffic operations and thereby affect emissions at sensitive receptor locations.	LSM	N	LSM⇧	LSM⇩	N
B.3: Implementing the Proposed Bikeway Network, as proposed in the Bicycle Master Plan, could cause cumulative impacts.	B	N	B ⇩	B ⇩	B ⇩

Legend

LS	Less than significant or negligible impact; no mitigation required	B	Beneficial
LSM	Less than significant adverse impact, after mitigation	⇧⇩	Impact is more severe or less severe than project impact, after mitigation
N	No impact		

CHAPTER 6
Other Statutory Sections

Introduction

This section summarizes findings with respect to significant and unavoidable environmental impacts, growth-inducing impacts, and cumulative impacts of the Bicycle Master Plan.

A. Significant and Unavoidable Environmental Impacts

In accordance with Section 21083 of the California Environmental Quality Act (CEQA), and with Sections 15064 and 15065 of the State CEQA Guidelines, the purpose of this section is to identify impacts that could not be eliminated or reduced to an insignificant level by the mitigation measures and standard conditions included in Chapter 4, Environmental Setting, Impacts, and Mitigation Measures.

No significant and unavoidable environmental effects have been identified to occur with implementation of the proposed Bicycle Master Plan.

B. Growth-Inducing Impacts

Implementation of the Bicycle Master Plan would not induce growth in Oakland, nearby cities, or the Bay Area region. The Plan would increase the likelihood of bicycle travel within the city by creating bikeways, providing support facilities, and enhancing awareness through education. The Proposed Bikeway Network would connect existing and proposed facilities to regional bicycle facilities and transit stations. This would increase bicycling opportunities for commuting and recreational activities, which is considered beneficial. By providing viable non-motorized transportation alternatives, such as cycling, the City meets other goals and objectives, such as reducing roadway congestion and pollution from motor vehicles.

It is possible that the existence of bicycle facilities may encourage cyclists from outside the area to come to Oakland. However, the Plan has been developed for and meets the objectives of the Oakland General Plan. The prime audience for the improved bicycle facilities is people who live and/or work in Oakland. It is not expected that the type or extent of facilities developed with the Plan would induce growth beyond what has been analyzed and planned for by the City of Oakland.

C. Cumulative Impacts

CEQA defines cumulative impacts as two or more individual impacts which, when considered together, are substantial or which compound or increase other environmental impacts. The cumulative analysis is intended to describe the "incremental impact of the project when added to other, closely related past, present, or reasonably foreseeable future projects" that can result from "individually minor but collectively significant projects taking place over a period of time" (CEQA Guidelines Section 15355). The analysis of cumulative impacts is a two-phase process that first involves the determination of whether the project, together with reasonably foreseeable projects, would result in a significant impact. If there would be a significant cumulative impact of all such projects, the EIR must determine whether the project's incremental effect is cumulatively considerable, in which case, the project itself is deemed to have a significant cumulative effect (CEQA Guidelines Section 15130).

Cumulative impacts that could occur as a result of the Plan are discussed in the appropriate sections of Chapter 4 of this report. The project would not have any significant cumulative effects to which the project's contribution would be cumulatively considerable.

CHAPTER 7
Report Preparation

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APPENDIX A

Notice of Preparation and Initial Study

CITY OF OAKLAND

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NOTICE OF PREPARATION (NOP) OF DRAFT ENVIRONMENTAL IMPACT REPORT
OAKLAND BICYCLE MASTER PLAN

September 6, 2005

The Oakland Community and Economic Development Agency, Planning Division, is preparing a " focused" Draft Environmental Impact Report (EIR) for the project identified below and is requesting comments on the scope and content of the EIR. An Initial Study has been prepared which conservatively indicates that the proposed project may result in potentially significant impacts to transportation/traffic and air quality. All other impacts would be mitigated to a less-than-significant level. The EIR will limit its discussion to the above listed potentially significant impacts and no other impacts will be further studied in the EIR. The Initial Study is available at the Planning and Zoning Division office at the address above and on the internet at www.oaklandpw.com/bicycling/bikeplan.htm.

The City of Oakland is the Lead Agency for the project and is the public agency with the greatest responsibility for either approving it 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. Responsible Agencies will need to use the EIR that we prepare when considering approvals related to the project. When the Draft EIR is published, it will be sent to all Responsible Agencies and to others who respond to this Notice of Preparation or who otherwise indicate that they would like to receive a copy. Responses to this NOP and any additional questions or comments should be directed to Mr. Jason Patton, Project Manager, City of Oakland, Community and Economic Development Agency, 250 Frank H. Ogawa Plaza, Suite 3315, Oakland, CA 94612, or emailed to jpatton@oaklandnet.com. Comments on the NOP must be received at the above mailing or email address on or before Wednesday, October 5, 2005. Please reference case number **ER05-104** in all correspondence. In addition, comments may be provided at the EIR Scoping Meeting to be held before the City Planning Commission.

EIR SCOPING MEETING - CITY PLANNING COMMISSION

Wednesday, September 21, 2005
6:30 p.m.
City Hall, Hearing Room 1

PROJECT TITLE: Oakland Bicycle Master Plan Update

PROJECT LOCATION: City wide.

EXISTING CONDITIONS: Since 1996, the City of Oakland Public Works Agency has installed approximately 50 miles of Bikeways, including Bicycle Lanes on 73rd Ave, Bancroft Ave,

Grand Ave, MacArthur Blvd, Market St, and Telegraph Ave. The City's bicycle facilities include those within the jurisdiction of the Port of Oakland. The City's facilities also link to bicycle facilities within the jurisdiction of the East Bay Regional Park District. The Bikeways may be located on or adjacent to sites listed on the current version of the Cortese List.

PROJECT SPONSOR: The City of Oakland

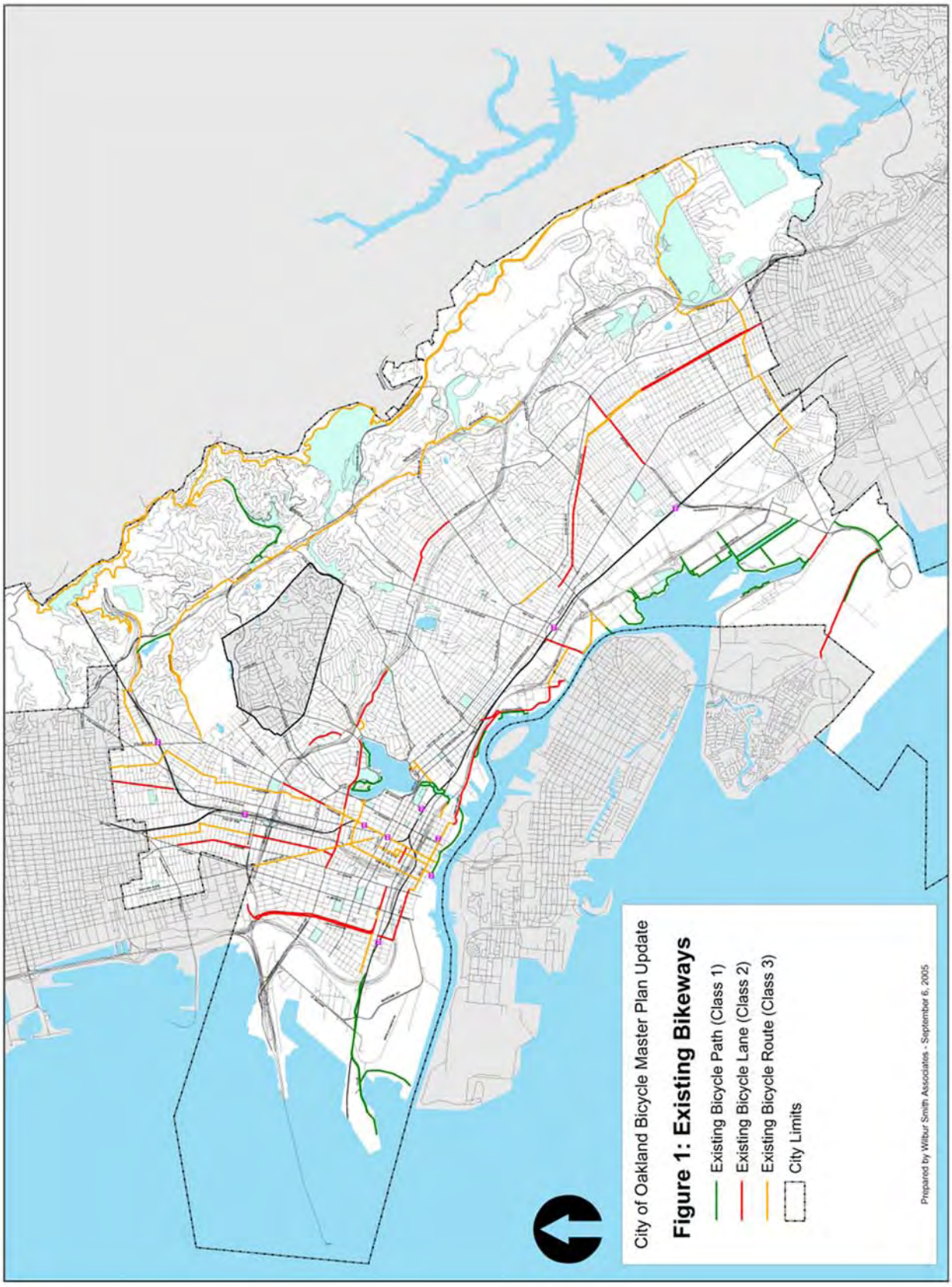
PROJECT DESCRIPTION: The City of Oakland is updating its 1999 Bicycle Master Plan (BMP) to comply with the requirements of the State of California's Bicycle Transportation Account. The resulting BMP will continue to ensure Oakland's eligibility for funding for bicycle facilities and programs from the State's Bicycle Transportation Account and other bicycle grant programs. The BMP serves as the official policy document addressing the development of facilities and programs to enhance the role of bicycling as a viable and appropriate transportation choice in Oakland. Through a General Plan amendment, the updated BMP will be adopted as part of the Land Use and Transportation Element (LUTE) of the Oakland General Plan. The project would implement General Plan LUTE Policy T4.4 which recommends the preparation, adoption, and implementation of a Bicycle Master Plan.

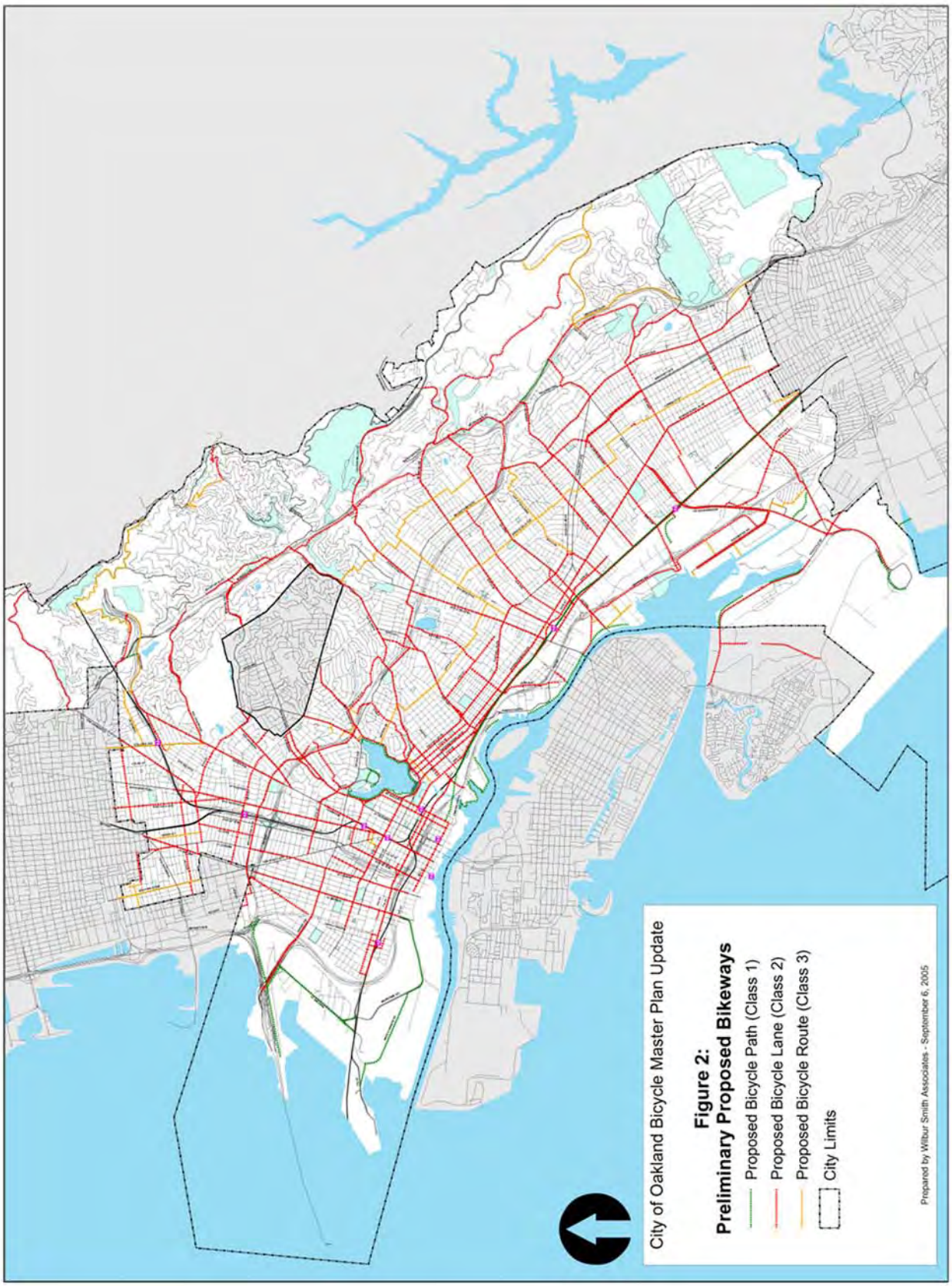
This EIR will address the potential impacts of the Proposed Bikeway Network and, in particular, the proposed Bicycle Lanes (Class 2). The addition of Bicycle Lanes to existing roadways could require the removal of motor vehicle travel lanes or parking with potentially significant environmental impacts. Because Bicycle Routes (Class 3) are composed of signage on existing roadways, this class of Bikeway does not have significant environmental impacts and will not be studied in further detail. Details regarding the potential impacts of specific Bicycle Path (Class 1) projects pursuant to Figure 2 (Preliminary Proposed Bikeways) and Figure 3 (Preliminary Proposed Bikeway Network) are unknown at this time (exact location, length or width). The undefined Bicycle Paths could result in potentially significant impacts. Each future project is subject to subsequent project-level environmental review, at which time specific Bicycle Path project characteristics would be identified and the City would determine if additional project-level environmental assessment would be required. Assessments would identify mitigation measures to reduce impacts to a less than significant level.

The following figures and tables identify the Preliminary Proposed Bikeway Network (Class 1, 2, and 3). The figures are also available in high resolution color format on the internet at:

www.oaklandpw.com/bicycling/bikeplan.htm

Figure 1 shows existing Bikeways in Oakland, including Bicycle Paths (Class 1), Bicycle Lanes (Class 2), and Bicycle Routes (Class 3). **Figure 2** shows preliminary proposed Bikeways that will be considered for inclusion in the BMP update while **Figure 3** shows the Preliminary Proposed Bikeway Network (both the existing and proposed Bikeways). **Table 1** identifies existing and proposed Bicycle Lanes that are being considered for inclusion in the updated BMP. **Table 2** identifies completed Bicycle Lanes in Oakland. **Table 3** identifies proposed Bicycle Lanes that were not identified in the 1999 BMP. Note that the majority of proposed Bicycle Lanes under consideration are included in the adopted 1999 BMP. Table 1 provides a complete list of proposed Bicycle Lanes to be analyzed for inclusion in the updated BMP. All proposed Bicycle Lanes will undergo a preliminary analysis for potentially significant environmental impacts while a representative sample will receive detailed analysis. Proposed Bicycle Lanes with significant environmental impacts may be relocated to another street in the same travel corridor if that relocation would reduce the overall impacts. Thus, the updated BMP may include Bikeways not included in Table 1 to reduce the overall impacts from the proposed Bicycle Lanes identified in Table 1.


City of Oakland Bicycle Master Plan Update
Figure 1: Existing Bikeways
Existing Bicycle Path (Class 1)
Existing Bicycle Lane (Class 2)
Existing Bicycle Route (Class 3)
City Limits
Prepared by Wilbur Smith Associates - September 6, 2005


City of Oakland Bicycle Master Plan Update
Figure 2:
Preliminary Proposed Bikeways
Proposed Bicycle Path (Class 1)
Proposed Bicycle Lane (Class 2)
Proposed Bicycle Route (Class 3)
City Limits
Prepared by Wilbur Smith Associates - September 6, 2005

City of Oakland Bicycle Master Plan Update
Figure 3:
Preliminary Proposed Bikeway Network (Existing and Proposed)
Existing Bicycle Path (Class 1)
Existing Bicycle Lane (Class 2)
Existing Bicycle Route (Class 3)
Existing Bicycle Boulevard
Proposed Bicycle Path (Class 1)
Proposed Bicycle Lane (Class 2)
Proposed Bicycle Route (Class 3)
City Limits
NOTE: This map includes existing and proposed bikeways in adjacent jurisdictions.
Prepared by Wilbur Smith Associates - September 6, 2005

Table 1: Preliminary Proposed Bicycle Lanes (Class 2) for Inclusion in the BMP Update		
Street	**From**	**To**
14th Ave	E 8th St	MacArthur Blvd
14th St	Mandela Parkway	Lakeside
20th St	Harrison St	San Pablo Ave
22nd Ave	E 21st St	E 12th St
23rd Ave	29th Ave	Ardley Ave
27th St	San Pablo Ave	Bay Place
29th Ave	23rd Ave	E 7th St
2nd St	Brush St	Oak St
35th Ave	San Leandro St	Redwood Rd
3rd St	Mandela Parkway	Brush St
40th St	Adeline St	Piedmont Ave
42nd Ave	Courtland Ave	San Leandro St
4th Ave	Park Blvd	E 10th St
50th Ave	Foothill Blvd	San Leandro St
51st St	Shattuck Ave	Broadway
52nd St	51st St	Market St
55th St	Vallejo St	Vicente Wy
5th Ave	E 10th St	Embarcadero
66th Ave	International Blvd	Oakport
73rd Ave	Edwards Ave	International Blvd
7th St	Wood St	5th Ave
81st Ave	San Leandro St	International Blvd
82nd Ave	Golf Links Rd	International
8th St	Wood St	Oak St
98th Ave	Golf Links Rd	Airport Dr
9th St	Castro St	Oak St
Adeline St	3rd St	61st St
Airport Dr	Neil Armstrong Wy	Hegenberger Rd
Alameda Ave	Fruitvale Ave	High St
Alcatraz Ave	San Pablo Ave	College Ave
Ardley	MacArthur Blvd	23rd Ave
Bancroft Ave	42nd Ave	Durant Ave
Bay Place	27th St	Grand Ave
Beaumont Ave	14th Ave	Park Blvd
Broadway	Embarcadero	Highway 24 overcrossing at Caldecott Ln
Broadway Terrace	Broadway	Mountain Blvd
Buell/Calaveras/Daisy/Davenport	MacArthur Blvd	Mountain Blvd
Caldecott Ln	FWY overcrossing	Tunnel Rd
Camden St	Seminary Ave	Bancroft Ave
Campus Dr	Redwood Rd	Keller
Carson St	Mountain Blvd	Tompkins Ave
Claremont	Telegraph Ave	Grizzly Peak Blvd
Doolittle Dr	Harbor Bay Pkwy	Eden Rd
E 10th St	Madison St	9th Ave
E 12th St	1st Ave	54th Ave
E 15th St	Lakeshore Ave	14th Ave
E 18th St	Park Blvd	Lakeshore Ave

Table 1 (Cont.): Preliminary Proposed Bicycle Lanes (Class 2) for Inclusion in the BMP Update		
Street	**From**	**To**
E 21st St	14th Ave	Mitchell St
Edes Ave	Hegenberger Rd	105th Ave
Edgewater Dr	Bay Trail	Hegenberger Rd
Edwards Ave	Mountain Blvd	73rd Ave
Embarcadero	Oak St	E 7th St
Fontaine St	Keller Ave	Golf Links Rd
Foothill Blvd	Lakeshore Ave	50th Ave
Franklin St	6th St	Broadway at 22nd St
Fruitvale Ave	Alameda Ave	MacArthur Blvd
Golf Links Rd	82nd Ave	Grass Valley Rd
Grand Ave	Jean St	Interstate 80
Harrison St	20th St	Monte Vista Ave
Havenscourt Bl	Bancroft Ave	International Blvd
Hegenberger Rd	International Blvd	Airport Dr
High St	Tompkins Ave	Tidewater Ave
International Blvd	1st Ave	Durant Ave
Joaquin Miller Rd	Skyline Blvd	Hwy 13
Lakeshore Ave	E 12th St	Wala Vista
Lakeside Dr	14th St	20th St
Lincoln	MacArthur Blvd	Highway 13
Linda Ave	Piedmont Ave	Rose Ave
MacArthur Blvd	Hollis St	Durant Ave
Madison St	2nd St	Lakeside Dr
Mandela Pkwy	3rd St	Horton St
Market St	3rd St	Alcatraz Ave
Martin Luther King Jr. Way	20th St	2nd St
Monterey Blvd	Park Blvd	Redwood Rd
Moraga Ave	Pleasant Valley Ave	Mountain Blvd
Mountain Blvd	Broadway Ter	Golf Links Rd
Oak St	Embardadero	14th St
Oakland Ave	Harrison St	Monte Vista Ave
Oakport St	High St	Edgewater Dr
Park Blvd	E 18th St	Mountain Blvd
Peralta St	MacArthur Blvd	Mandela Pkwy
Piedmont Ave	Broadway	Pleasant Valley Ave
Pleasant Valley Ave	Broadway	Rose Ave
Redwood Rd	Skyline Blvd	35th Ave
Ron Cowan Pkwy	Airport Dr	Harbor Bay Pkwy
San Leandro St	Fruitvale Ave	Apricot Ave
Santa Clara Ave	MacArthur Blvd	Grand Ave
Seminary Ave	Sunnymere Ave	San Leandro St
Shattuck Ave	Telegraph Ave	Woolsey St
Shepherd Canyon Rd	Saroni Dr	Skyline Blvd
Telegraph Ave (1)	Broadway	Woolsey St
Tunnel Rd	Berkeley Border	Caldecott Ln
Webster St	2nd St	Broadway at 25th St
West St	14th St	52nd St

(1) Telegraph Ave (Broadway to Aileen St) is undergoing environmental review as a separate project.

Table 2: Existing Bicycle Lanes (Class 2)		
Street	**From**	**To**
3rd St	Mandela Parkway	Brush St
73rd Ave	International Blvd	MacArthur Blvd
8th St	Market St	Wood St
Bancroft Ave	Courtland Ave	66th Ave
Bancroft Ave	82nd Ave	Durant Ave
Broadway	26th St	MacArthur Blvd
Doolittle Dr	Hegenberger Rd	Harbor Bay Pkwy
Embarcadero	Oak St	E 7th St
Fruitvale Ave	Alameda Ave	E 12th St
Grand Ave	El Embarcadero	Market St
Harrison St	21st St	Grand Ave
MacArthur Blvd	Lakeshore Ave	Park Blvd
MacArthur Blvd	Lincoln Ave	35th Ave
Mandela Pkwy	3rd St	Horton St
Market St	MacArthur Blvd	Aileen St
Ron Cowan Pkwy	Airport Dr	Harbor Bay Pkwy
Santa Clara Ave	Vernon St	Lake Park Ave
Telegraph Ave	Aileen St	Woolsey St
West St	Grand Ave	MacArthur Blvd

Table 3: Preliminary Proposed Bicycle Lanes (Class 2) not included in the 1999 BMP		
Street	**From**	**To**
20th St	Harrison St	San Pablo Ave
23rd Ave	E 12th St	E 21st St
27th St	San Pablo Ave	Broadway
29th Ave	23rd Ave	E 7th St
55th St	Vallejo St	Vicente Wy
8th St	Market St	Wood St
98th Ave	Empire Rd	Airport Dr
9th St	Castro St	Oak St
Adeline St	3rd St	35th St
Bancroft Ave	42nd Ave	50th Ave
Beaumont Ave	14th Ave	Park Blvd
Broadway	Golden Gate Ave	Highway 24 Overcrossing at Caldecott Ln
Broadway Terrace	Broadway	Mountain Blvd
Caldecott Ln	FWY overcrossing	Tunnel Rd
Doolittle Dr	Harbor Bay Pkwy	Swan Wy
E 12th St	1st Ave	54th Ave
E 15th St	Lakeshore Ave	14th Ave
E 21st St	14th Ave	Mitchell St
Edes Ave	Hegenberger Rd	105th Ave
Edgewater Dr	Bay Trail	Hegenberger Rd
Franklin St	6th St	Broadway at 22nd St
MacArthur Blvd	San Pablo Ave	14th Ave
Martin Luther King Jr. Way	20th St	2nd St
Mountain Blvd	Keller Ave	Golf Links Rd
Redwood Rd	Campus Dr	Skyline Blvd
San Leandro St	Fruitvale Ave	Apricot Ave
Santa Clara Ave	MacArthur Blvd	Grand Ave
Seminary Ave	MacArthur Blvd	Sunnymere Ave
Tunnel Rd	Berkeley Border	Caldecott Ln
Webster St	2nd St	Broadway at 25th St

In order to approve the Project, the following actions by the City may be necessary:

1. General Plan Amendment to incorporate the Bicycle Master Plan Update as part of the Land Use and Transportation Element

The 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 of reducing or avoiding potential environmental effects. Therefore, the location of some of previously listed Bikeways may change.

September 6, 2005
File No. ER05-104

CLAUDIA CAPPIO
Director of Planning and Zoning

City of Oakland
File No. ER05-104, GP05-450

INITIAL STUDY AND ENVIRONMENTAL CHECKLIST FORM

California Environmental Quality Act (CEQA)

1. Project Title: Oakland Bicycle Master Plan Update

2. Lead Agency Name and Address: City of Oakland
Community and Economic Development Agency
Planning and Zoning Division
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

3. Contact Person and Phone Number: Jason Patton
Telephone: (510) 238-7049
E-Mail: jpatton@oaklandnet.com

4. Project Location: Oakland, California. The city of Oakland is located on the eastern shore of the San Francisco Bay. The city encompasses 56 square miles of land and 24 square miles of water and is defined by the bay and Oakland Estuary on the southwest, the crest of the Berkley-Oakland Hills of the northeast, and other urban areas on the north and south. Oakland is approximately 15 miles east of San Francisco and 90 miles southwest of Sacramento.

5. Project Sponsor's Name and Address: City of Oakland
Community and Economic Development Agency
Planning and Zoning Division
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

6. General Plan Designation: Citywide (varies)

7. Zoning: Citywide (varies)

8. Description of Project:

The City of Oakland is updating its 1999 Bicycle Master Plan (BMP) to comply with the requirements of the State of California's Bicycle Transportation Account. The resulting BMP will continue to ensure Oakland's eligibility for funding for bicycle facilities and programs from the State's Bicycle Transportation Account and other bicycle grant programs. The BMP serves as the

official policy document addressing the development of facilities and programs to enhance the role of bicycling as a viable and appropriate transportation choice in Oakland. Through a General Plan amendment, the updated BMP will be adopted as part of the Land Use and Transportation Element (LUTE) of the Oakland General Plan. The project would implement General Plan LUTE Policy T4.4 which recommends the preparation, adoption, and implementation of a Bicycle Master Plan.

This Initial Study addresses the potential environmental impacts of the Bicycle Master Plan and identifies potentially significant impacts that would need to be analyzed further through preparation of an Environmental Impact Report (EIR). The City has prepared a Preliminary Proposed Bikeway Network (see Figures 1-3 and Tables 1-3) that identifies potential future bike projects that could improve bicycle transportation in the city of Oakland. The Preliminary Proposed Bikeway Network is the basis of the Bicycle Master Plan update and the project addressed by this Initial Study.

9. Surrounding Land Uses and Setting.

The project applies citywide and would therefore involve various land uses and settings (downtown, residential neighborhoods, commercial areas, parks and open spaces, etc.).

10. Other public agencies whose approval may be required.

- *California Department of Transportation (Caltrans)* - Segments of the Preliminary Proposed Bikeway Network are located along the following streets that are also state highways: Doolittle Dr (State Route 61), International Blvd (State Route 185), San Pablo Ave (State Route 123), and Tunnel Rd (State Route 13).

- *East Bay Regional Parks District (EBRPD)* - Segments of the Preliminary Proposed Bikeway Network are located within Martin Luther King Jr. Shoreline Park and Temescal Regional Recreation Area.

- *San Francisco Bay Conservation and Development Commission (BCDC)* - – Portions of the Preliminary Proposed Bikeway Network are within 100 feet of the "shoreline band" that surrounds San Francisco Bay (along the Oakland Estuary) in which BCDC has review and permit authority.

- *Port of Oakland* – Portions of the Preliminary Proposed Bikeway Network are within the jurisdiction of the Port of Oakland. The Port of Oakland is subject to the City of Oakland's General Plan.

11. Actions for Which This Initial Study May Be Applied Without Limitation:

- Adoption of the Bicycle Master Plan Update

- Amendment to the Land Use and Transportation Element of the General Plan

- Amendment to the Planning Code to adopt a Bicycle Parking Ordinance

- Provide CEQA clearance for implementation of the Proposed Bikeway Network, *except* for the proposed Bicycle Paths (Class 1) and the Telegraph Ave Bicycle Lanes (Class 2) (which are the subject of separate environmental evaluations).

Environmental Factors Potentially Affected

The environmental factors checked below may – conservatively – be affected by this project and will be studied in further detail in the EIR.

☐ Aesthetics	☐ Agriculture Resources	☒ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology / Soils
☐ Hazards & Hazardous Materials	☐ Hydrology / Water Quality	☐ Land Use / Planning
☐ Mineral Resources	☐ Noise	☐ Population / Housing
☐ Public Services	☐ Recreation	☒ Transportation / Traffic
☐ Utilities / Service Systems	☒ Mandatory Findings of Significance	

DETERMINATION: (To be completed by Lead Agency)
On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☒ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment in the areas of transportation/traffic and air quality. A focused EIR will be prepared to further study these impacts.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

8/31/05
Date

CLAUDIA CAPPIO
Director of Planning and Zoning

PROJECT DESCRIPTION

Introduction

The Bicycle Master Plan serves as the official policy document addressing the development of facilities and programs to enhance the role of bicycling as a viable and appropriate transportation choice in the city of Oakland.

Project Location

The city of Oakland, California is located on the eastern shore of San Francisco Bay in northwestern Alameda County. It covers an area of approximately 56 square miles with an average elevation of 42 feet. The city is bounded by the cities of Emeryville and Berkeley to the north/northwest, unincorporated Contra Costa and Alameda counties to the east/northeast, the city of San Leandro to the south, the Oakland Estuary to the south/southwest, and San Francisco Bay to the west. The island city of Alameda is located across the estuary while the city of Piedmont is an enclave encompassed by the city of Oakland, generally north of Lake Merritt. With a population of approximately 410,000 people, Oakland is the eighth most-populous city in the state. It is also the largest city in Alameda County, in terms of both area and population, and is also the county seat.

The city's major natural features are San Francisco Bay, the Oakland Estuary, Lake Merritt, and the hills along the city's northeastern boundary. Downtown is a few blocks inland from the estuary and immediately west of Lake Merritt. Most residential districts are to the north, east, and southeast of downtown, and industrial areas are to the west and southeast, along I-880. Notable large-scale land uses include the chain of open spaces in the hills, Oakland International Airport, and the seaport (one of the country's largest and busiest). The airport and seaport, combined with several interstate highways and passenger and freight rail lines that pass through the city, make Oakland the transportation hub of Northern California.

Existing Conditions

There are existing bicycle facilities on various roadways throughout the city (see **Figure 1**). Bicycle facilities include Bicycle Paths (Class 1), Bicycle Lanes (Class 2), and Bicycle Routes (Class 3), collectively referred to as Bikeways. Bicycle Paths are paved trails that are separated from roadways. Bicycle Lanes are lanes on roadways designated for bicycle use by striping, pavement legends, and signs. Bicycle Routes are roadways that are designated for bicycle use with signs.

Since 1996, the City of Oakland Public Works Agency has installed approximately 50 miles of Bikeways, including Bicycle Lanes on 73rd Ave, Bancroft Ave, Embarcadero, Grand Ave, MacArthur Blvd, Market St, and Telegraph Ave. Examples of Bicycle Routes include Webster/Shafter and Skyline Blvd. Bicycle Paths include the Shephard Canyon Path and completed sections of the San Francisco Bay Trail. The City's bicycle facilities include those within the jurisdiction of the Port of Oakland. The City's facilities also link to bicycle facilities within the jurisdiction of the East Bay Regional Park District, namely Martin Luther King, Jr. Regional Shoreline and Temescal Regional Recreation Area.

Proposed Project

The City of Oakland is updating its 1999 Bicycle Master Plan (BMP) to comply with the requirements of the State of California's Bicycle Transportation Account. The resulting BMP will continue to ensure Oakland's eligibility for funding for bicycle facilities and programs from the State's Bicycle Transportation Account and other bicycle grant programs. The BMP serves as the official policy document addressing the development of facilities and programs to enhance the role of bicycling as a viable and appropriate transportation choice in Oakland. The updated plan will include a Proposed Bikeway Network based upon analysis and revisions to the network included in the 1999 plan. Through a General Plan amendment, the updated BMP will be adopted as part of the Land Use and Transportation Element (LUTE) of the Oakland General Plan. The project would implement General Plan LUTE Policy T4.4 which recommends the preparation, adoption, and implementation of a Bicycle Master Plan.

Starting from the Recommended Bikeway Network in the 1999 Bicycle Master Plan, the Prelimary Proposed Bikeway Network was developed based on the following criteria:

1. *Connectivity* – Connect major transit stations, downtown, commercial districts, neighborhoods, and adjoining jurisdictions with a citywide network of Bikeways.
2. *Coverage* – Identify Bikeways spaced at one-half mile to one mile intervals to ensure coverage throughout Oakland.
3. *Safety* – Designate arterial and collector streets as Bikeways where Bicycle Lanes, wide curb lanes, or shared lane treatments are feasible.
4. *Convenience* – Select direct connections using the most level streets available.
5. *Ability* – Include a mixture of Bicycle Paths, Lanes, and Routes to support cyclists of differing experience levels.
6. *Feasibility* – Propose Bikeways that meet the plan's citywide feasibility analysis regarding the removal of travel lanes and parking spaces.

The citywide feasibility analysis identified in criterion #6 will be completed as part of the EIR process.

This EIR will address the potential impacts of the Proposed Bikeway Network and, in particular, the proposed Bicycle Lanes (Class 2). The addition of Bicycle Lanes to existing roadways could require the reconfiguration of travel lanes or the removal of curbside parking, potentially causing significant environmental impacts. Because Bicycle Routes (Class 3) are composed of signage on existing roadways, this class of Bikeway does not have significant environmental impacts and will not be studied in detail. Details regarding the potential impacts of specific Bicycle Path (Class 1) projects pursuant to Figure 2 (Preliminary Proposed Bikeways) and Figure 3 (Preliminary Proposed Bikeway Network) are unknown at this time (exact location, length or width). The undefined Bicycle Paths could result in potentially significant impacts. Each future project is subject to subsequent project-level environmental review, at which time specific Bicycle Path project characteristics would be identified and the City would determine if additional project-level environmental assessment would be required. Assessments would identify mitigation measures to reduce impacts to a less than significant level.

The following Bicycle Paths (Class 1) are included in the Preliminary Proposed Bikeway Network and would receive environmental review as separate projects:

- Bay Bridge Connector Path would link the Bicycle Path on the new eastern span of the Bay Bridge to the bikeway networks in Oakland and Emeryville with possible connections to W Grand Ave, Mandela Pkwy, and Shellmound St.
- Bay Trail Bridge at Oyster Bay Slough would connect Bicycle Paths at the Oakland International Airport (near Airport Dr and Ron Cowan Pkwy) to Bicycle Paths in Oyster Bay Regional Shoreline. Environmental review for this project is currently underway and the City of San Leandro is the lead agency.

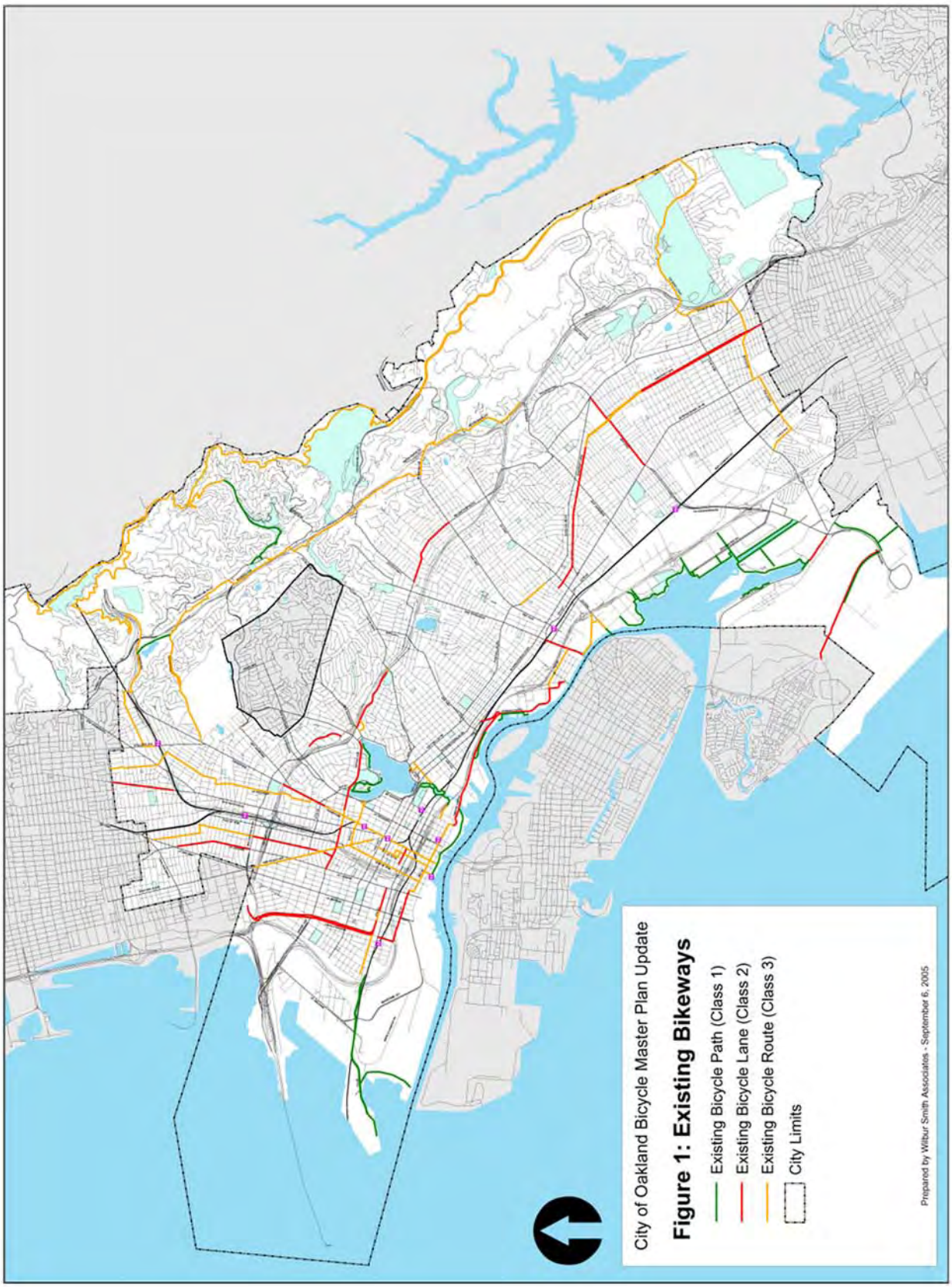
- Coliseum BART to Bay Trail Connector Path would link San Leandro St at 73rd Ave to Oakport St at 66th Ave along Damon Slough. Environmental review for this project is currently underway and Alameda County is the lead agency.
- Highway 24/Highway 13 Bicycle/Pedestrian Connector would link the Lake Temescal Path to Tunnel Rd near the interchange of Highways 24 and 13.
- John Glen Dr Path would connect Bicycle Paths at Airport Dr and Ron Cowan Pkwy to the terminals at the Oakland International Airport. The Port of Oakland completed the environmental review for this project as part of the Airport Development Program EIR (1997) and the Supplemental EIR (2001).
- Lake Merritt Path and Channel Path would connect the Oakland Estuary to Lake Merritt via the Lake Merritt Channel and provide a continuous Bicycle Path around Lake Merritt. The City of Oakland completed the environmental review for this project as part of the Addendum for the Oakland Clean Water, Safe Waterfront Parks and Recreation Trust Fund Ballot Measure (2002). This document is an addendum to the General Plan Land Use and Transportation Element EIR (1998), Estuary Policy Plan EIR (1998), and Open Space, Conservation and Recreation Element Mitigated Negative Declaration (1995).
- Leona Quarry Path would connect Mountain Blvd at Edwards Ave to Mountain Blvd at Kunhle Ave, parallel to Interstate 580.
- Maritime St Path would parallel Maritime St from 7th St to W Grand Ave. Environmental review for this project was completed as part of the Oakland Army Base Reuse Plan EIR.
- Martin Luther King Jr. Regional Shoreline Path would parallel Doolittle Dr along Airport Channel from Swan Wy to Harbor Bay Pkwy.
- Middle Harbor Rd Path would parallel Middle Harbor Rd from 7th St to the Adeline St overpass near 3rd St.
- Oakland Waterfront Trail would connect Jack London Square to Martin Luther King, Jr. Regional Shoreline along the Oakland Estuary. While this Bicycle Path was addressed in the Estuary Policy Plan EIR (1998), it is being implemented in segments. Environmental review is being conducted on a segment by segment basis at the time of project design.
- San Leandro Creek Path would connect Hegenberger Rd to 98th Ave along San Leandro Creek.
- San Leandro St Path would connect Jack London Square to the city of San Leandro via the Union Pacific Railroad right-of-way and BART right-of-way near San Leandro St as well as segments of E 7th St and E 12th St.

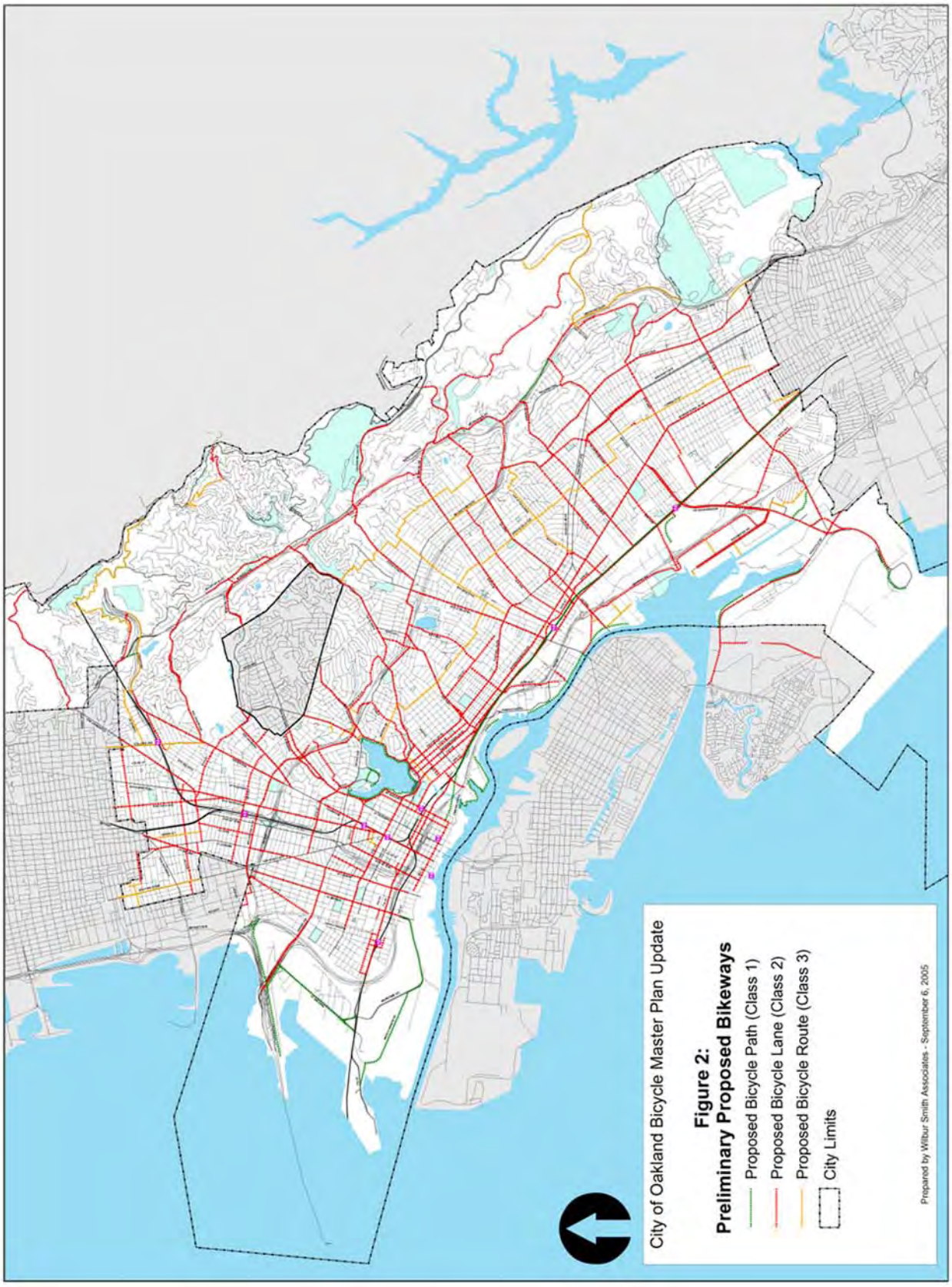
The following figures and tables identify the Preliminary Proposed Bikeway Network. The figures are also available in high resolution color format on the internet at:

www.oaklandpw.com/bicycling/bikeplan.htm

Figure 1 shows existing Bikeways in Oakland, including Bicycle Paths (Class 1), Bicycle Lanes (Class 2), and Bicycle Routes (Class 3). **Figure 2** shows preliminary proposed Bikeways that will be considered for inclusion in the BMP update while **Figure 3** shows the Preliminary Proposed Bikeway Network (both the existing and proposed Bikeways). **Table 1** identifies existing and proposed Bicycle Lanes that are being considered for inclusion in the updated BMP. **Table 2** identifies completed Bicycle Lanes in Oakland. **Table 3** identifies proposed Bicycle Lanes that were not identified in the 1999 BMP. Note that the majority of proposed Bicycle Lanes under consideration are included in the adopted 1999 BMP.

Table 1 provides a complete list of proposed Bicycle Lanes to be analyzed for inclusion in the updated BMP. All proposed Bicycle Lanes will undergo a preliminary analysis for potentially significant environmental impacts while a representative sample will receive detailed analysis. Proposed Bicycle Lanes with significant environmental impacts may be relocated to another street in the same travel corridor if that relocation would reduce the overall impacts. Thus, the updated BMP may include Bikeways not included in Table 1, but those modifications would be made in order to reduce the overall impacts of the proposed Bicycle Lanes identified in Table 1.


City of Oakland Bicycle Master Plan Update
Figure 1: Existing Bikeways
Existing Bicycle Path (Class 1)
Existing Bicycle Lane (Class 2)
Existing Bicycle Route (Class 3)
City Limits
Prepared by Wilbur Smith Associates - September 6, 2005


City of Oakland Bicycle Master Plan Update
Figure 2:
Preliminary Proposed Bikeways
Proposed Bicycle Path (Class 1)
Proposed Bicycle Lane (Class 2)
Proposed Bicycle Route (Class 3)
City Limits
Prepared by Wilbur Smith Associates - September 6, 2005

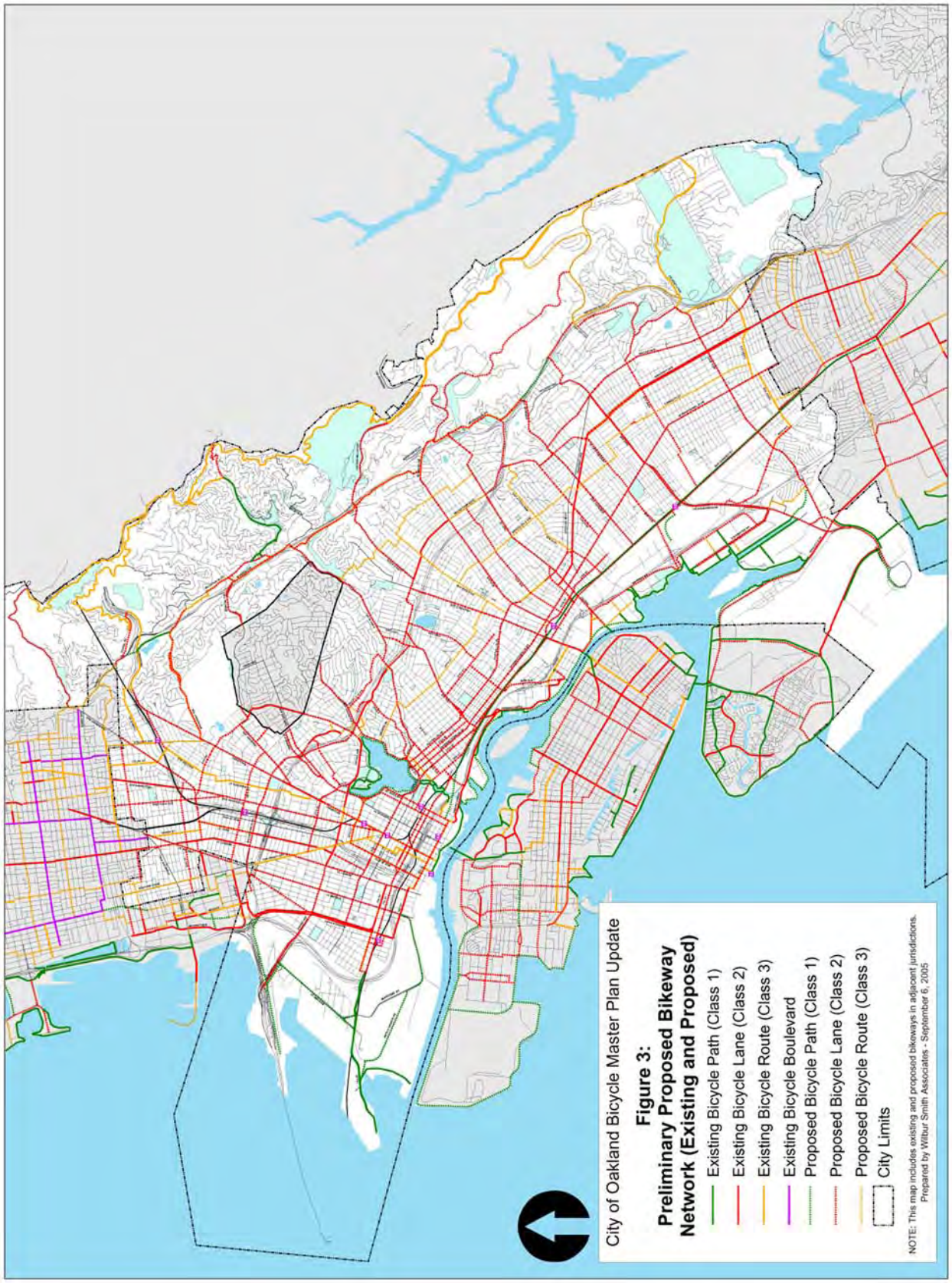

City of Oakland Bicycle Master Plan Update
Figure 3:
Preliminary Proposed Bikeway Network (Existing and Proposed)
Existing Bicycle Path (Class 1)
Existing Bicycle Lane (Class 2)
Existing Bicycle Route (Class 3)
Existing Bicycle Boulevard
Proposed Bicycle Path (Class 1)
Proposed Bicycle Lane (Class 2)
Proposed Bicycle Route (Class 3)
City Limits
NOTE: This map includes existing and proposed bikeways in adjacent jurisdictions.
Prepared by Wilbur Smith Associates - September 6, 2005

Table 1: Preliminary Proposed Bicycle Lanes (Class 2) for Inclusion in the BMP Update		
Street	**From**	**To**
14th Ave	E 8th St	MacArthur Blvd
14th St	Mandela Parkway	Lakeside
20th St	Harrison St	San Pablo Ave
22nd Ave	E 21st St	E 12th St
23rd Ave	29th Ave	Ardley Ave
27th St	San Pablo Ave	Bay Place
29th Ave	23rd Ave	E 7th St
2nd St	Brush St	Oak St
35th Ave	San Leandro St	Redwood Rd
3rd St	Mandela Parkway	Brush St
40th St	Adeline St	Piedmont Ave
42nd Ave	Courtland Ave	San Leandro St
4th Ave	Park Blvd	E 10th St
50th Ave	Foothill Blvd	San Leandro St
51st St	Shattuck Ave	Broadway
52nd St	51st St	Market St
55th St	Vallejo St	Vicente Wy
5th Ave	E 10th St	Embarcadero
66th Ave	International Blvd	Oakport
73rd Ave	Edwards Ave	International Blvd
7th St	Wood St	5th Ave
81st Ave	San Leandro St	International Blvd
82nd Ave	Golf Links Rd	International
8th St	Wood St	Oak St
98th Ave	Golf Links Rd	Airport Dr
9th St	Castro St	Oak St
Adeline St	3rd St	61st St
Airport Dr	Neil Armstrong Wy	Hegenberger Rd
Alameda Ave	Fruitvale Ave	High St
Alcatraz Ave	San Pablo Ave	College Ave
Ardley	MacArthur Blvd	23rd Ave
Bancroft Ave	42nd Ave	Durant Ave
Bay Place	27th St	Grand Ave
Beaumont Ave	14th Ave	Park Blvd
Broadway	Embarcadero	Highway 24 overcrossing at Caldecott Ln
Broadway Terrace	Broadway	Mountain Blvd
Buell/Calaveras/Daisy/Davenport	MacArthur Blvd	Mountain Blvd
Caldecott Ln	FWY overcrossing	Tunnel Rd
Camden St	Seminary Ave	Bancroft Ave
Campus Dr	Redwood Rd	Keller
Carson St	Mountain Blvd	Tompkins Ave
Claremont	Telegraph Ave	Grizzly Peak Blvd
Doolittle Dr	Harbor Bay Pkwy	Eden Rd
E 10th St	Madison St	9th Ave
E 12th St	1st Ave	54th Ave
E 15th St	Lakeshore Ave	14th Ave
E 18th St	Park Blvd	Lakeshore Ave

Table 1 (Cont.): Preliminary Proposed Bicycle Lanes (Class 2) for Inclusion in the BMP Update		
Street	**From**	**To**
E 21st St	14th Ave	Mitchell St
Edes Ave	Hegenberger Rd	105th Ave
Edgewater Dr	Bay Trail	Hegenberger Rd
Edwards Ave	Mountain Blvd	73rd Ave
Embarcadero	Oak St	E 7th St
Fontaine St	Keller Ave	Golf Links Rd
Foothill Blvd	Lakeshore Ave	50th Ave
Franklin St	6th St	Broadway at 22nd St
Fruitvale Ave	Alameda Ave	MacArthur Blvd
Golf Links Rd	82nd Ave	Grass Valley Rd
Grand Ave	Jean St	Interstate 80
Harrison St	20th St	Monte Vista Ave
Havenscourt Bl	Bancroft Ave	International Blvd
Hegenberger Rd	International Blvd	Airport Dr
High St	Tompkins Ave	Tidewater Ave
International Blvd	1st Ave	Durant Ave
Joaquin Miller Rd	Skyline Blvd	Hwy 13
Lakeshore Ave	E 12th St	Wala Vista
Lakeside Dr	14th St	20th St
Lincoln	MacArthur Blvd	Highway 13
Linda Ave	Piedmont Ave	Rose Ave
MacArthur Blvd	Hollis St	Durant Ave
Madison St	2nd St	Lakeside Dr
Mandela Pkwy	3rd St	Horton St
Market St	3rd St	Alcatraz Ave
Martin Luther King Jr. Way	20th St	2nd St
Monterey Blvd	Park Blvd	Redwood Rd
Moraga Ave	Pleasant Valley Ave	Mountain Blvd
Mountain Blvd	Broadway Ter	Golf Links Rd
Oak St	Embardadero	14th St
Oakland Ave	Harrison St	Monte Vista Ave
Oakport St	High St	Edgewater Dr
Park Blvd	E 18th St	Mountain Blvd
Peralta St	MacArthur Blvd	Mandela Pkwy
Piedmont Ave	Broadway	Pleasant Valley Ave
Pleasant Valley Ave	Broadway	Rose Ave
Redwood Rd	Skyline Blvd	35th Ave
Ron Cowan Pkwy	Airport Dr	Harbor Bay Pkwy
San Leandro St	Fruitvale Ave	Apricot Ave
Santa Clara Ave	MacArthur Blvd	Grand Ave
Seminary Ave	Sunnymere Ave	San Leandro St
Shattuck Ave	Telegraph Ave	Woolsey St
Shepherd Canyon Rd	Saroni Dr	Skyline Blvd
Telegraph Ave (1)	Broadway	Woolsey St
Tunnel Rd	Berkeley Border	Caldecott Ln
Webster St	2nd St	Broadway at 25th St
West St	14th St	52nd St

(1) Telegraph Ave (Broadway to Aileen St) is undergoing environmental review as a separate project.

Table 2: Existing Bicycle Lanes (Class 2)		
Street	**From**	**To**
3rd St	Mandela Parkway	Brush St
73rd Ave	International Blvd	MacArthur Blvd
8th St	Market St	Wood St
Bancroft Ave	Courtland Ave	66th Ave
Bancroft Ave	82nd Ave	Durant Ave
Broadway	26th St	MacArthur Blvd
Doolittle Dr	Hegenberger Rd	Harbor Bay Pkwy
Embarcadero	Oak St	E 7th St
Fruitvale Ave	Alameda Ave	E 12th St
Grand Ave	El Embarcadero	Market St
Harrison St	21st St	Grand Ave
MacArthur Blvd	Lakeshore Ave	Park Blvd
MacArthur Blvd	Lincoln Ave	35th Ave
Mandela Pkwy	3rd St	Horton St
Market St	MacArthur Blvd	Aileen St
Ron Cowan Pkwy	Airport Dr	Harbor Bay Pkwy
Santa Clara Ave	Vernon St	Lake Park Ave
Telegraph Ave	Aileen St	Woolsey St
West St	Grand Ave	MacArthur Blvd

Table 3: Preliminary Proposed Bicycle Lanes (Class 2) not included in the 1999 BMP		
Street	**From**	**To**
20th St	Harrison St	San Pablo Ave
23rd Ave	E 12th St	E 21st St
27th St	San Pablo Ave	Broadway
29th Ave	23rd Ave	E 7th St
55th St	Vallejo St	Vicente Wy
8th St	Market St	Wood St
98th Ave	Empire Rd	Airport Dr
9th St	Castro St	Oak St
Adeline St	3rd St	35th St
Bancroft Ave	42nd Ave	50th Ave
Beaumont Ave	14th Ave	Park Blvd
Broadway	Golden Gate Ave	Highway 24 Overcrossing at Caldecott Ln
Broadway Terrace	Broadway	Mountain Blvd
Caldecott Ln	FWY overcrossing	Tunnel Rd
Doolittle Dr	Harbor Bay Pkwy	Swan Wy
E 12th St	1st Ave	54th Ave
E 15th St	Lakeshore Ave	14th Ave
E 21st St	14th Ave	Mitchell St
Edes Ave	Hegenberger Rd	105th Ave
Edgewater Dr	Bay Trail	Hegenberger Rd
Franklin St	6th St	Broadway at 22nd St
MacArthur Blvd	San Pablo Ave	14th Ave
Martin Luther King Jr. Way	20th St	2nd St
Mountain Blvd	Keller Ave	Golf Links Rd
Redwood Rd	Campus Dr	Skyline Blvd
San Leandro St	Fruitvale Ave	Apricot Ave
Santa Clara Ave	MacArthur Blvd	Grand Ave
Seminary Ave	MacArthur Blvd	Sunnymere Ave
Tunnel Rd	Berkeley Border	Caldecott Ln
Webster St	2nd St	Broadway at 25th St

Environmental Impacts

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
1. AESTHETICS—Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒
e) Introduce landscape that would now or in the future cast substantial shadows on existing solar collectors (in conflict with California Public Resource Code Section 25980-25986)?	☐	☐	☐	☒
f) Cast shadow that substantially impairs the function of a building using passive solar heat collection, solar collectors for hot water heating, or photovoltaic solar collectors?	☐	☐	☐	☒
g) Cast shadow that substantially impairs the beneficial use of any public or quasi-public park, lawn, garden, or open space?	☐	☐	☐	☒
h) Cast shadow on an historic resources, as defined by CEQA Section 15064.5(a), such that the shadow would materially impair the resource's historical significance by materially altering those physical characteristics of the resource that convey its historical significance and that justify its inclusion on or eligibility for listing in the National Register of Historic Places, California Register of Historical Resources, Local register of historical resources or a historical resource survey form (DPR Form 523) with a rating of 1-5?	☐	☐	☐	☒
i) Require an exception (variance) to the policies and regulations in the General Plan, Planning Code, or Uniform Building Code, and the exception causes a fundamental conflict with policies and regulations in the General Plan, Planning Code, and Uniform Building Code addressing the provision of adequate light related to appropriate uses?	☐	☐	☐	☒
j) Create winds exceeding 36 mph for more than 1 hour during daylight hours during the year. [The wind analysis only needs to be done if the project's height is 100 feet or greater (measured to the roof) **and** one of the following conditions exist: (a) the project is located adjacent to a substantial water body (i.e., Oakland Estuary, Lake Merritt or San Francisco Bay); or (b) the project is located in Downtown Oakland (as defined by the General Plan)?	☐	☐	☐	☒

Comments:

a-h) *No Impac*t. The proposed project consists of adding Bikeways to existing roadways. No new above-grade construction or physical changes to roadways are proposed. As a result the project would not 1) affect a scenic vista, scenic resource, or visual character around the project; or 2) create new sources of light or glare or cast shadows. The project would therefore have no impact.

i) *No Impact.* The project would not require a variance to the General Plan, Planning Code, or Uniform Building Code that would address the provision of adequate light. Therefore, the project would have no impact.

j) *No Impact.* Segments of the project would be located in downtown Oakland and adjacent to Lake Merritt and the Oakland Estuary. However, the project would not result in the construction of physical structures that would create wind speeds. Therefore the project would have no impact.

Sources:

Project description.

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
2. AGRICULTURE RESOURCES In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. **Would the project:**				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒

Comments:

a-c) *No Impact.* The roadways that would be developed as Bikeways as part of the project are located in an urbanized area (as defined by CEQA Section 21071) of Oakland. There are no designated agricultural lands in Oakland, therefore the project would not convert prime agricultural farmland or conflict with agricultural zoning or a Williamson Act contract. There would be no impact.

Sources:

California Department of Conservation, *Alameda County Important Farmland Map*, 1998.
City of Oakland, Oakland General Plan *Land Use & Transportation Element*, March 24, 1998.
City of Oakland, Oakland General Plan *Open Space, Conservation, & Recreation Element*, June 1996.
Project description.

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
3. AIR QUALITY Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. **Would the project:**				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒	☐	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☒	☐	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
e) Frequently create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

a) *No Impact.* The project consists of adding Bikeways to existing roadways. No new construction or physical changes to the roadway are proposed that would conflict with any of the growth assumptions that are incorporated into the regional air quality plan, *Bay Area 2000 Clean Air Plan* (2000 CAP) or that would obstruct implementation of the 2000 CAP's proposed control measures. Moreover, implementation of the project would advance the 2000 CAP's transportation control measures (TCM) to reduce emissions by reducing motor vehicle use. Specifically, by creating a citywide network of Bikeways and connecting residential areas to activity centers such as transit stations, commercial districts, employment centers, and education institutions, the project would implement TCM #9 - *Improve Bicycle Access and Facilities*. In this way, the project would support, and not obstruct, the implementation of the 2000 CAP. There would be no impact.

b-d) *Potentially Significant Impact.* Although not expected to result in significant impacts, these topics will nevertheless (conservatively) be addressed in the EIR.

e) *Less than Significant Impact.* During removal of the existing lane stripes and restriping to reconfigure roadways for the project, the various diesel-powered vehicles and equipment in use on the site could create minor odors. These odors are not likely to be noticeable beyond the project roadways and would be temporary and short-lived in nature. Therefore, this impact would be less than significant.

Sources:
Bay Area Air Quality Management District, *BAAQMD CEQA Guidelines*, 1999.
*Bay Area 2000 Clean Air Plan, December 2000***.**
Project description.

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
4. BIOLOGICAL RESOURCES— Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) or state-protected wetlands, through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Fundamentally conflict with any local policies or ordinances protecting biological resources, such as the City of Oakland Tree Preservation and Removal Ordinance (Oakland Municipal Code (OMC) Chapter 12.36) by removal of protected trees under certain circumstances and/or the City of Oakland Creek Protection Ordinance (OMC Chapter 13.16) intended to protect biological resources?	☐	☐	☐	☒
f) Fundamentally conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Comments:

a-f) *No Impact.* The proposed project consists of adding Bikeways to existing roadways, and no physical changes to the roadway are proposed as part of the project. As a result, the project would not occur on or in the vicinity of special status species habitat. The project would not adversely affect any sensitive natural community or riparian habitat, federally protected wetlands or adversely interfere with the movement of fish or wildlife species affect migratory wildlife corridors or impede the use of native wildlife nursery sites. The project would not conflict with any local policy or ordinances protecting biological resources since it will not affect biological resources, and it would not conflict with any approved habitat conservation plan. The project would have not impact.

Sources:

Project description.

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
5. CULTURAL RESOURCES— Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☐	☒
b) Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

Comments:

a-d) *No Impact.* No new construction or physical changes to the roadway are proposed as part of the project. Additionally, no grading or subsurface work would be required. As a result, the project would not adversely affect historical or archaeological resources. The project would not destroy unique paleontological resources or geologic features. In addition the project would not disturb any human remains. The project would have no impact.

Sources:

Project description.

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
6. GEOLOGY AND SOILS—Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☐	☒
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c) Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as it may be revised), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

Comments:

a-e) *No Impact.* The project consists of adding Bikeways to existing roadways. No physical changes are proposed that would increase the number of people exposed to geological and soils hazards. As a result, the project would not expose additional people or structures to the risk of earthquake rupture, ground shaking, ground failure, including liquefaction, landslides, mudslides or other similar hazards.

In addition, the project would not result in erosion, loss of topsoil, or expansive soils. Nor would the project expose additional people or structures to the risk of unstable soil or geologic unit. The project would not result in an adverse impact related to soils incapable adequately supporting the use of septic tanks or other alternative waste water disposal systems. There would be no impact.

Sources:

Project description.

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
7. HAZARDS AND HAZARDOUS MATERIALS Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

Comments:

a-f) *No Impact.* The project consists of adding Bikeways to existing roadways. No new construction or physical changes to the roadways are proposed that would increase the routine transport, use, or disposal of hazardous materials. Therefore, the project would not expose additional people, nearby schools, or the environment to the risk of hazardous materials. The project would have no impact.

The project would improve bicycle access near and at the Oakland Airport, but it is not expected that these improvements would pose a safety hazard for people residing or working the area. Therefore, no impact would occur.

g) *No Impact.* The project consists of adding Bikeways to existing roadways. Those Bikeways would consist of Bicycle Lanes or Bicycle Routes, including pavement striping, street stencils, and bicycle signage. The addition of these treatments to existing roadways would not interfere with the implementation of emergency response or evacuation plans.

h) *No Impact.* No wildlands are located at or adjacent to existing roadways planned for restriping as part of this project, and no new construction is proposed. Therefore there would be no impact related to increased exposure of people or structures to wildfires.

Sources:
City of Oakland, *Oakland General Plan Open Space, Conservation, and Recreation Element*, June 1996.
City of Oakland, *Safety Element of the Oakland General Plan*, November 2004.
Project description.

Issues (and Supporting Information Sources):		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
8.	**HYDROLOGY AND WATER QUALITY— Would the project:**				
a)	Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion of siltation on- or off-site?	☐	☐	☐	☒
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☐	☒
e)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f)	Otherwise substantially degrade water quality?	☐	☐	☐	☒
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h)	Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☐	☒
j)	Inundation of seiche, tsunami, or mudflow?	☐	☐	☐	☒

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
k) Fundamentally conflict with the elements of the City of Oakland Creek Protection (OMC Chapter 13.16) ordinance intended to protect hydrologic resources. Although there are no specific, numeric/quantitative criteria to assess impacts, factors to be considered in determining significance include whether there is substantial degradation of water quality through (a) discharging a substantial amount of pollutants into a creek; (b) significantly modifying the natural flow of the water or capacity; (c) depositing substantial amounts of new material into a creek or causing substantial bank erosion or instability; or (d) substantially endangering public or private property or threatening public health or safety.	☐	☐	☐	☒

Comments:

a-k) *No Impact.* The project consists of adding Bikeways to existing roadways, and no new construction or physical changes to the roadways are proposed that would increase water usage or waste water generation. As a result, the project would not result in the violation of water quality standards or waste discharge requirements. It would not adversely result in significant impacts with respect to erosion, flooding, stormwater drainage system capacity, surface water quality or quantity. The project would have no impact.

Sources:
Project description.

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
9. LAND USE AND PLANNING— Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Result in a fundamental conflict between adjacent or nearby land uses?	☐	☐	☐	☒
c) Fundamentally conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
d) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Comments:

a) *No Impact.* The project consists of adding Bikeways to existing roadways in the City of Oakland. No new construction or physical changes to the roadways are proposed that would create new barriers to a community. The project may assist in joining neighborhoods and districts within the city by extending the bicycle network to make local and regional connections. The project would not physically divide an established community.

b) *No Impact.* The project would not change existing or designated land uses in the city of Oakland. As a result, the plan would not create a fundamental conflict between adjacent and nearby land uses.

c) *No Impact.* The project would involve amending the Oakland General Plan to incorporate the updated Bicycle Master Plan, which would be consistent with existing policies and regulations in the General Plan and the Planning Code. As a result, the project would not be inconsistent with any applicable land use plan, policy, or regulation, and in fact, would help implement the adopted City plans and regional plan goals for promoting multimodal transportation. By implementing new Bikeways the project may reduce motor vehicle trips and would provide opportunities for recreation and alternative transportation modes.

The General Plan recognizes that it contains policies that may in some cases compete with each other. City decision-makers must determine whether, "on balance, the project is consistent (i.e., in general harmony) with the General Plan. The fact that a specific project does not meet all General Plan goals, policies, and objectives does not inherently result in a significant effect on the environment within the context of [CEQA]." Implementation of the BMP may require decision-makers to balance bicyclist safety and access with congestion and parking loss for motor vehicles. These impacts on transportation/traffic will be addressed in the EIR.

d) *No impact.* The project would not involve physical changes or new construction; therefore it would not conflict with any approved habitat conservation plan.

Sources:
Project description.
City of Oakland, *Land Use and Transportation Element of the Oakland General Plan*, March 24, 1998, amended to June 21, 2005.

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
10. MINERAL RESOURCES—Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

Comments:

a-b) *No Impact.* The project would occur in an area that is already developed with urban uses and does not contain known available mineral resources or a locally-important mineral resource recovery

site. As a result, the project would not result in the loss of availability of known mineral resources. The project would have no impact.

Sources:

City of Oakland, Oakland General Plan *Open Space, Conservation, and Recreation Element*, June 1996. Project description.

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
11. NOISE—Would the project:				
a) Expose persons to or generate noise levels in excess of standards established in the Oakland General Plan or other agencies (e.g., OSHA)?	☐	☐	☐	☒
b) Violate the City of Oakland Noise Ordinance (Oakland Planning Code Section 17.120.050) regarding operational noise?	☐	☐	☐	☒
c) Violate the City of Oakland Noise Ordinance (Oakland Planning Code Section 17.130.050) regarding construction noise, except if an acoustical analysis is performed and all feasible mitigation measures imposed, including the standard City of Oakland noise measures adopted by the Oakland City Council on January 16, 2001?	☐	☒	☐	☐
d) Violate the City of Oakland Noise Ordinance (Oakland Municipal Code Section 8.18.020) regarding nuisance of persistent construction-related noise?	☐	☒	☐	☐
e) Create a vibration which is perceptible without instruments by the average person at or beyond any lot line containing vibration-causing activities not associated with motor vehicles, trains, and temporary construction or demolition work, except activities located within the (a) M-40 zone or (b) M-30 zone more than 400 feet from any legally occupied residential property (Oakland Planning Code Section 17.120.060)?	☐	☐	☒	☐
f) Generate interior Ldn or CNEL greater than 45 dBA for multi-family dwellings, hotels, motels, dormitories and long-term care facilities (and may be extended by local legislative action to include single-family dwellings) per California Noise Insulation Standards (CCR Part 2, Title 24)?	☐	☐	☐	☒
g) Result in a 5 dBA permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
h) Conflict with state land use compatibility guidelines for all specified land uses for determination of acceptability of noise (Source: State of California, Governor's Office of Planning and Research, *General Plan Guidelines*, 2003)?	☐	☐	☐	☒

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
i) Be located within an airport land use plan and would expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
j) Be located within the vicinity of a private airstrip, and would expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

a-b) *No Impact.* The project consists of adding Bikeways to existing roadways and would not create a permanent, stationary location for any of the more sensitive noise receptors. Rather, those using the proposed facilities would be on the Bikeways for short periods of time for recreational purposes, to travel to commercial or other destinations, or to commute to work. In addition, the project does not include the creation of any permanent and/or stationary source of noise. Although the proposed Bikeways could increase traffic on cut-through streets in the project vicinity**,** any increase in noise level from these vehicles would not be distinguishable from existing conditions. Therefore, the project would have no impact.

c-d) *Less Then Significant Impact with Mitigation Incorporation.* Construction (i.e., installation of Bikeways) of the proposed project at any one site would be of very limited duration, and therefore any impacts would be temporary. In addition, the project is not expected to require any construction activity that would result in excessive noise, however, implementation of the following mitigation measures, as warranted, would ensure that the City of Oakland Noise Ordinance standards for construction noise are not violated

Mitigation Measure 11d (Construction Noise): To reduce daytime noise impacts due to construction, the project applicant shall require construction contractors to implement the following measures:

- **Equipment and trucks used for project construction shall use the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically-attenuating shields or shrouds, wherever feasible).**

- **Stationary noise sources shall be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or other measures to the extent feasible.**

Implementation of the above mitigation measures, as needed, would reduce any potential impact related to construction noise to a less-than-significant level.

e) *Less Then Significant Impact.* The project would not require any construction activity that would result in excessive or perceptible vibration.

f) *No Impact.* The project does not include the construction of any multi-family dwellings, hotels, motels, dormitories and long-term care facilities. Moreover, as noted in response to 11(a), the project does not include the creation of any permanent and/or stationary source of noise that would affect such uses. The project would have no impact.

g) *No Impact.* By increasing the use of Bikeways, the project would not adversely impact the local noise environment by generating additional ambient roadway noise. The three key variables in creating ambient roadway noise are traffic volumes, traffic speeds, and vehicle mixes. First, the project would not increase traffic volumes: no new motor vehicle trips would be generated and an increase in bicycle trips would have no adverse impact on noise. Indeed, the project may reduce motor vehicle traffic volumes. Second, the project would not increase traffic speeds. In fact, the conversion of travel lanes to Bicycle Lanes would reduce vehicle speeds and thereby reduce ambient traffic noise. By reducing motor vehicle speeds and providing separate Bicycle Lanes, the project would reduce bicycle/motor vehicle conflicts and thus also reduce the horn and braking noises associated with such conflicts. The potential for reduced traffic speeds may have an impact on transportation/traffic and this issue will be addressed in the EIR. Third, the project may change the vehicle mix by increasing the number of bicycles. However, it would not increase the proportion of trucks, buses, or other vehicles that make the vehicle mix a key variable in the generation of ambient roadway noise. Because the decibel scale is logarithmic, a 3 decibel increase in total noise would require doubling ambient noise levels. A 5 decibel noise increase would require more than doubling the amount of motor vehicle traffic on a given street. By improving the viability of bicycling, the project may reduce ambient noise levels on city streets by reducing the volume and/or speed of motor vehicle traffic.

h) *No impact.* See response to 11(a).

i-j) *No Impact.* Although some new Bikeways could be located within the Oakland Airport land use area or private airstrip, the project does not include residences or employment-generating facilities. Rather, users of these facilities would be using these lanes for recreational purposes, to travel to commercial or other destinations, or to commute to work.

Sources:
Project description.
City of Oakland, *Land Use and Transportation Element of the Oakland General Plan*, March 24, 1998, amended to June 21, 2005.

City of Oakland, *Noise Element of the Oakland General Plan*, June 2005.

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
12. POPULATION AND HOUSING— Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere in excess of that contained in the City's Housing Element?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere in excess of that contained in the City's Housing Element?	☐	☐	☐	☒

Comments:

a-c) *No Impact.* No new construction or physical changes to the roadways are proposed as part of the project that would induce population growth. Therefore, the project would not induce direct or indirect substantial population growth in the area, nor would it displace substantial numbers of existing housing or people, necessitating the construction of replacement housing. The project would have no impact.

Sources:
Project description.

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
13. PUBLIC SERVICES— Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
i) Fire protection?	☐	☐	☐	☒
ii) Police protection?	☐	☐	☐	☒
iii) Schools?	☐	☐	☐	☒
iv) Parks?	☐	☐	☐	☒
v) Other public facilities?	☐	☐	☐	☒

Comments:

a(i-v) *No Impact.* The project consists of adding Bikeways to existing roadways, and no new construction or physical changes to the roadways are proposed that would result in the need for new or expanded fire protection facilities. As a result, the project would not require construction or expansion of public services, such as fire and police protection facilities, schools, and recreation parks. There would be no impact on public services.

Sources:

Project description.

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
14. RECREATION:				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

Comments:

a) *Less than Significant.* The City of Oakland owns and maintains 2,942 acres of parkland throughout the city, including over 130 parks and recreational facilities. The proposed project consists of

adding Bikeways to existing roadways, which would not increase the population. The project could result in the increased use of existing parks and other recreational facilities given the increased accessibility to existing park facilities via proposed Bikeways. However, this increased access and potential use would not result in the substantial physical deterioration of existing parks and recreational facilities.

b) *Less than Significant.* The project would provide new Bikeways within the existing roadway alignment and will not require construction or expansion of the existing roadway. While Bikeways may be used as recreational facilities, the project is not expected to cause substantial deterioration of park facilities or to require the construction of new recreational facilities.

Sources:

City of Oakland, Oakland General Plan Open Space, Conservation, and Recreation Element, June 1996. Project description.

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
15. TRANSPORTATION / TRAFFIC— Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☒	☐	☐	☐
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☒	☐	☐	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☒	☐	☐	☐
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Result in inadequate parking capacity?	☒	☐	☐	☐
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☒	☐	☐	☐

a-b) *Potentially Significant Impact.* The addition of Bikeways on roadways within the City of Oakland may have a potentially significant impact under Transportation and Traffic, which will be discussed in detail in a Focused EIR.

c) *No Impact.* As the project would be adding Bikeways to existing roadways, the Bicycle Master Plan would not affect air traffic patterns.

d) *Potentially Significant Impact.* This topic will be addressed in the EIR.

e) *No Impact.* The proposed project would not impede emergency access because it would not reduce the curb-to-curb right-of-way width of any street nor would it result in substandard travel lane widths. The City of Oakland Fire Services Agency (Fire Department) is responsible for first response in an emergency. The project would maintain a minimum "clear" right-of-way of 20 feet on all streets, per the City of Oakland Fire Department requirements. The project would maintain adequate travel and maneuvering space and thus have no impact on emergency access.

f) *Potentially Significant Impact.* This topic will be addressed in the EIR.

g) *Potentially Significant Impact.* This topic will be addressed in the EIR.

Sources:

Project description.

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
16. UTILITIES AND SERVICE SYSTEMS—Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Violate with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒
h) Violate applicable federal, state and locate statutes and regulations relating to energy statutes?	☐	☐	☐	☒

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
i) Result in a determination by the energy provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the providers' existing commitments and require or result in construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒

Comments:

a-i) *No Impact.* The project consists of adding Bikeways to existing roadways and would not increase wastewater generation or increase the need for public utilities or services. The project would not result in the need for the construction of new or expansion of existing energy facilities. The project would have no impact.

Sources:
Project description.

Issues (and Supporting Information Sources):	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*
17. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☒
b) Does the project have impacts that are individually limited, but cumulative considerable? ("Cumulative considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

Comments:

a) *No Impact.* The project consists of adding Bikeways to existing roadways, and no new construction or physical changes to the roadways are proposed that would have the potential to degrade biological resources. The project would have no impact.

b) *Potentially Significant Impact.* This project proposes the addition of Bikeways to existing roadways that may require the removal of motor vehicle travel lanes. This project could have cumulative impacts on transportation/traffic with other projects that reduce the motor vehicle capacity or travel speed on Oakland streets. This topic will be addressed in the EIR.

c) *Potentially Significant Impact.* The project may have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly. A focused EIR will assess potential impacts related to transportation/traffic and air quality. These impacts are identified in this Initial Study as potentially significant.

Sources:
Project description.

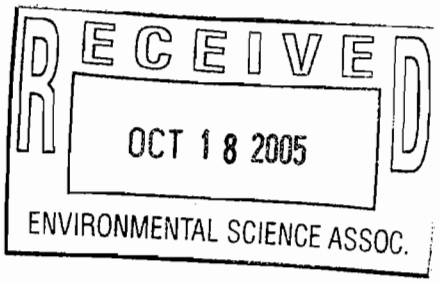
APPENDIX B

Comments on the Notice of Preparation

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

Nancy Skowbo
Deputy General Manager - Service Development

October 5,2005



Jason Patton
Project Manager
City of Oakland
Community and Economic Development Agency
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, Ca. 94612

Dear Mr. Patton:

Thank you for the opportunity to comment on the Notice of Preparation (NOP) of the Draft Environmental Impact Report (EIR) for the Oakland Bicycle Master Plan. As you know, the formulation, implementation, and revision of Oakland's Bike Plan have been matters of great concern to AC Transit.

The Oakland Bicycle Plan Update Project

The Project to be reviewed is a state-mandated update to Oakland's existing 1999 Bicycle Master Plan. An update is required to maintain Oakland's eligibility for state funding of bicycle programs. The revised Bicycle Master Plan is proposed for adoption as part of the Land Use and Transportation Element of the Oakland General Plan.

Environmental Review of the Update focuses on the addition of Class Two bicycle facilities: on-street bicycle lanes. Oakland does not have detailed information available on Class One bicycle facilities (separated bike paths). The City also anticipates conducting separate environmental review for Class One facilities. Class Three facilities are on-street bike routes with bike route signs, but without striped lanes. The City sees these Class Three facilities as not having significant environmental impacts.

The Notice of Preparation (NOP) includes a list of 144 street segments as potential bike lanes, including 19 existing bike lane segments (there is some duplication of segments on the list). It separates the bike lanes into three groups: Proposed Bike Lanes which were also included in the 1999 Plan, Existing Bike Lanes, and Proposed Bike Lanes which were not included in the 1999 Plan. The NOP does not propose the deletion of either existing bike lanes, or of bike lanes proposed in the 1999 Plan.

AC Transit's Interest in Bicycle Planning

Before commenting on the Notice of Preparation, the Bicycle Plan Update, or the proposed route network, we wish to briefly describe AC Transit's interest in bicycle planning. AC Transit considers itself a bicycle-friendly transit agency. We were the first transit agency in the Bay Area to have bike racks on all of our local buses, a standard which some transit agencies have

yet to meet. We understand that AC Transit has a higher percentage of bicycle-using boardings than most bus transit agencies.

AC Transit has applied for both a bicycle planning and a bicycle implementation grant under the Safe Routes to Transit program, and assisted Caltrans with their application for bike racks at major bus stops. AC Transit supports the development of a bicycle travel network in Oakland. We see this network as consisting of facilities that bicyclists would use both for traveling to transit and for traveling exclusively by bicycle. The 2000 Census indicated that over 2,000 Oakland residents use bicycles as their principal mode of commuting to work.

AC Transit's particular concern is that the bicycle network not be developed at the expense of a safe and efficient bus transit network in Oakland. Oakland has declared itself a "Transit First" city, with a commitment to making bus transit work well. The 2000 Census showed that over 15,000 Oakland residents use the bus as their principal commute mode.

The Notice of Preparation for the Bicycle Plan

The Notice of Preparation for the Bicycle Plan represents Oakland's commitment to plan the bicycle network comprehensively. AC Transit applauds Oakland's effort to do a comprehensive environmental review on the Bike Plan and its potential bike lane projects. One of our great concerns about Oakland bicycle projects is that many have been conducted with inadequate environmental review, or without environmental review at all.

The Potential Impacts of the Oakland Bike Plan

The potential impacts of the Oakland Bike Plan result from the unusual nature of the Oakland Bike Plan. The approach of the Oakland Bike Plan is, to our knowledge, unique among the 14 cities of the AC Transit district. The Oakland Bike Plan relies almost exclusively on bicycle lanes on arterial streets for its bicycle facilities. Moreover, the Oakland Bike Plan as implemented has reduced the number of travel lanes along these arterial roadways. These arterials are the streets on which AC Transit necessarily operates. Thus the Oakland Bike Plan serves, presumably unintentionally, to maximize the conflict between buses and bikes.

Reduction in Vehicle Travel Lanes

The most serious potential impacts of the Oakland Bike Plan arise from the potential for reductions in vehicle travel lanes. The Notice of Preparation makes no reference to reductions in the number of vehicle travel lanes on streets with bike lanes. However, most bike lane projects in Oakland have been accompanied by a reduction in vehicle travel lanes.

It is the reduction in vehicle travel lanes that is most problematic for bus operations. As we have informed the City of Oakland, reducing vehicle travel lanes, particularly a reduction to one lane in each direction, can cause several operating problems. Buses lose their ability to pass other vehicles, thereby slowing service, and making Rapid or Bus Rapid Transit service virtually impossible. Incidents in the lane, such as a stopped delivery truck, can bring bus movement to a complete halt. It may be necessary to add buses to a route to maintain the schedule, thereby costing approximately $250,000 per added bus annually. It may be necessary to reduce service frequencies to keep buses on schedule. Given that many of these streets are designated in the Oakland General Plan as Regional or Secondary Transit Streets, the conflict between the

proposed Bike Plan and the existing General Plan should be addressed in the EIR. The answer to question 9c in the Initial Study should therefore be changed to "potentially significant impact."

For each roadway segment where the Bike Plan and EIR propose bike lanes, the EIR should state the existing number of vehicle travel lanes in each direction (and center turn lanes) and the proposed number of vehicle travel lanes if a bike lane is added.

Bus/Bike Conflicts

By bringing more bicycles into locations with buses, the Bike Plan would increase safety hazards, an impact that the EIR should analyze. Some bicyclists ride without apparent regard for buses or bus stops, race buses, seek to pass buses on the right, run stop signs and/or red lights. These behaviors can put bicyclists at risk. While we acknowledge that bicyclists can legally ride where transit lines operate, bicycle lanes on transit streets are designed to increase the number of cyclists where buses operate. Creating or increasing the intensity of hazards is questionable public policy and a safety impact that the EIR should address.

Potential Impacts of Proposed Bike Lanes on Bus Service

The NOP's proposed network of bicycle lanes is massive. There are some 80 street segments with transit service proposed for bike lanes in the NOP. If fully implemented, it would create bike lanes along the length of four (of five) of AC Transit's trunk transit corridors within Oakland. It would create bike lanes along every other bus line in Oakland as well. Lines affected would be the 11, 12, 13, 14, 15, 19, 40, 43, 45, 46, 48, 50, 51, 53, 54, 56, 57, 59, 62, 63, 72, 82, 88, 98, B, C, CB, E, F, NL, O, OX, P, and V.

If these bicycle lanes were created--especially if they were accompanied by vehicle lane reductions--AC Transit's service in Oakland would be severely compromised. Because of the travel time that would be lost, major reductions in service would be required to prevent operating costs from rising. The impact would not be limited to Oakland, because routes serving Oakland also serve Emeryville, Piedmont, Berkeley, Albany, El Cerrito, Richmond, San Pablo, Alameda, San Leandro, Hayward, San Lorenzo, Ashland, and Cherryland. Reductions in transit service to these communities could occur as well.

Such reductions in service would negatively impact AC Transit passengers, but could have broader impacts as well. If passengers chose to drive instead of use poorer quality transit, congestion could increase. Air quality impacts could also result. Air quality impacts could result by forcing transit buses and other vehicles to operate more slowly and inefficiently in congested conditions. The potential for these impacts should be analyzed in the EIR.

City staff have assured AC Transit that they do not expect to implement the vast array of lanes proposed in the NOP. They have characterized the document as a conservative, "worst case" scenario listing all possible streets that might receive a bike lane. It is very important that this occur, given that many of these changes by themselves could have a devastating impact.

Principles for Developing a Bike Network Compatible with the Bus Network

Formulation of a Bike Plan and network must be guided by planning principles. We would suggest the following be analyzed in the Plan and EIR.

- **Bike lanes are not the only bike facility:** The Oakland Bike Plan focuses intensely on bike lanes, but apparently without any rationale for that approach. Most bicycle travel occurs in mixed flow lanes. Bike lanes also do not protect cyclists against collisions from the side, which are more common than collisions from the rear. The bike plan needs to first demonstrate why bike lanes are necessary and second why they should be used instead of less intrusive treatments such as wider curb lanes.

- **Bicycles can operate on any street, but buses can only operate long distances on major streets.** Thus there are often parallel routes that bicycles can use, but there are generally no such parallel routes for buses. The parallel route for a bicycle may require using more than one street to cross the city, but this is appropriate given the inability of buses to use parallel streets and the relatively short distance of many bicycle trips.

- **The entire roadway must be considered in planning streets for bicycles**: The Oakland bicycle planning process to date has in effect declared on-street parking and medians sacrosanct. By installing bike lanes but refusing to consider changes to on-street parking or medians, the city virtually guarantees that the number of travel lanes must be reduced. Thus the interests of transit, ostensibly Oakland's priority travel mode, are placed below the interest of automobile drivers. Future bike lane projects must consider changes to the entire roadway, including medians and on-street parking areas.

- **Bicycle Planning should not be used for traffic calming:** Some in the community would use bicycle planning as a backdoor means to achieve traffic calming. This is inappropriate--traffic calming should be done on local streets where it is needed. Traffic calming that slows major bus lines should not be done, particularly not under the guise of bicycle planning which may or may not serve cyclists' best interests.

Criteria for Selecting Bicycle Network Streets

To consider which streets are appropriate for bike lanes and which are not, a number of criteria should be applied. We would suggest the following for the Plan and EIR:

- **Avoid Bike Lanes on Streets where Bus Rapid Transit or Rapid Bus is being Planned:** AC Transit is planning Bus Rapid Transit on the International-Telegraph corridor, and Rapid Bus lines on a number of streets including MacArthur Boulevard/Grand Avenue/Harrison St. All of these streets are proposed for bike lanes--all of them should be removed. A major transit center is being developed in cooperation with the City of Oakland on 20th St. at this time, yet the street remains proposed for a bike lane. A Rapid may be developed for Broadway in the future.

  Bike lanes should not be created on streets where Rapid Bus routes are being planned, particularly if the bike lanes would force the narrowing of a street from four lanes to two or three. We do not believe it will be possible to effectively operate a Rapid on streets with only one travel lane in each direction. We would note that Telegraph Avenue and proposed bike lanes there is the subject of environmental review by both AC Transit and Oakland;

- **Avoid streets where major bus lines operate:** The NOP proposes to add bike lanes on a number of additional streets where AC Transit operates frequent service. These streets should generally be avoided unless there is an alternative street for transit operations,

and/or the street could retain two or more travel lanes in each direction with a bike lane. We believe there may be a limited number of instances where AC Transit can appropriately terminate shift service from a street, allowing it to be better used for bicycles. This may be the case where AC Transit buses operate on several closely spaced parallel streets. In some instances on this list, the bus line operates on only a portion of the segment designated for a bike route.

2nd Street (Line 72)
23rd Avenue (Line 62)
29th Avenue (Lne 50)
35th Avenue (Line 54)
4th Avenue (Line 15)
40th Street (Line 57 and other routes)
7th Street (Line 62 and other routes)
Airport Rd. (Line 50)
Bancroft Ave. south of 73rd Ave. (Line 40)
Beaumont Ave. (Line 62)
East 10th Street (Line 62)
East 12th Street (Line 62)
East 15th Street (Line 40/43 southbound)
East 18th Street (Lines 14 and 15)
Foothill Blvd. (Lines 40 and 43)
Franklin Street (Line 15 northbound)
Fruitvale Avenue (Lines 19, 53, and 63)
Hegenberger Road (Line 50)
Market Street (Line 88 and F)
Oak Street (Line 88, Lake Merritt BART stops)
Park Boulevard (Line 15)
San Leandro Blvd. (Fruitvale and Coliseum BART stops)
Santa Clara St. (Line 57)
Shattuck Avenue (Line 43)

- **Use alternative parallel streets for bicycles:** To avoid streets with major bus lines, but provide routes for bicycles, alternative parallel streets can be used. In some cases it may be necessary to link more than one street.

- **Institute a spacing criterion for the bike network**: Just as bus routes paralleling each other one or two blocks apart are not needed, it is not necessary or appropriate to have streets with bike lanes one or two blocks apart. Some such conditions exist in Oakland, and full implementation of proposed bicycle lanes would worsen them. The Oakland Bicycle Plan should include a minimum spacing criteria between streets with bike lanes, perhaps 1/2 mile. Such a criterion is included in other bike plans. It would support a network that cyclists could access easily but would preserve some streets for bus operation.

- **Delete bike lanes that are unnecessary or do not meet these criteria:** To date, bike lanes in Oakland have been consistently added, but never deleted. But lanes that do not meet planning criteria or do not serve a useful function should be deleted, to strengthen the network as a whole.

AC Transit is eager to continue working with the City of Oakland to formulate appropriate travel networks for both buses and bikes. Thank you for your interest in AC Transit's comments. If you have any questions about AC Transit's concerns, please contact Nathan Landau at 510-891-4792 or at nlandau@actransit.org.

Yours Truly,

Nancy Skowbo
Deputy General Manager for Service Development

cc: Jim Gleich, AC Transit, Deputy General Manager
Anthony Bruzzone, AC Transit, Transportation Planning Manager
Tina Spencer, AC Transit, Long Range Planning Manager
Cesar Pujol, AC Transit, Traffic Engineer
Nathan Landau, AC Transit, Senior Transportation Planner

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

September 28, 2005

Mr. Jason Patton
Project Manager
Community and Economic Development Agency
250 Frank H Ogawa Plaza, Suite 3315,
Oakland, CA 94612

SUBJECT: Comments on the Notice of Preparation of Draft Environmental Impact Report for the Oakland Bicycle Master Plan Update

Dear Mr. Patton:

Thank you for the opportunity to comment on the City of Oakland's Notice of Preparation of Draft Environmental Impact Report (DEIR) for the Oakland Bicycle Master Plan Update. The ACCMA respectfully submits the following comments.

- The CMA is in the process of updating the Countywide Bicycle Plan. Please coordinate with the CMA staff so that the Countywide Bicycle Plan includes updated information related to the City of Oakland Bicycle Plan.

- Any policy that recommends taking away a traffic lane on the Congestion Management Program (CMP) or Metropolitan Transportation System (MTS) network to accommodate bicycles should be carefully reviewed. As you know, arterial streets in Oakland are evaluated as part of the Congestion Management Program. Taking away traffic lanes on arterials that are on the CMP or MTS networks could result in level of service degradation triggering the need for deficiency plans (in the case of the Level of Service Monitoring program) or mitigation (in the case of the Land Use Analysis Program). The requirements of these two programs make it necessary to do traffic and transit studies prior to implementation of any improvements. This is consistent with the Congestion Management Program requirements.

Once again, thank you for the opportunity to comment on this NOP for DEIR. Please do not hesitate to contact me at 510/836-2560 ext. 24 if you require additional information.

Sincerely,

Saravana Suthanthira
Associate Transportation Planner

cc: file: CMP/Environmental Review Opinions - Responses - 2005

DEPARTMENT OF TRANSPORTATION
111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 286-5505
FAX (510) 286-5513
TTY (800) 735-2929

Flex your power!
Be energy efficient!

October 3, 2005

ALAGEN207
SCH#2005092011

Mr. Jason Patton
City of Oakland
Community and Economic Development Agency
250 Frank Ogawa Plaza
Oakland, CA 94612-2032

Dear Mr. Patton:

OAKLAND BICYCLE MASTER PLAN – NOTICE OF PREPARATION

Thank you for including the California Department of Transportation (Department) in the early stages of the environmental review process for the Oakland Bicycle Master Plan project. The comments presented below are based on the Notice of Preparation (NOP). As lead agency, the City of Oakland is responsible for all project mitigation, including any required improvements to state highways. While an encroachment permit is only required when the project involves work in the State Right of Way (ROW), the Department will not issue an encroachment permit until our concerns are adequately addressed. Therefore we strongly recommend that the lead agency ensure resolution of the Department's CEQA concerns prior to submittal of the encroachment permit application. Further comments will be provided during the encroachment permit process; see the end of this letter for more information regarding the encroachment permit process.

Project Graphics
Enhanced graphics for the Bicycle Network should be considered.

State Requirements
All bicycle projects on State facilities must meet the requirements of both the Manual of Uniform Traffic Control Devices and Chapter 1000 of Caltrans' Highway Design Manual (HDM). The HDM is available at the website link below.
http://www.dot.ca.gov/hq/oppd/hdm/hdmtoc.htm#hdm

Encroachment Permit
Work that encroaches onto the State Right of Way (ROW) requires an encroachment permit that is issued by the Department. To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans clearly indicating State ROW must be submitted to the address below. Traffic-related mitigation measures should be incorporated into the construction plans during the encroachment permit process.

See the website link below for more information.
http://www.dot.ca.gov/hq/traffops/developserv/permits/

Sean Nozzari, District Office Chief
Office of Permits
California DOT, District 4
P.O. Box 23660
Oakland, CA 94623-0660

Please feel free to call or email Patricia Maurice of my staff at (510) 622-1644 or patricia_maurice@dot.ca.gov with any questions regarding this letter.

Sincerely,

for TIMOTHY C. SABLE
District Branch Chief
IGR/CEQA

c: Ms. Terry Roberts, State Clearinghouse

EAST BAY
MUNICIPAL UTILITY DISTRICT

September 19, 2005

Jason Patton, Project Manager
City of Oakland
Community and Economic Development Agency
250 Frank H. Ogawa Plaza, Suite 3315
Oakland, CA 94612

Re: Notice of Preparation of Draft Environmental Impact Report -
Oakland Bicycle Master Plan Update

Dear Mr. Patton:

East Bay Municipal Utility District (EBMUD) appreciates the opportunity to comment on the Oakland Bicycle Master Plan Update. EBMUD has no comments regarding environmental issues this 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,

William R. Kirkpatrick
Manager of Water Distribution Planning

WRK:JLM:sb
sb05_267.doc

STATE OF CALIFORNIA
ARNOLD SCHWARZENEGGER, *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

September 20, 2005

Jason Patton
City of Oakland
250 Frank H. Ogawa Plaza, Ste. 3315
Oakland, CA 94612

Dear Mr. Patton:

Re: SCH# 2005092011; Oakland Bicycle Master Plan Update

As the state agency responsible for rail safety within California, we recommend that any development projects planned adjacent to or near the rail corridor in the County be planned with the safety of the rail corridor in mind. New developments may increase traffic volumes not only on streets and at intersections, but also at at-grade highway-rail crossings. This includes considering pedestrian circulation patterns/destinations with respect to railroad right-of-way.

Safety factors to consider include, but are not limited to, the planning for grade separations for major thoroughfares, improvements to existing at-grade highway-rail crossings due to increase in traffic volumes and appropriate fencing to limit the access of trespassers onto the railroad right-of-way.

The above-mentioned safety improvements should be considered when approval is sought for the new development. Working with Commission staff early in the conceptual design phase will help improve the safety to motorists and pedestrians in the County.

If you have any questions in this matter, please call me at (415) 703-2795.

Very truly yours,

Kevin Boles
Utilities Engineer
Rail Crossings Engineering Section
Consumer Protection and Safety Division

cc: Pat Kerr, UP

APPENDIX C

Air Quality Carbon Monoxide Concentration Calculations

Estimated Carbon Monoxide Concentration Calculations for the Broadway Corridor Project Using BAAQMD's Simplified Screening Method

The carbon monoxide concentration, C, is the sum of a background value, Co, and the total contribution from local traffic Ct:

C = Co + Ct

The total contribution from local traffic, Ct, is the sum of the contributions from each contributing local road, Ci:

Ct = Ci1 + Ci2

The contribution from one road, Ci, can be computed by the formula:

Ci = Cri x (Vi x EFi / Vr x EFr)

where:

Cri is a reference case concentration for the i-th roadway,
Vr is the traffic volume for the reference case,
Vi is the traffic volume for the i-th roadway,
EFr is the emission factor for the reference case,
EFi is the emission factor for the i-th roadway.

Table 12 of the BAAQMD CEQA Guidelines (1999) gives reference case concentrations for various road configurations (i.e., two, four, six, and eight lanes) with traffic volumes of 1,000 vehicles per hour and emission factors of 100 grams per mile. The concentration relative to this reference case is then computed in parts per million (ppm), by the formula:

Ci = (Cri x Vi x EFi) / 100,000

Where Cri is taken from Table 12, Vi is the estimated traffic volume in vehicles per hour, and EFi is the emission factor taken from Table 10 of the BAAQMD CEQA Guidelines for the appropriate year of analysis.

Broadway Corridor Project Assumptions

P.M. peak hour traffic data provided by Wilbur Smith Associates (2006) for the Broadway/51st Street/Pleasant Valley Avenue intersection were used.

Pleasant Valley Avenue is assumed to be the Primary Road and Broadway is assumed to be the Secondary Road.

The worst case **ambient 1-hour** CO concentration is assumed to be **5.4 ppm**. Derived using BAAQMD CEQA Guidelines Figure 3 and applying a rollback factor for 2007 from Table 13.

The worst case **ambient 8-hour** CO concentration is assumed to be **5.1 ppm**, based on the highest recorded 8-hour measurement recorded in Oakland between 2001 and 2005.

Pleasant Valley Avenue

Cri = 11.9 ppm (for the edge of an at grade 4-lane primary roadway)
Vi = 2,669 trips (traffic east of the intersection)
EFi = 4.22 ppm (interpolated for 2007, using emission factors for 2005 and 2010)
Ci1 = (Cri x Vi x EFi) / 100,000 = 1.34 ppm

Broadway

Cri = 3.3 ppm (for the edge of an at grade 4-lane secondary roadway. Note that existing conditions for Broadway include six lanes)
Vi = 1,981 trips (traffic south of the intersection)
EFi = 4.22 ppm (interpolated for 2007, using emission factors for 2005 and 2010)
Ci2 = (Cri x Vi x EFi) / 100,000 = 0.28 ppm

Results

Ct = Ci1 + Ci2 = 1.62 ppm
C (1 hour) = Co (1 hour) + Ct = 7.02 ppm

C (8 hour) = Co (8 hour) + (Ct x 0.7) = 6.23 ppm

APPENDIX D

Standard Conditions of Approval (Uniformly Applied Development Standards under CEQA Guidelines Section 15183)

STANDARD CONDITIONS OF APPROVAL (UNIFORMLY APPLIED DEVELOPMENT STANDARDS UNDER CEQA GUIDELINES SECTION 15183)

AIR QUALITY

Asbestos Removal in Soil

Prior to issuance of a demolition, grading, or building permit

To minimize the release of naturally occurring asbestos in the soil during construction, the project applicant shall require the construction contractor to demonstrate compliance with Bay Area Air Quality Management District's (BAAQMD) Asbestos Airborne Toxic Control Measures for Construction, Grading, Quarrying and Surface Mining Operations (implementing CCR section 93105) for activities that disturb the soil, such as grading, etc.

Minimum Requirements where area to be disturbed is 1 acre or less

Construction Grading Operation Requirements	
Administrative	1. No notification required to the BAAQMD office. 2. Notify the Air Pollution Control Officer (APCO) the next business day upon discovery of naturally occurring asbestos, serpentine, or ultramafic rock
Dust Control	1. Vehicle speed ≤ 15 mph 2. Sufficient water applied to the area prior to disturbance to prevent visible emissions from crossing project boundaries. 3. Areas to be graded or excavated kept adequately wetted to prevent visible emissions from crossing project boundaries. 4. Storage piles kept adequately wetted, treated with chemical dust suppressant, or covered when the material is not being added or removed. 5. Equipment must be washed down before moving from the property onto paved roadway. 6. Visible track-out on paved public road must be cleaned using wet sweeping or High Efficiency Particulate Filters (HEPA) filter equipped vacuum device within 24 hours. 7. Implement the preceding dust control measures within 24 hours upon discovery of naturally occurring asbestos, serpentine, or ultramafic rock.

Minimum Requirements where area to be disturbed is More than 1 acre

Construction Grading Operation Requirements	
Administrative	1. Asbestos Dust Mitigation Plan submitted to the District and approved prior to engaging in the any construction or grading operation. 2. Notify the Pollution Control Officer (APCO) next business day upon discovery of naturally asbestos, serpentine, or ultramafic rock. 3. Submit Asbestos Dust Mitigation Plan within 14 days upon discovery of naturally occurring asbestos, serpentine, or ultramafic rock. 4. Report bulk sampling results conducted by the owner/operator to document applicability done at the request of APCO.

Dust Control	1. Vehicle speed ≤ 15 mph 2. Sufficient water applied to the area prior to disturbance to prevent visible emissions from crossing project boundaries. 3. Areas to be graded or excavated kept adequately wetted to prevent visible emissions from crossing project boundaries. 4. Storage piles kept adequately wetted, treated with chemical dust suppressant, or covered when the material is not being added or removed. 5.Storage piles must be stabilized when inactive for more than 7 days by adequately wetting , establishing surface crusting, chemical dust suppressant, covering with tarps or vegetative cover, installation of wind barriers around three sides or open areas, or any measure as effective. 6. Equipment must be washed down before moving from the property onto paved roadway. 7. Track-out prevention device installed (gravel pad, tire shaker, wheel wash system, 50 feet of pavement extending from intersection with paved public road, or other measure as effective. 8. Visible track-out on paved public road must be cleaned using wet sweeping or High Efficiency Particulate Air (HEPA) filter equipped vacuum device within 24 hours. 9. Post project stabilization of disturbed surfaces using vegetative cover, 3" of non- asbestos-containing material, paving, or other measure deemed sufficient to prevent 10 mph winds from causing visible emissions. 10. Implement the preceding dust control measures within 24 hours upon discovery of naturally occurring asbestos, serpentine, or ultramafic rock. 11. Implement provisions of District approved Asbestos Dust Mitigation Plan within 14 days of approval after discovery of naturally occurring asbestos, serpentine, or ultramafic rock.

Dust Control

Prior to issuance of a demolition, grading or building permit

During construction, the project applicant shall require the construction contractor to implement the following measures required as part of Bay Area Air Quality Management District's (BAAQMD) basic and enhanced dust control procedures required for construction sites. These include:

BASIC (Applies to ALL construction sites)

a) Water all active construction areas at least twice daily. Watering should be sufficient to prevent airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water should be used whenever possible.

b) Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).

c) Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.

d) Sweep daily (with water sweepers using reclaimed water if possible) all paved access roads, parking areas and staging areas at construction sites.

e) Sweep streets (with water sweepers using reclaimed water if possible) at the end of each day if visible soil material is carried onto adjacent paved roads.

ENHANCED (Applies to construction sites greater than 4 acres)

a) All "Basic" controls listed above, plus

b) Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (previously graded areas inactive for one month or more).

c) Enclose, cover, water twice daily or apply (non-toxic) soil stabilizers to exposed stockpiles (dirt, sand, etc.).

d) Limit traffic speeds on unpaved roads to 15 miles per hour.
e) Install sandbags or other erosion control measures to prevent silt runoff to public roadways
f) Replant vegetation in disturbed areas as quickly as feasible.

ADDITIONAL AS DETERMINED BY CITY STAFF

a) Limit the amount of the disturbed area at any one time, where feasible.
b) Pave all roadways, driveways, sidewalks, etc. as soon as feasible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used.
c) Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph.
d) Designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall include holidays and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the BAAQMD prior to the start of construction as well as posted on-site over the duration of construction.
e) Clean off the tires or tracks of all trucks and equipment leaving any unpaved construction areas.
f) Install appropriate wind breaks at the construction site to minimize wind blown dust.

Construction Emissions

Prior to issuance of a demolition, grading or building permit

To minimize construction equipment emissions during construction, the project applicant shall require the construction contractor to:

a) Demonstrate compliance with Bay Area Air Quality Management District (BAAQMD) Regulation 2, Rule 1 (General Requirements) for all portable construction equipment subject to that rule. BAAQMD Regulation 2, Rule 1, requires an authority to construct and permit to operate certain types of portable equipment used for construction purposes (e.g., gasoline or diesel-powered engines used in conjunction with power generation, pumps, compressors, and cranes) unless such equipment complies with all applicable requirements of the "CAPCOA" Portable Equipment Registration Rule" or with all applicable requirements of the Statewide Portable Equipment Registration Program. This exemption is provided in BAAQMD Rule 2-1-105.
b) Perform low- NOx tune-ups on all diesel-powered construction equipment greater than 50 horsepower (no more than 30 days prior to the start of use of that equipment). Periodic tune-ups (every 90 days) should be performed for such equipment used continuously during the construction period.

BIOLOGICAL RESOURCES

CREEK PERMITS

Regulatory Permits and Authorizations

Prior to issuance of a demolition, grading, or building permit within vicinity of the creek

Prior to construction within the vicinity of the creek, the project applicant shall obtain all necessary regulatory permits and authorizations from the U.S. Army Corps of Engineers (Corps), Regional Water Quality Control Board (RWQCB), California Department of Fish and Game, and the City of Oakland, and shall comply with all conditions issued by applicable agencies. Required permit approvals and certifications shall include, but not be limited to the following:

a) U.S. Army Corps of Engineers (Corps): Section 404. Permit approval from the Corps shall be obtained for the placement of dredge or fill material in waters of the U.S., if any, within the interior of the project site, pursuant to Section 404 of the federal Clean Water Act.

b) Regional Walter Quality Control Board (RWQCB): Section 401 Water Quality Certification. Certification that the project will not violate state water quality standards is required before the Corps can issue a 404 permit, above.

c) California Department of Fish and Game (CDFG): Section 1602 Lake and Streambed Alteration Agreement. Work that will alter the bed or bank of a stream requires authorization from CDFG.

Creek Landscaping Plan

Prior to project completion

The project applicant shall develop a final detailed landscaping and irrigation plan for review and approval by the Planning and Zoning Division prepared by a licensed landscape architect or other qualified person. Such a plan shall include a planting schedule, detailing plant types and locations, and a system for temporary irrigation of plantings.

a) Plant and maintain only drought-tolerant plants on the site where appropriate as well as native and riparian plants in and adjacent to riparian corridors. Along the riparian corridor, native plants shall not be disturbed to the maximum extent feasible. Any areas disturbed along the riparian corridor shall be replanted with mature native riparian vegetation and be maintained to ensure survival.

b) All landscaping indicated on the approved landscape plan shall be installed prior to project completion, unless bonded pursuant to the provisions of Section 17.124.50 of the Oakland Planning Code.

c) All landscaping areas shown on the approved plans shall be maintained in neat and safe conditions, and all plants shall be maintained in good growing condition and, whenever necessary replaced with new plant materials to ensure continued compliance with all applicable landscaping requirements. All paving or impervious surfaces shall occur only on approved areas.

Creek Restoration

Prior to project completion

The applicant shall prepare for review and approval by all applicable review and permitting agencies a detailed "Creek Restoration and Mitigation Plan" (CRMP). Such a plan shall include all elements required to recreate a naturalized creek corridor onsite. Specific measures proposed by the project and included in the RMP include, but would not necessarily be limited to, the following:

a) Native riparian vegetation shall be planted to provide bank stabilization, to restore the daylighted reach of the creek, and to provide riparian habitat buffers. The CRMP shall outline what species of native plants shall be planted.

b) Plantings shall include trees and understory plants that are native to the area and that provide both bank stabilization and riparian habitat.

c) Monitoring of the restored areas shall continue for a period of five years after implementation of the restoration planting. The project applicant or qualified designees shall prepare and submit annual monitoring reports to the Army Corps of Engineers, Regional Water Quality Control Board, California Department of Fish and Game, and City of Oakland. The CRMP shall outline monitoring methods and success criteria for each of the monitoring years and at the end of the five-year monitoring period.

d) The CRMP shall provide contingency measures to be implemented in the event one or more success criteria are not met.

e) If required by permits and authorizations for the project, the project applicant shall provide compensatory mitigation for temporary and/or permanent impacts to the Creek. If deemed appropriate by the permitting agencies, mitigation can be provided by a donation of funds for off-site riparian restoration. If required, compensatory mitigation will be provided at a minimum of 1.1:1 ratio.

f) All creek restoration plan elements indicated on the approved CRMP shall be installed onsite within the time period specified, unless bonded in an amount approved by the City that is equal to a contractor estimate of the cost to construct all creek restoration work, (or the remaining uninstalled portions thereof).

Creek Dewatering and Aquatic Life

Prior to the start of and ongoing throughout any in-water construction activity

a) If any dam or other artificial obstruction is constructed, maintained, or placed in operation within the stream channel, ensure that sufficient water is allowed to pass down channel at all times to maintain aquatic life below the dam or other artificial obstruction.

b) The project applicant shall hire a biologist, with all necessary State and Federal permits, to relocate all fish/amphibians within the work site prior to dewatering. Captured fish/amphibians shall be moved to the nearest appropriate site on the stream channel downstream. The biologist/contractor shall check daily for stranded aquatic life as the water level in the dewatering area drops. All reasonable efforts shall be made to capture and move all stranded aquatic life observed in the dewatered areas. Capture methods may include fish landing nets, dip nets, buckets, and by hand. Captured aquatic life shall be released immediately in the nearest appropriate downstream site. This condition does not allow the take or disturbance of any state or federally listed species, or state listed species of special concern.

TREE PERMITS

Tree Removal During Breeding Season

Prior to issuance of a tree removal permit

To the extent feasible, removal of the trees and other vegetation suitable for nesting of raptors shall not occur during the breeding season of March 15 and August 15. If tree removal must occur during the breeding season, all sites shall be surveyed by a qualified biologist to verify the presence or absence of nesting birds or raptors. If the survey indicates that potential presences of nesting birds or raptors, the results would be coordinated with the California Department of Fish and Game (CDFG) and suitable avoidance measures would be developed and implemented. Construction shall observe the CDFG avoidance guidelines which are a minimum 500-foot buffer zone surrounding active raptor nests and a 250-foot buffer zone surrounding nests of other birds. Buffer zones shall remain until young have fledged.

Tree Protection During Construction

Prior to issuance of a demolition, grading, or building permit

Adequate protection shall be provided during the construction period for any trees which are to remain standing. Measures deemed necessary by the Tree Services Division in consideration of the size, species, condition and location of the trees to remain may include any of the following:

a) Before the start of any clearing, excavation, construction or other work on the site, every protected tree deemed to be potentially endangered by said site work shall be securely fenced off at a distance from the base of the tree to be determined by the City Tree Reviewer. Such fences shall remain in place for

duration of all such work. All trees to be removed shall be clearly marked. A scheme shall be established for the removal and disposal of logs, brush, earth and other debris which will avoid injury to any protected tree.

b) Where proposed development or other site work is to encroach upon the protected perimeter of any protected tree, special measures shall be incorporated to allow the roots to breathe and obtain water and nutrients. Any excavation, cutting, filing, or compaction of the existing ground surface within the protected perimeter shall be minimized. No change in existing ground level shall occur within a distance to be determined by the City Tree Reviewer from the base of any protected tree at any time. No burning or use of equipment with an open flame shall occur near or within the protected perimeter of any protected tree.

c) No storage or dumping of oil, gas, chemicals, or other substances that may be harmful to trees shall occur within the distance to be determined by the Tree Reviewer from the base of any protected trees, or any other location on the site from which such substances might enter the protected perimeter. No heavy construction equipment or construction materials shall be operated or stored within a distance from the base of any protected trees to be determined by the tree reviewer. Wires, ropes, or other devices shall not be attached to any protected tree, except as needed for support of the tree. No sign, other than a tag showing the botanical classification, shall be attached to any protected tree.

d) Periodically during construction, the leaves of protected trees shall be thoroughly sprayed with water to prevent buildup of dust and other pollution that would inhibit leaf transpiration.

e) If any damage to a protected tree should occur during or as a result of work on the site, the project applicant shall immediately notify the Public Works Agency of such damage. If, in the professional opinion of the Tree Reviewer, such tree cannot be preserved in a healthy state, the Tree Reviewer shall require replacement of any tree removed with another tree or trees on the same site deemed adequate by the Tree Reviewer to compensate for the loss of the tree that is removed.

f) All debris created as a result of any tree removal work shall be removed by the project applicant from the property within two weeks of debris creation, and such debris shall be properly disposed of by the project applicant in accordance with all applicable laws, ordinances, and regulations.

Tree Removal Permit

Prior to issuance of a demolition, grading, or building permit

Prior to receiving building permits, the project applicant must secure a tree removal permit, and abide by the conditions of that permit, prior to removal of any trees located on the project site or in the public right-of-way adjacent to the project.

Tree Replacement Plantings

Prior to project completion

Replacement plantings shall be required in order to prevent excessive loss of shade, erosion control, groundwater replenishment, visual screening and wildlife habitat in accordance with the following criteria:

a) No tree replacement shall be required for the removal of nonnative species, for the removal of trees which is required for the benefit of remaining trees, or where insufficient planting area exists for a mature tree of the species being considered.

b) Replacement tree species shall consist of Sequoia sempervirens (Coast Redwood), Quercus agrifolia (Coast Live Oak), Ancutus merciesii (Madrone), Aesculus californica (California Buckeye) or Umbelluiana californica (California Bay Laurel).

c) Replacement trees shall be at least of twenty-four (24) inch box size, unless a smaller size is recommended by the arborist, except that three fifteen (15) gallon size trees may be substituted for each twenty-four (24) inch box size tree where appropriate.

d) Minimum planting areas must be available on site as follows:

   1. For Sequoia sempervirens, three hundred fifteen square feet per tree;

   2. For all other species listed in #2 above, seven hundred (700) square feet per tree.

e) In the event that replacement trees are required but cannot be planted due to site constraints, an in lieu fee as determined by the master fee schedule of the city may be substituted for required replacement plantings, with all such revenues applied toward tree planting in city parks, streets and medians.

f) Plantings shall be installed prior to project completion, subject to seasonal constraints, and shall be maintained by the project applicant until established. The Tree Reviewer may require a landscape plan showing the replacement planting and the method of irrigation. Any replacement planting which fails to become established within one year of planting shall be replanted at the project applicant's expense.

WHIPSNAKE

Whipsnake Habitat, Biological Monitor.

Prior to issuance of a demolition, grading, or building permit and ongoing throughout demolition, grading, and/or construction

The project applicant shall hire an on-site biological monitor who is qualified to identify Alameda Whipsnakes. The on-site biological monitor shall instruct the project superintendent and the construction crews (primarily the clearing, demolition and foundation crews) of the potential presence, status and identification of Alameda Whipsnakes. The biological monitor shall also provide information on the steps of take if a whipsnake is seen on the project site, including who to contact, to ensure that whipsnakes are not harmed or killed, as regulation by the federal Endangered Species Act.

Whipsnake Habitat, Placement of Debris

Prior to issuance of a demolition, grading, or building permit and throughout construction

The project applicant shall ensure that the placement of construction debris is limited to the area immediate adjacent to the foundation of the proposed buildings or and to the area between the foundation and the street. Install flexible construction fencing at the limit of work line (approximately ten feet beyond the foundation of the proposed building other than in the direction of the street). Such construction fencing shall limit the placement of construction materials and construction debris to inside the fencing.

Whipsnake Habitat, Barrier Fence

Prior to issuance of a demolition, grading, or building permit and throughout construction

The project applicant shall install a solid fence along the real limit of construction line, and for a distance (to be determined by a qualified wildlife biologist based on the specific conditions of each project) perpendicular to the real line, to prevent whipsnakes from entering the work site.

The snake barrier shall be constructed as follows and shall remain in place throughout the entire construction period:

a) Plywood sheets at least three feet in height;

b) Buried four foot, six inches into the ground

c) Soil back-filled against the plywood fence to create a solid barrier at the ground;

d) Plywood sheets maintained in an upright position with wooden or masonry stakes;
e) Ends of each plywood sheet overlapped to ensure a continuous barrier.

Whipsnake Habitat, Downsloping Lots near
Prior to issuance of a demolition, grading, or building permit and throughout construction
The project applicant shall install erosion control devices, such as hay bales, at the downhill limit of construction line to prevent rocks and soil from moving downhill.

CULTURAL RESOURCES

Archaeological Resources
Ongoing throughout demolition, grading, and/or construction
Pursuant to CEQA Guidelines 15064.5 (f), "provisions for historical or unique archaeological resources accidentally discovered during construction" should be instituted. Therefore, in the event that any prehistoric or historic subsurface cultural resources are discovered during ground disturbing activities, all work within 50 feet of the resources shall be halted and the project applicant and/or lead agency shall consult with a qualified archaeologist or paleontologist to assess the significance of the find. If any find is determined to be significant, representatives of the project proponent and/or lead agency and the qualified archaeologist would meet to determine the appropriate avoidance measures or other appropriate mitigation, with the ultimate determination to be made by the City of Oakland. All significant cultural materials recovered shall be subject to scientific analysis, professional museum curation, and a report prepared by the qualified archaeologist according to current professional standards.

In considering any suggested mitigation proposed by the consulting archaeologist in order to mitigate impacts to historical resources or unique archaeological resources, the project applicant shall determine whether avoidance is necessary and feasible in light of factors such as the nature of the find, project design, costs, and other considerations. If avoidance is unnecessary or infeasible, other appropriate measures (e.g., data recovery) shall be instituted. Work may proceed on other parts of the project site while mitigation for historical resources or unique archaeological resources is carried out.

Should an archaeological artifact or feature be discovered on-site during project construction, all activities within a 50-foot radius of the find would be halted until the findings can be fully investigated by a qualified archaeologist to evaluate the find and assess the significance of the find according to the CEQA definition of a historical or unique archaeological resource. If the deposit is determined to be significant, the project applicant and the qualified archaeologist shall meet to determine the appropriate avoidance measures or other appropriate mitigation, subject to approval by the City of Oakland, which shall assure implementation of appropriate mitigation measures recommended by the archaeologist. Should archaeologically-significant materials be recovered, the qualified archaeologist would recommend appropriate analysis and treatment, and would prepare a report on the findings for submittal to the Northwest Information Center.

Human Remains
Ongoing throughout demolition, grading, and/or construction
In the event that human skeletal remains are uncovered at the project site during construction or ground-breaking activities, all work shall immediately halt and the Alameda County Coroner shall be contacted to evaluate the remains, and following the procedures and protocols pursuant to Section 15064.5 (e)(1) of the

CEQA Guidelines. If the County Coroner determines that the remains are Native American, the City shall contact the California Native American Heritage Commission (NAHC), pursuant to subdivision (c) of Section 7050.5 of the Health and Safety Code, and all excavation and site preparation activities shall cease within a 50-foot radius of the find until appropriate arrangements are made. If the agencies determine that avoidance is not feasible, then an alternative plan shall be prepared with specific steps and timeframe required to resume construction activities. Monitoring, data recovery, determination of significance and avoidance measures (if applicable) shall be completed expeditiously.

Paleontological Resources

Ongoing throughout demolition, grading, and/or construction

In the event of an unanticipated discovery of a paleontological resource during construction, excavations within 50 feet of the find shall be temporarily halted or diverted until the discovery is examined by a qualified paleontologist (per Society of Vertebrate Paleontology standards (SVP 1995,1996)). The qualified paleontologist shall document the discovery as needed, evaluate the potential resource, and assess the significance of the find under the criteria set forth in Section 15064.5 of the CEQA Guidelines. The paleontologist shall notify the appropriate agencies to determine procedures that would be followed before construction is allowed to resume at the location of the find. If the City determines that avoidance is not feasible, the paleontologist shall prepare an excavation plan for mitigating the effect of the project on the qualities that make the resource important, and such plan shall be implemented. The plan shall be submitted to the City for review and approval.

GEOLOGY, SOILS AND SEISMICTITY

Geotechnical Report

Prior to issuance of a demolition, grading, or building permit

A site-specific design level geotechnical investigation for each construction site within the project area shall be required as part if this project. Specifically:

a) Each investigation shall include an analysis of expected ground motions at the site from known active faults. The analyses shall be accordance with applicable City ordinances and polices, and consistent with the most recent version of the California Building Code, which requires structural design that can accommodate ground accelerations expected from known active faults.

b) The investigations shall determine final design parameters for the walls, foundations, foundation slabs, and surrounding related improvements (utilities, roadways, parking lots, and sidewalks).

c) The investigations shall be reviewed and approved by a registered geotechnical engineer. All recommendations by the project engineer, geotechnical engineer, will be included in the final design, as approved by the City of Oakland.

d) Recommendations that are applicable to foundation design, earthwork, and site preparation that were prepared prior to or during the projects design phase, shall be incorporated in the project.

e) Final seismic considerations for the site shall be submitted to and approved by the City of Oakland Building Services Division prior to commencement of the project.

HAZARDS AND HAZARDOUS MATERIALS

Phase I and/or Phase II Reports

Prior to issuance of a demolition, grading, or building permit

Prior to issuance of demolition, grading, or building permits the project applicant shall submit a Phase 1 and/or Phase II report for the existing buildings to determine if remediation of contaminated soil and groundwater are identified on the site. The Director of City Planning or designee shall review and provide a determination on the completeness of the reports.

Phase I and/or Phase II Remediation

Prior to issuance of a demolition, grading, or building permit

If the Phase I and/or Phase II reports indicate that remediation is required, the project applicant must submit the following:

a) The project applicant shall ensure that environmental assessment and remediation would either be performed under the oversight of the Alameda County Department of Environmental Health (ACDEH) or other agencies (e.g. RWQCB and DTSC), or be conducted by qualified professionals with experience in soil and groundwater contamination remediation. In cases where regulatory involvement is not necessary, soil and groundwater removal and disposal would still occur to mitigate the potential hazards that could result from removal of soil and/or groundwater during construction.

b) The project applicant shall submit all applicable documentation and plans required by the Regional Water Quality Control Board, the Alameda County Public Health Department, and the City's Fire Department, Office of Emergency Services, regarding remediation of the contaminated soil and groundwater identified on the site. These documents and plans shall be submitted to the Planning and Zoning Division, and shall demonstrate to the satisfaction of each agency with jurisdiction that all applicable standards and regulations have been met for the construction and site work to be undertaken pursuant to the permit.

c) The project applicant submit a Soil Management Plan (including all applicable documentation and plans) for review and approval by the appropriate agency, which shall be prepared to outline required procedures for handling and disposing impacted soil. All disposal and transportation of contaminated soil shall be done in accordance with state and federal agencies and under federal ((Resource Conservation and Recovery Act of 1976) RCRA) and state laws. All contaminated soil determined to be hazardous or non-hazardous waste must be adequately profiled for acceptable disposal before it can be removed from the site. The project applicant shall ensure that impacted soil is handled in accordance with the approved Soil Management Plan.

d) Groundwater pumped from the subsurface would be contained onsite prior to treatment and disposal to ensure environmental and health issues are resolved pursuant to oversight agencies. Engineering controls shall be utilized, which include impermeable barriers to prohibit groundwater and vapor intrusion into the building.

e) Written verification to the Planning and Zoning Division that the appropriate State, Federal or County authorities including but not limited to the Regional Water Quality Control Board and the Alameda County Public Health Department have granted all required clearances and confirmed that all applicable standards, regulations, and conditions are in compliance, for all previous contamination at the site.

f) The project applicant shall provide evidence from the City's Fire Department, Office of Emergency Services, indicating compliance with the City of Oakland Hazardous Material Assessment and Reporting Program, pursuant to City Ordinance No. 12323.

Prior to issuance of any demolition, grading or building permits, the project applicant shall demonstrate to the satisfaction of the Office of Fire Department, Office of Emergency Services, that the site has been investigated for the presence of lead and does not contain hazardous levels of lead.

Handling Misuse

Prior to commencement of demolition, grading, or construction

The project applicant and construction contractor shall ensure that construction best management practices are implemented as part of construction to minimize the potential negative effects to groundwater and soils. These shall include the following:

a) Follow manufacture's recommendations on use, storage, and disposal of chemical products used in construction;
b) Avoid overtopping construction equipment fuel gas tanks;
c) During routine maintenance of construction equipment, properly contain and remove grease and oils;
d) Properly dispose of discarded containers of fuels and other chemicals.

Fire Safety

Prior to and ongoing throughout demolition, grading, and/or construction

The project applicant and construction contractor will ensure that during project construction, all construction vehicles and equipment will be fitted with spark arrestors to minimize accidental ignition of dry construction debris and surrounding dry vegetation.

Emergency Preparedness and Evacuation Plan

Prior to issuance of any building permit

The applicant shall submit for review and approval by the Planning and Zoning Division, Fire Services, and any other relevant City departments, an Emergency Preparedness and Evacuation Plan for the proposed project.

HYDROLOGY

EROSION & SEDIMENTATION CONTROL DURING CONSTRUCTION

Erosion and Sedimentation Control Plan [when grading permit required]

Prior to any grading activities

The project applicant shall obtain approval from the Building Services Division of a grading permit if required by the Oakland Grading Regulations pursuant to Section 15.04.780 of the Oakland Municipal Code. The grading permit application shall include an erosion and sedimentation control plan. The erosion and sedimentation control plan shall include all necessary measures to be taken to prevent excessive stormwater runoff or carrying by stormwater runoff of solid materials on to lands of adjacent property owners, public streets, or to creeks as a result of conditions created by grading operations. The plan shall include, but not be limited to, such measures as short-term erosion control planting, waterproof slope covering, check dams, interceptor ditches, benches, storm drains, dissipation structures, diversion dikes, retarding berms and barriers, devices to trap, store and filter out sediment, and stormwater retention basins. Off-site work by the project applicant may be necessary. The project applicant shall provide any off-site permission or easements necessary to present written proof thereof to the Public Works Agency. There shall be a clear notation that the plan is subject to changes as changing conditions occur. Calculations of anticipated stormwater runoff and sediment volumes shall be included, if required by the Director of Development. The plan shall specify that, after construction is complete, the project applicant shall ensure that the storm drain system shall be inspected and that the project applicant shall clear the system of any debris or sediment.

Ongoing throughout grading and construction activities

The project applicant shall implement the approved erosion and sedimentation plan. No grading shall occur during the wet weather season (October 15 through April 15) unless specifically authorized in writing by the Building Services Division.

Erosion and Sedimentation Control [when no grading permit required]

Ongoing throughout demolition grading, and/or construction activities

Pursuant to Chapter 13.16 of the Oakland Municipal Code, the project applicant shall implement Best Management Practices (BMPs) to reduce erosion, sedimentation, and water quality impacts during construction to the maximum extent practicable. At a minimum, the project applicant shall provide filter materials at nearby catch basins to prevent any debris and dirt from flowing into the city's storm drain system.

Stormwater Pollution Prevention Plan (SWPPP)

Prior to and ongoing throughout demolition, grading, and/or construction activities

For projects that disturb one (1) acre or more of surface area, the project applicant must obtain coverage under the General Construction Activity Storm Water Permit (General Construction Permit) issued by the State Water Resources Control Board (SWRCB). The project applicant must file a notice of intent (NOI) with the SWRCB. The project applicant will be required to prepare a stormwater pollution prevention plan (SWPPP). At a minimum, the SWPPP shall include a description of construction materials, practices, and equipment storage and maintenance; a list of pollutants likely to contact stormwater; site-specific erosion and sedimentation control practices; a list of provisions to eliminate or reduce discharge of materials to stormwater; Best Management Practices (BMPs), and an inspection and monitoring program. Prior to the issuance of any construction-related permits, the project applicant shall submit a copy of the SWPPP and evidence of approval of the SWPPP by the SWRCB to the Building Services Division. Implementation of the SWPPP shall start with the commencement of construction and continue though the completion of the project. After construction is completed, the project applicant shall submit a notice of termination to the SWRCB.

POST-CONSTRUCTION STORMWATER MANAGEMENT

*[The following condition of approval should be applied to **all** **hillside** projects]*

Drainage Plan

Prior to construction

The project drawings shall contain a drainage plan to be reviewed and approved by the Building Services Division. The drainage plan shall include measures to reduce the post-construction volume and velocity of stormwater runoff to the maximum extent practicable. Stormwater runoff shall not be augmented to adjacent properties or creeks.

*[The following two conditions of approval should be applied to **all** projects except projects requiring on-site stormwater treatment (see below)]*

Site Design Measures for Post-Construction Stormwater Pollution Management

Prior to construction

The project drawings shall contain a final site plan to be reviewed and approved by the Planning and Zoning Division. The final site plan shall incorporate appropriate site design measures to manage stormwater runoff

and minimize impacts to water quality after the construction of the project. These measures may include, but are not limited to, the following:

- Minimize impervious surfaces, especially directly connected impervious surfaces;
- Utilize permeable paving in place of impervious paving where appropriate;
- Preserve quality open space; and
- Establish vegetated buffer areas.

The approved plan shall be implemented and the site design measures shown on the plan shall be permanently maintained.

Source Control Measures to Limit Stormwater Pollution

Prior to construction

The applicant shall implement and maintain all structural source control measures imposed by the Chief of Building Services to limit the generation, discharge, and runoff of stormwater pollution.

Ongoing

The applicant, or his or her successor, shall implement all operational Best Management Practices (BMPs) imposed by the Chief of Building Services to limit the generation, discharge, and runoff of stormwater pollution.

[The following two conditions of approval should be applied to the following projects requiring on-site stormwater treatment:

- *All applications for a zoning permit (or other planning-related permit) not deemed complete as of February 15, 2005 that create or replace one acre or more of impervious surface area; or*
- *All applications for a zoning permit (or other planning-related permit) not deemed complete as of August 15, 2006 that create or replace 10,000 square feet or more of impervious surface area*

***EXCEPT**, these conditions do not apply to the following projects):*

1) Single-family dwellings that are not part of larger multi-dwelling developments;

2) Sidewalks, bicycle lanes, trails, bridge accessories, guardrails, and landscape features associated with a street;

3) Routine maintenance and repair of existing impervious surfaces, including roof and pavement resurfacing and road pavement structural section rehabilitation work within the existing pavement footprint; and

4) Reconstruction work within an existing public street right-of-way where both sides of the right-of-way are already developed.]

Post-Construction Stormwater Pollution Management Plan

Prior to construction

The applicant shall comply with the requirements of Provision C.3 of the National Pollutant Discharge Elimination System (NPDES) permit issued to the Alameda Countywide Clean Water Program. The applicant shall submit with the application for a building permit (or other construction-related permit) a completed Stormwater Supplemental Form for the Building Services Division. The project drawings submitted for the building permit (or other construction-related permit) shall contain a stormwater pollution management plan, for review and approval by the City, to limit the discharge of pollutants in stormwater after construction of the project to the maximum extent practicable. The post-construction stormwater pollution management plan shall include and identify the following:

- All proposed impervious surface on the site;
- Anticipated directional flows of on-site stormwater runoff;
- Site design measures to reduce the amount of impervious surface area and directly connected impervious surfaces;

- Source control measures to limit the potential for stormwater pollution; and
- Stormwater treatment measures to remove pollutants from stormwater runoff.

The following additional information shall be submitted with the post-construction stormwater pollution management plan:

- Detailed hydraulic sizing calculations for each stormwater treatment measure proposed; and
- Pollutant removal information demonstrating that any proposed manufactured/mechanical (i.e., non-landscape-based) stormwater treatment measure, when not used in combination with a landscape-based treatment measure, is capable or removing the range of pollutants typically removed by landscape-based treatment measures.

All proposed stormwater treatment measures shall incorporate appropriate planting materials for stormwater treatment (for landscape-based treatment measures) and shall be designed with considerations for vector/mosquito control. Proposed planting materials for all proposed landscape-based stormwater treatment measures shall be included on the landscape and irrigation plan for the project. The applicant is not required to include on-site stormwater treatment measures in the post-construction stormwater pollution management plan if he or she secures approval from the Planning and Zoning Division of a proposal that demonstrates compliance with the requirements of the City's Alternative Compliance Program.

Prior to project completion

The applicant shall implement the approved stormwater pollution management plan.

Maintenance Agreement for Stormwater Treatment Measures

Prior to project completion

For projects incorporating stormwater treatment measures, the applicant shall enter into the "Standard City of Oakland Stormwater Treatment Measures Maintenance Agreement," in accordance with Provision C.3.e of the NPDES permit, which provides, in part, for the following:

- The applicant accepting responsibility for the adequate installation/construction, operation, maintenance, inspection, and reporting of any on-site stormwater treatment measures being incorporated into the project until the responsibility is legally transferred to another entity; and
- Legal access to the on-site stormwater treatment measures for representatives of the City, the local vector control district, and staff of the Regional Water Quality Control Board, San Francisco Region, for the purpose of verifying the implementation, operation, and maintenance of the on-site stormwater treatment measures and to take corrective action if necessary. The agreement shall be recorded at the County Recorder's Office at the applicant's expense.

CREEK PROTECTION PERMIT

Erosion and Sedimentation Control Measures

Prior to construction

The project applicant shall submit an erosion and sedimentation control plan for review and approval by the City.

BASIC (Applies to ALL construction sites)

a) To ensure that sediment does not flow into the creek and/or storm drains, the project applicant shall install silt fencing (such as sandbags, filter fabric, silt curtains, etc.) oriented parallel to the contours of the slope (at a constant elevation)

b) In accordance with an approved erosion control plan, the project applicant shall implement mechanical and vegetative measures to reduce erosion and sedimentation, including appropriate seasonal maintenance. One hundred (100) percent degradable erosion control fabric shall be installed on all graded slopes to protect and stabilize the slopes during construction and before

permanent vegetation gets established. All graded areas shall be temporarily protected from erosion by seeding with fast growing annual species.

c) All erosion and sedimentation control measures implemented during construction activities, as well as construction site and materials management shall be in strict accordance with the control standards listed in the latest edition of the Erosion and Sediment Control Field Manual published by the Regional Water Quality Board (RWQB).

ENHANCED

a) Temporary fencing is required and shall be placed along both sides of the creek at the maximum practical distance from the creek centerline. This area shall not be disturbed during construction without prior approval of the Planning and Zoning Division.

b) A qualified geotechnical engineer and/or environmental consultant shall be retained and paid for by the project applicant to make site visits during all grading activities; and as a follow-up, submit to the Building Services Division a letter certifying that the erosion and sedimentation control measures set forth in the Creek Protection Permit submittal material have been instituted during the grading activities.

c) All erosion and sedimentation control measures shall be monitored regularly by the project applicant. The City may require erosion and sedimentation control measures to be inspected by a qualified environmental consultant (paid for by the project applicant) during or after rain events. If measures are insufficient to control sedimentation and erosion then the project applicant shall develop and implement additional and more effective measures immediately.

Construction Activities Adjacent to Creeks

Ongoing throughout demolition, grading, and/or construction activities

All work shall incorporate all applicable Best Management Practices (BMPs) for the construction industry, and as outlined in the Alameda Clean Water Program pamphlets, including BMPs for dust, erosion and sedimentation abatement per Chapter 15.04 of the Oakland Municipal Code. The measures shall include, but are not limited to, the following:

a) On sloped properties, the downhill end of the construction area must be protected with silt curtains and hay bales oriented parallel to the contour of the slope (at a constant elevation) to prevent erosion to the creek.

b) All work in or near creek channels must be performed with hand tools and by a minimum number of people. Immediately upon completion of this work, soil must be repacked and native vegetation planted.

c) Minimize the removal of natural vegetation or ground cover from the site in order to minimize the potential for erosion and sedimentation problems. Maximize the replanting of the area with native vegetation as soon as possible. All bare slopes must be covered with staked tarps when rain is occurring or is expected.

d) Install filter materials (such as sandbags, filter fabric, etc.) at the storm drain inlets nearest to the creek side of the project site prior to the start of the wet weather season (October 15); site dewatering activities; street washing activities; saw cutting asphalt or concrete; and in order to retain any debris flowing into the City storm drain system. Filter materials shall be maintained and/or replaced as necessary to ensure effectiveness and prevent street flooding.

e) Ensure that concrete/granite supply trucks or concrete/plaster finishing operations do not discharge wash water into the creek, street gutters, or storm drains.

f) Direct and locate tool and equipment cleaning so that wash water does not discharge into the creek.

g) Create a contained and covered area on the site for storage of bags of cement, paints, flammables, oils, fertilizers, pesticides, or any other materials used on the project site that have the potential for being discharged to the storm drain system by the wind or in the event of a material spill. No hazardous waste material shall be stored on site.

h) Gather all construction debris on a regular basis and place them in a dumpster or other container which is emptied or removed on a weekly basis. When appropriate, use tarps on the ground to collect fallen debris or splatters that could contribute to stormwater pollution.

i) Remove all dirt, gravel, refuse, and green waste from the sidewalk, street pavement, and storm drain system adjoining the project site. During wet weather, avoid driving vehicles off paved areas and other outdoor work.

j) Broom sweep the street pavement adjoining the project site on a daily basis. Caked-on mud or dirt shall be scraped from these areas before sweeping. At the end of each workday, the entire site must be cleaned and secured against potential erosion, dumping, or discharge to the creek.

*[The following condition of approval should be applied to **all** creek protection permit projects requiring creek protection plans –generally Category III and IV permits]*

Creek Protection Plan

Prior to and ongoing throughout demolition, grading, and/or construction activities

The approved creek protection plan shall be included in the project drawings submitted for a building permit (or other construction-related permit). The project applicant shall implement the creek protection plan to minimize potential impacts to the creek during and after construction of the project. All stormwater system outfalls shall include energy dissipation that slows the velocity of the water at the point of outflow to maximize infiltration and minimize erosion. The project shall not result in a substantial increase in stormwater runoff volume or velocity to the creek or storm drains.

Dewatering and Diversion for Creekside Properties

Prior to the start of any in-water construction activities

The project applicant shall develop and implement a detailed dewatering and diversion plan for review and approval by the Building Services Division. All proposed dewatering and diversion practices shall be consistent with the requirements of the Streambed Alteration Agreement issued by the California Department of Fish and Game.

c) If installing any dewatering or diversion device(s), ensure that construction and operation of the devices meet the standards in the latest edition of the Erosion and Sediment Control Field Manual published by the Regional Water Quality Control Board (RWQCB).

d) Construct coffer dams and water diversion system of a non-erodable material which will cause little or siltation. Maintain coffer dams and the water diversion system in place and functional throughout the construction period. If the coffer dams or water diversion system fail, repair immediately based on the recommendations of a qualified environmental consultant. Remove devices only after construction is complete and the site stabilized.

Pass pumped water through a sediment settling device before returning the water to the stream channel. Provide velocity dissipation measures at the outfall to prevent erosion.

CREEK PERMIT

Erosion and Sediment Control Measures

Prior to issuance of a demolition, grading, or construction permit

The project applicant shall submit an Erosion and Sediment Control Plan.

BASIC (Applies to ALL construction sites)

d) To ensure that sediment does not flow into the creek and/or storm drains, the project applicant shall install silt fencing (such as sandbags, filter fabric, silt curtains, etc.) oriented parallel to the contours of the slope (at a constant elevation)

e) In accordance with an approved erosion control plan, the project applicant shall implement mechanical and vegetative measures to reduce erosion and sedimentation, including appropriate seasonal maintenance. One hundred (100) percent degradable erosion control fabric shall be installed on all graded slopes to protect and stabilize the slopes during construction and before permanent vegetation gets established. All graded areas shall be temporarily protected from erosion by seeding with fast growing annual species.

f) All erosion and sedimentation control measures implemented during construction activities, as well as construction site and materials management shall be in strict accordance with the control standards listed in the latest edition of the Erosion and Sediment Control Field Manual published by the Regional Water Quality Board (RWQB).

ENHANCED

d) Temporary fencing is required and shall be placed along both sides of the creek at the maximum practical distance from the creek centerline. This area shall not be disturbed during construction without prior approval of the Planning Department.

e) A qualified geotechnical engineer and/or environmental consultant shall be retained and paid for by the project applicant to make site visits during all grading activities; and as a follow-up, submit to the Building Services Division a letter certifying that the erosion and sedimentation control measures set forth in the Creek Protection Permit submittal material have been instituted during the grading activities.

f) All erosion and sedimentation control measures shall be monitored on a weekly basis and on a daily basis by a qualified environmental consultant paid for by the project applicant during rain events. The monitoring log shall be located on the jobsite and available for review. If measures are insufficient to control sediment and erosion than the project applicant shall develop and implement additional and more effective measures immediately.

Grading Permit

Ongoing throughout grading

No work shall occur without a valid Grading Permit issued by the Building Services Division. No grading shall occur within the period of October 15 through April 15 unless specifically authorized in writing by the Engineering Services Division.

Construction Activities Adjacent to Creeks

Ongoing throughout demolition, grading, and/or construction

All work shall apply the "Best Management Practices (BMPS) for the construction industry, and as outlined in the Alameda Clean Water Program pamphlets – including BMP's for dust, erosion and sedimentation

abatement per Section 15.04 of the Oakland Municipal Code. The measures shall include, but are not limited to the following:

k) On sloped properties, the downhill end of the construction area must be protected with silt curtains and hay bales oriented parallel to the contour of the slope (at a constant elevation) to prevent erosion to the creek.

l) All work in or near creek channels must be performed with hand tools and by a minimum number of people. Immediately upon completion of this work, soil must be repacked and native vegetation planted.

m) Minimize the removal of natural vegetation or ground cover from the site in order to minimize the potential for erosion and sedimentation problems. Maximize the replanting of the area with native vegetation as soon as possible. All bare slopes must be covered with staked tarps when rain is occurring or is expected.

n) Install filter materials (such as sandbags, filter fabric, etc.) at the storm drain inlets nearest to the creek side of the project site prior to the start of the rainy season (October 15); site dewatering activities; street washing activities; saw cutting asphalt or concrete; and in order to retain any debris flowing into the City storm drain system. Filter materials shall be maintained and/or replaced as necessary to ensure effectiveness and prevent street flooding.

o) Ensure that concrete/granite supply trucks or concrete/plaster finishing operations do not discharge wash water into the creek, street gutters, or storm drains.

p) Direct and locate tool and equipment cleaning so that wash water does not discharge into the creek.

q) Create a contained and covered area on the site for storage of bags of cement, paints, flammables, oils, fertilizers, pesticides, or any other materials used on the project site that have the potential for being discharged to the storm drain system by the wind or in the event of a material spill. No hazardous waste material shall be stored on site.

r) Gather all construction debris on a regular basis and place them in a dumpster or other container which is emptied or removed on a weekly basis. When appropriate, use tarps on the ground to collect fallen debris or splatters that could contribute to storm water pollution.

s) Remove all dirt, gravel, refuse, and green waste from the sidewalk, street pavement, and storm drain system adjoining the project site. During wet weather, avoid driving vehicles off paved areas and other outdoor work.

t) Broom sweep the street pavement adjoining the project site on a daily basis. Caked-on mud or dirt shall be scraped from these areas before sweeping. At the end of each workday, the entire site must be cleaned and secured against potential erosion, dumping, or discharge to the creek.

Storm Water Management including per the Creek Protection Plan and/or SWPPP

Ongoing throughout demolition, grading, and/or construction

Per the Creek Protection Plan and/or the Storm Water Pollution Prevention Plan submitted by the project applicant, all storm water system outfalls shall include energy dissipation that slows the velocity of the water at the point of outflow to maximize infiltration and minimize erosion. The project shall not result in a substantial increase in storm water runoff volume or velocity to the creek or storm drains. The project shall not result in a substantial increase in pollutants (including automotive drippings, sediment, leaves, toxics, etc.) both during construction and after the project is complete.

Dewatering and Diversion for Creekside Properties

Prior to the start of any in-water construction activities

The project applicant shall develop and implement a detailed Dewatering and Diversion Plan for review and approval by the Building Services Division. All proposed dewatering and diversion practices shall be consistent with the requirements of the Streambed Alteration Agreement issued by the California Department of Fish and Game.

e) If installing any dewatering or diversion device(s), ensure that construction and operation of the devices meet the standards in the latest edition of the Erosion and Sediment Control Field Manual published by the Regional Water Quality Control Board (RWQCB).

f) Construct coffer dams and water diversion system of a non-erodable material which will cause little or no siltation. Maintain coffer dams and the water diversion system in place and functional throughout the construction period. If the coffer dams or water diversion system fail, repair immediately based on the recommendations of a qualified environmental consultant. Remove devices only after construction is complete and the site stabilized.

g) Pass pumped water through a sediment settling device before returning the water to the stream channel. Provide velocity dissipation measures at the outfall to prevent erosion.

NOISE

Days/Hours of Construction Operation

Ongoing throughout demolition, grading, and/or construction

The project applicant shall require construction contractors to limit standard construction activities as required by the City Building Department.

a) Such activities are limited to between 7:00 a.m. and 7:00 p.m. Monday through Friday, with pile driving and/or other extreme noise generating activities greater than 90 dBA limited to between 8:00 a.m. and 4:00 p.m. Monday through Friday.

b) Any construction activity proposed to occur outside of the standard hours of 7:00 am to 7:00 pm Monday through Friday for special activities (such as concrete pouring which may require more continuous amounts of time) shall be evaluated on a case by case basis, with criteria including the proximity of residential uses and a consideration of resident's preferences for whether the activity is acceptable if the overall duration of construction is shortened and such construction activities shall only be allowed with the prior written authorization of the Building Services Division.

c) Construction activity shall not occur on Saturdays, with the following possible exceptions:

I. Prior to the building being enclosed, requests for Saturday construction for special activities (such as concrete pouring which may require more continuous amounts of time), shall be evaluated on a case by case basis, with criteria including the proximity of residential uses and a consideration of resident's preferences for whether the activity is acceptable if the overall duration of construction is shortened. Such construction activities shall only be allowed on Saturdays with the prior written authorization of the Building Services Division. No extreme noise generating activities shall be allowed on Saturdays, with no exceptions.

II. After the building is enclosed, requests for Saturday construction activities shall only be allowed on Saturdays with the prior written authorization of the Building Services Division, and only then within the interior of the building with the doors and windows closed.

d) No extreme noise generating activities shall be allowed on Saturdays, with no exceptions.

e) No construction activity shall take place on Sundays or Federal holidays.

f) For clarification, construction activities include but are not limited to: truck idling, moving equipment (including trucks, elevators, etc) or materials, deliveries, and construction meetings held on-site in a non-enclosed area.

Noise Control

Ongoing throughout demolition, grading, and/or construction

To reduce noise impacts due to construction, the project applicant shall require construction contractors to implement a site-specific noise reduction program, subject to city review and approval, which includes the following measures:

a) Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds, wherever feasible).

b) Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible.

c) Stationary noise sources shall be located as far from adjacent receptors as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or other measures to the extent feasible.

d) If feasible, the noisiest phases of construction (such as pile driving) shall be limited to less than 10 days at a time.

Noise Complaint Procedures

Ongoing throughout demolition, grading, and/or construction

Prior to the issuance of each building permit, along with the submission of construction documents, the project applicant shall submit to the City Building Department a list of measures to respond to and track complaints pertaining to construction noise. These measures shall include:

a) A procedure and phone numbers for notifying the City Building Services Division staff and Oakland Police Department; (during regular construction hours and off-hours);

b) A sign posted on-site pertaining with permitted construction days and hours and complaint procedures and who to notify in the event of a problem. The sign shall also include a listing of both the City and construction contractor's telephone numbers (during regular construction hours and off-hours);

c) The designation of an on-site construction complaint and enforcement manager for the project;

d) Notification of neighbors and occupants within 300 feet of the project construction area at least 30 days in advance of pile-driving activities about the estimated duration of the activity; and

e) A preconstruction meeting shall be held with the job inspectors and the general contractor/on-site project manager to confirm that noise mitigation and practices (including construction hours, neighborhood notification, posted signs, etc.) are completed.

TRAFFIC / TRANSPORTATION

Construction Traffic and Parking

Prior to the issuance of a demolition, grading or building permit

The project applicant and construction contractor shall meet with the Transportation Services Division of the Public Works Agency and other appropriate City of Oakland agencies to determine traffic management strategies to reduce, to the maximum extent feasible, traffic congestion and the effects of parking demand by construction workers during construction of this project and other nearby projects that could be simultaneously under construction. The project applicant shall develop a construction management plan for review and approval by the City Transportation Services Division. The plan shall include at least the following items and requirements:

a) A set of comprehensive traffic control measures, including scheduling of major truck trips and deliveries to avoid peak traffic hours, detour signs if required, lane closure procedures, signs, cones for drivers, and designated construction access routes.

b) Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur.

c) Location of construction staging areas for materials, equipment, and vehicles (must be located on the project site).

d) A process for responding to, and tracking, complaints pertaining to construction activity, including identification of an onsite complaint manager. The manager shall determine the cause of the complaints and shall take prompt action to correct the problem. The Planning and Zoning Division shall be informed who the Manager is prior to the issuance of the first permit issued by Building Services.

e) Provision for accommodation of pedestrian flow.

f) Provision for parking management and spaces for all construction workers to ensure that construction workers do not park in on-street spaces.

g) Identification of haul routes for movement of construction vehicles that would minimize impacts on vehicular and pedestrian traffic, circulation and safety; and provision for monitoring surface streets used for truck haul routes so that any damage and debris or loss of expected life to the public street attributable to the haul trucks can be identified and corrected by the project applicant.

UTILITIES AND SERVICES SYSTEMS

Waste Reduction and Recycling

Prior to issuance of demolition, grading, or building permit

The project applicant will submit a demolition/construction waste diversion plan and operational waste reduction plan for review and approval by the Public Works Agency. The plan will specify the methods by which the development will make a good faith effort to divert 50% of the demolition/construction waste generated by the proposed project from landfill disposal. After approval of the plan, the project applicant will implement the plan. The operational diversion plan will specify the methods by which the development will

make a good faith effort to divert 50% of the solid waste generated by operation of the proposed project from landfill disposal. After approval of the plan, the project applicant will implement the plan. Contact the City of Oakland Environmental Services Division of Public Works at (510) 238-7283 for information.

APPENDIX E

Illustrative Example of Plan Implementation: Broadway Corridor Bikeway Feasibility Study

The following "Broadway Corridor Bikeway Feasibility Study" is included as an illustrative example of how the planning level recommendations for the Proposed Bikeway Network would be developed through engineering analysis for project implementation. It shows how the feasibility study requirements specified by the Bicycle Master Plan (Appendix G) would be applied to particular projects for identifying potential impacts and applying the mitigation measures discussed in this EIR. This illustrative feasibility study includes Broadway (Keith Avenue to MacArthur Boulevard) and the Webster/Franklin couplet (25th^{h} Street to 14th Street). These proposed bikeway segments are listed as priority projects in the Bicycle Master Plan because they would extend the existing Broadway bikeway (MacArthur Boulevard to 25th Street), connecting multiple residential neighborhoods with downtown Oakland including the 19th and 12th Street BART stations. In contrast to the 1999 Bicycle Master Plan, the Proposed Bikeway Network includes Webster and Franklin Streets in the downtown (rather than Broadway) to avoid conflicts with AC Transit as per the Plan's discussion of transit streets. This modification is an example of the updated Plan's approach to minimizing potential impacts associated with the Proposed Bikeway Network while continuing to meet the goal of providing safe and convenient bicycle access throughout Oakland.

The proposed bikeway in the Broadway corridor would require the removal of travel lanes in order to install bicycle lanes. Some of the roadway segments are on the Metropolitan Transportation System (MTS) that is monitored by the Alameda County Congestion Management Agency as part of the Congestion Management Program. As per the Plan's requirements for bikeway feasibility studies, the evaluation of this project includes the analysis of travel lane removal and the MTS analysis. The proposed bikeway would not require the removal of 10 percent or more of the parking spaces within the project area and thus the analysis of parking space removal does not apply. Similarly, the project would not result in one travel lane per direction on a rapid, trunk, or major bus line and thus the transit streets analysis does not apply. As an illustrative example, the Broadway Corridor Bikeway Feasibility Study does not include all of the issues that are likely to be encountered in implementing the Proposed Bikeway Network. Rather, it provides an example of how the framework created by the Bicycle Master Plan and this EIR would be applied to particular projects for Plan implementation.

References

Wilbur Smith Associates (WSA), *Broadway Corridor Bikeway Feasibility Study*, March 2007.

DRAFT REPORT

Broadway Corridor Bikeway Feasibility Study

prepared for

City of Oakland

ENGINEERS
PLANNERS
ECONOMISTS

Wilbur Smith Associates

March 2007

TABLE OF CONTENTS

CHAPTER

1 Introduction 1-1

2 Existing Conditions 2-1
- 2.1 Existing Roadway Network 2-2
- 2.2 Transit Service 2-3
- 2.3 Bicycling Conditions 2-6
- 2.4 Pedestrian Conditions 2-6
- 2.5 Parking Conditions 2-6
- 2.6 Analysis Methodology 2-6
- 2.7 Intersection Operating Conditions 2-8

3 Project Conditions 3-1
- 3.1 Proposed Bikeway Improvements 3-1
- 3.2 Thresholds of Significance 3-13
- 3.3 Intersection Operating Conditions 3-16
- 3.4 Intersection Impacts and Mitigation Measures 3-20
- 3.5 Transit 3-22
- 3.6 Pedestrian 3-22
- 3.7 Bicycle 3-22
- 3.8 Parking 3-23
- 3.9 Construction 3-23

4 Cumulative Conditions 4-1
- 4.1 Cumulative Conditions Traffic Forecasts (2025) 4-1
- 4.2 Intersection Operating Conditions Under Cumulative Conditions (2025) No Project 4-1
- 4.3 Year 2025 Plus Project Intersection Operating Conditions 4-4
- 4.4 Intersection Impacts and Mitigation Measures (2025 Conditions) 4-7

5 MTS Roadway Segment Analysis 5-1
- 5.1 Analysis Methodology 5-1
- 5.2 Traffic Forecasts 5-1
- 5.3 Significant Criteria 5-2
- 5.4 Analysis Results 5-2

6 Recommended Improvements 6-1
- 6.1 Impact Assessment 6-1
- 6.2 Recommended Improvements 6-7

Appendices

(for copies of the appendices, please contact Jason Patton, City of Oakland at 510-238-7049)

Appendix A Intersection Turning Movement Volumes
Appendix B Intersection LOS Analysis Existing Conditions
Appendix C Intersection LOS Analysis – Existing Plus Project Conditions
Appendix D Intersection LOS Analysis – Year 2025 Conditions
Appendix E Intersection LOS Analysis – Year 2025 Plus Project Conditions
Appendix F Intersection LOS Analysis – Existing Plus Recommended Improvements Conditions
Appendix G Intersection LOS Analysis – Year 2025 Plus Recommended Improvements Conditions

Tabulations

2-1: Level of Service Criteria – Signalized Intersections 2-7
2-2: List of Study Intersections 2-9
2-3: Peak Hour Intersection Levels of Service – Existing Conditions 2-10
3-1: Proposed Segment Cross-Sections 3-3
3-2: Comparison of Peak Hour Intersection Levels of Service – Existing Conditions / Existing Plus Project Conditions 3-17
4-1: Peak Hour Intersection Levels of Service – Cumulative Conditions (2025) No Project 4-3
4-2: Comparison of Peak Hour Intersection Levels of Service – Year 2025 Conditions / Year 2025 Plus Project Conditions 4-5
5-1: Levels of Service – Roadway Segments 5-2
5-2: Roadway Segment Analysis – MTS Criteria 5-3
6-1: Comparison of Peak Hour Intersection Levels of Service Existing Conditions / Existing plus Project Conditions / Recommended Improvements Conditions 6-3
6-2: Comparison of Peak Hour Intersection Levels of Service Year 2025 Conditions / Year 2025 plus Project Conditions / Recommended Improvements Conditions 6-5

Illustrations

Figure

1-1 Study Area Location 1-3
2-1 Transit Map 2-5
2-2: Study Intersection Locations 2-11
2-3: AM/PM Peak Hour Intersection Volumes – Existing Conditions 2-12
2-4: Intersection Geometric Configurations – Existing Conditions 2-13
3-1A-I: Proposed Cross-Sections 3-4
3-2: Intersection Geometric Configurations – Existing plus Project Conditions 3-19
4-1: AM/PM Peak Hour Intersection Volumes – Year 2025 Conditions 4-2
6-1: Intersection Geometric Configurations – Existing Plus Recommended Improvements Conditions 6-2
6-2: Conceptual Bikeway Improvements – Broadway at 25th/Webster Street 6-8
6-3: Conceptual Bikeway Improvements – Broadway at Piedmont Avenue 6-11
6-4: Conceptual Bikeway Improvements – Broadway at 40th Street 6-12
6-5A-D: Conceptual Bikeway Improvements – Upper Broadway 6-13

Chapter 1
INTRODUCTION

This report presents the results of the feasibility study for the Broadway Corridor Bikeway Project. The purpose of this analysis is to identify the potential impacts of the proposed bikeway improvements on the surrounding transportation system. The Broadway Corridor extends from Highway 24 (Keith Street) to 14th Street in Downtown Oakland. The proposed bikeway improvements are located on Broadway from Keith Street to 25th Street (southbound direction) or 22nd Street (northbound direction) and along Franklin and Webster Streets to 14th Street as shown in Figure 1-1.

Prior to this feasibility analysis, a preliminary screening of the Broadway Corridor was conducted to determine the appropriate bikeway type and recommended cross-section. Each segment was evaluated by:

- Curb-to-curb width;
- Number of travel lanes and presence of medians;
- Daily and peak hour directional traffic volumes;
- Amount and frequency of transit service;
- Supply and demand of on-street parking;
- Designation as truck route or high traffic volumes; and
- Gradient

It should be noted that the project study area contains a section with existing bike lanes (Broadway between MacArthur Boulevard and 25th Street). It is not anticipated that these existing bike lanes will be changed. The existing segment was included in the analysis only to identify impacts on the surrounding roadway. Project impacts were evaluated following the guidelines of the City of Oakland and the Alameda County Congestion Management Agency. The following key intersections were analyzed for this project:

1. Broadway/Keith Avenue
2. Broadway/Manila Avenue
3. Broadway/Broadway Terrace
4. Broadway/College Avenue
5. Broadway/51st Street/Pleasant Valley
6. Broadway/42nd Street
7. Broadway/40th Street
8. Broadway/MacArthur
9. Broadway/Piedmont Avenue
10. Broadway/Hawthorne
11. Broadway/27th Street
12. Broadway/26th Street
13. Broadway/Webster Street/25th Street
14. Broadway/Grand Avenue
15. Broadway/Franklin Street
16. Webster Street/Grand Avenue
17. Webster Street/20th Street
18. Webster Street/19th Street
19. Webster Street/17th Street
20. Webster Street/14th Street
21. Franklin Street/20th Street
22. Franklin Street/19th Street
23. Franklin Street/17th Street
24. Franklin Street/14th Street

The proposed project is not expected to add a significant impact to freeway segments in the City of Oakland. Accordingly, freeway segments were not included in this analysis. The operation of key intersections was evaluated during the morning (AM) and evening (PM) peak periods for the following scenarios:

Scenario 1: Existing Conditions – Existing volumes obtained from traffic counts conducted by Wilbur Smith Associates and collected from recent traffic studies.

Scenario 2: Existing Plus Project Conditions – Existing volumes with the proposed new lane configurations recommended by the Broadway Corridor bikeway.

Scenario 3: 2025 Cumulative Conditions (No Project) – 2025 volumes with existing lane configurations along the study corridor.

Scenario 4: 2025 Cumulative Conditions (Plus Project) – 2025 volumes with the proposed new lane configurations recommended by the Broadway Corridor bikeway.

The remainder of the report is divided into five chapters. Chapter 2 describes the Existing Conditions regarding roadway facilities, transit services, pedestrian and bicycle facilities, traffic volumes, and operating conditions of the key intersections. Chapter 3 discusses the intersection operations under Project Conditions, identifies traffic, transit, pedestrians, bicycle, parking, and construction impacts, and recommends mitigation measures for each. A discussion of intersection operations under Cumulative Conditions with and with out the project along with the intersection impacts and mitigation measures are included in Chapter 4. Chapter 5 presents the analysis conducted for the roadway segments contained in the project study area. The recommended bikeway improvements based on this analysis are presented in Chapter 6.

ENGINEERS
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ECONOMISTS
Wilbur Smith Associates

Figure 1-1
STUDY AREA LOCATION
529370/BDWY Feas/Figures - 11/10/06

Chapter 2
EXISTING CONDITIONS

This chapter describes the existing transportation system in the vicinity of the proposed project including description of the existing roadway network, transit networks, and pedestrian and bicycle facilities.

2.1 EXISTING ROADWAY NETWORK

The roadway network located nearby the Broadway Corridor provides two types of access to the study area:

1. Regional access, provided by interstate freeways and state highways
2. Local access, provided by local streets.

2.1.1 Regional Access

Oakland has a number of freeways within its boundaries providing regional as well as local access. In fact, these highways converge in western Oakland at the access point to the San Francisco-Oakland Bay Bridge.

Interstate 580 (I-580) is an east-west freeway providing regional access to the Broadway Corridor from San Francisco, Marin County and other locations in the East Bay. Within Oakland, I-580 also connects to SR-24 for destinations in central Contra Costa County and I-80 with access to western Contra Costa County, Solano County and Sacramento. In the vicinity of the study area, I-580 is an eight-lane freeway. The highway crosses the Broadway Corridor near MacArthur Boulevard; access to the study area is provided by the off-ramps located at Broadway and the Oakland Avenue/Harrison Street interchange.

Interstate 880 (I-880) is an eight-lane freeway and is the major connector between Oakland, San Francisco and the South Bay. This highway actually terminates at the San Francisco-Oakland Bay Bridge. Since trucks are not allowed on portions of I-580, I-880 carries heavy truck traffic especially to the Port of Oakland and Oakland International Airport. I-880 is accessible from Broadway at a point south of the study area.

Interstate 980 (I-980) connects with I-580 and I-880 and is actually the southern extension of SR-24. Located parallel on the west side of the Broadway Corridor, I-980 is an eight-lane freeway. Access to the study area is provided by interchanges at 12th, 14th and 16th Streets.

State Route 24 (SR-24) is an east-west freeway providing access primarily to central Contra Costa County through the Caldecott Tunnel. As previously mentioned, SR-24 is the northern extension of I-980. Along most of the Broadway Corridor, SR-24 is located to the west but intersects with the Corridor at the northern end of the study area. The nearest access to the study area is available at 51st Street or from Broadway at a point north of the study corridor.

2.1.2 Local Access

This section provides a discussion of the existing local roadways located within the study area.

Broadway serves as a major north-south arterial in the City of Oakland and runs between SR-24 and Water Street. Within the study area, Broadway has four to six lanes, six lanes (three lanes in each direction) from College Avenue to MacArthur Boulevard and four lanes (two lanes in each direction) from Keith Avenue to College Avenue and from MacArthur Boulevard to Franklin Street. The segment between I-580 and 25th Street/Webster Street includes bicycle lanes.

MacArthur Boulevard extends from West Oakland to San Leandro and serves as a major east-west arterial in the City of Oakland. MacArthur Boulevard has variable widths, with lane configurations varying between four and six lanes. Some sections include bike lanes in one or both directions. MacArthur Boulevard crosses Broadway near the mid-point of the study corridor and has six lanes (three lanes in each direction) at this intersection.

Grand Avenue is primarily an east-west arterial in the City of Oakland. It is a four-lane roadway extending from San Francisco-Oakland Bay Bridge in West Oakland to the City of Piedmont where its name changes to Pleasant Valley Avenue and intersects again with Broadway (see below). West of I-580, Grand Avenue serves as an east-west arterial; while east of I-580, it travels in a north-south direction. Grand Avenue intersects the study corridor at both Broadway and Webster Street.

Franklin Street is a local street in Downtown Oakland and serves the northbound direction for the Franklin/Webster couplet. North of I-880 and within the study corridor, Franklin Street is a four-lane roadway operating as a one-way street in the northbound direction; south of I-880, Franklin Street has three travel lanes operating in the southbound direction.

Webster Street serves as a north-south arterial connecting the City of Alameda with Downtown Oakland. It begins at Broadway near the intersection of 25th Street and continues south to the City of Alameda through the Webster Tube as State Route 61 (SR-61) ending at Central Avenue in Alameda. Within the study area, Webster Street is both a two-way street and one-way street. For a distance of three blocks between Broadway/25th Street and Grand Avenue, Webster Street carries two-way traffic with three travel lanes (two southbound lanes and one northbound lane). For most of its length, Webster Street is one-way serving as the southbound link of the Franklin/Webster couplet; Webster Street has three southbound travel lanes from Grand Avenue to 20th Street and four southbound travel lanes from 20th Street to 14th Street.

51st Street/Pleasant Valley Avenue is an east-west arterial starting at the City of Piedmont border where its name is changed from Grand Avenue (see above) and ending at Shattuck Avenue in the City of Oakland. It is a four-lane roadway (two lanes in each direction) and crosses the study area at the intersection with Broadway where it changes from Pleasant Valley (to the east) to 51st Street (to the west).

14th Street is a major arterial running in the east-west direction. It begins at Wood Street in West Oakland and passes by Oakland City Hall in Downtown. The roadway technically ends at Lake

Merritt but restarts east of the lake and continues as E. 14th Street/International Boulevard all the way to the City of San Leandro border in an alignment almost parallel to I-880. At the intersection with the study corridor, 14th Street has four travel lanes (two lanes in each direction).

40th Street is a four-lane arterial running in the east-west direction across the City of Oakland. It extends from Piedmont Avenue in Oakland to Shellmound Street in Emeryville.

Piedmont Avenue is a two-lane roadway extending from Broadway to Ramona Avenue. It functions as a minor arterial between Broadway and Pleasant Valley Avenue and as a local street north of Pleasant Valley Avenue.

College Avenue is an arterial running in the north-south direction extending from Broadway in Oakland to Bancroft Way in Berkeley terminating at the UC Berkeley campus. Broadway is the southern terminus of College Avenue and intersects at an angle to Broadway; College Avenue has two lanes at this intersection.

Broadway Terrace is a two-lane minor arterial running in the east-west direction. It serves as a connector between Broadway and State Route 13 (SR-13).

2.2 TRANSIT SERVICE

The study corridor is well served with local and regional transit service provided by BART and AC Transit. Existing transit service in the study corridor is shown in Figure 2-1.

2.2.1 AC Transit

The study corridor south of Broadway Terrace is served by several AC Transit routes although not one route serves the whole corridor. Routes 51 and 851 cover a significant portion of the corridor from College Avenue to south of 14th Street. Transit in the corridor is primarily limited to Broadway although a few blocks of Franklin and Webster Streets are served by Route 15 and by Route 802, respectively. No transit service is available north of Broadway Terrace. Detailed route information is presented below:

Route 11 Harrison – Route 11 connects Fruitvale Avenue with Oakland Avenue in the City of Piedmont along Broadway between 7th and 20th Streets. Weekday service is available from 6:00 AM to 7:50 PM at 20 minute headways. Weekend service is provided from 7:00 AM to 7:50 PM at 60 minute headways.

Route 15 Martin Luther King Jr. – This route operates along Martin Luther King Jr. Way, Broadway (between 12th and 20th Streets), and Franklin Street (between 12th and 20th Streets) providing service between El Cerrito Plaza BART Station and Montclair District of Oakland. Weekday service is provided from 6:10 AM to 9:50 PM at 15 minute headways. Weekend service is provided from 6:15 AM to 10:15 PM at 40 minute headways.

Route 40 Telegraph/Route 40L Telegraph Limited/Route 43 Shattuck/Route 840 Foothill All-nighter – These routes operate along Broadway between Telegraph Avenue and 12th Street.

Weekday service is provided from 5:35 AM to 12:00 PM at 15-20 minute headways. Weekend service is provided from 5:50 AM to 12:20 PM at 20 minute headways.

Route 51 Broadway– This route operates between the University of California Berkeley campus and downtown Oakland along College Avenue and Broadway. Weekday and weekend service is provided from 5:15 AM to 11:55 PM with 10 to 15 minute headways.

Route 59 Piedmont Avenue– This route operates between the Rockridge BART Station and the Lake Merritt BART Station and connects the communities of Montclair and Piedmont along Mountain Boulevard, Broadway Terrace, Piedmont Avenue, Broadway and Jackson Street. Weekday service is provided from 6:00 AM to 7:00 PM with one hour headways. Weekend service is provided from 8:00 AM to 6:00 PM with one hour headways.

Route 72 San Pablo Avenue – This route follows San Pablo Avenue from west Contra Costa County to Oakland. The route continues to Jack London Square Amtrak Station via Broadway between 20th and 2nd Streets. Weekday and weekend service is provided from 5:00 AM to 1:00 AM at 15 minute headways.

Route 802 San Pablo Avenue All Nighter – This route provides late night service at hourly headways between the Berkeley Amtrak Station and Jack London Square Amtrak Station. It travels on Webster for the short distance between 12th and 17th Streets.

Route 851 Broadway All Nighter– This route connects Berkeley BART Station with 12th Street/Oakland City Center BART Station and Alameda during the late night and early morning hours. Within the study corridor, it operates along the same alignment as the 51 above. Weekday and weekend service is provided from 12:15 AM and 5:15 AM with 60 minute headways.

Route CB Broadway Terrace – This route provides weekday peak hour commuter service from Broadway Terrace to Transbay Terminal in San Francisco. Westbound weekday service is available from 7:32 AM to 8:02 AM at 30 minute headways; eastbound service is provided from 4:30 PM to 8:00 PM at 30-60 minute headways.

2.2.2 Bay Area Rapid Transit (BART)

BART provides regional rail service throughout the East Bay and across the bay to San Francisco and the northern Peninsula. There are two BART stations located on Broadway within 1-2 blocks of the study corridor. They are the 19th Street and 12th Street/Oakland City Center Stations. In addition, the MacArthur BART Station is located 0.75 miles west of Broadway adjacent to Hwy 24 between MacArthur Boulevard and 40th Street and the Rockridge Station is located 0.60 miles west of Broadway on College Avenue. The Richmond-Fremont, Richmond-Daly City and the Pittsburg/Bay Point-Daly City lines all provide service at these stations with train arriving every 4-7 minutes during the peak hours.

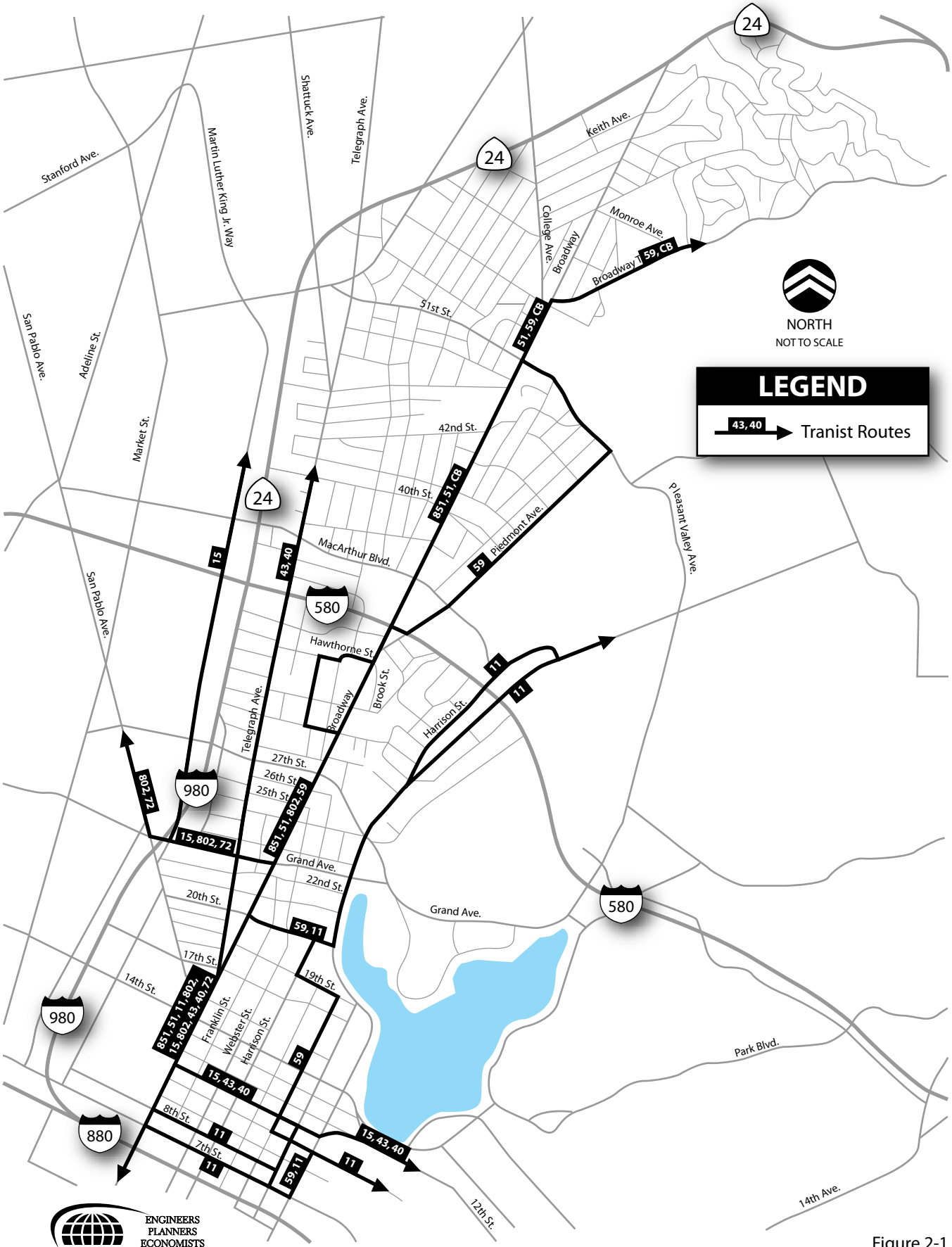

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Figure 2-1
TRANSIT MAP

2.3 BICYCLING CONDITIONS

Existing bicycle facilities in the study corridor include a section of bike lanes on Broadway from the I-580 overpass to the Webster Street/25th Street intersection. Other existing bikeways that intersect with the Broadway Corridor include:

- Bike route on Broadway Terrace from Clarewood Drive to Broadway
- Bike route on Shafter/Webster from Rockridge BART Station to Broadway
- Bike route/lane on Grand Avenue from El Embarcadero (in Grand Lane neighborhood) to Market Street
- Bike route on 20th Street from Harrison to San Pablo Avenue

Bicycle Parking – Bicycle racks have been installed within much of the study corridor on Broadway, Webster and Franklin Streets. Most of these racks were installed by the City through the CityRacks program. Through this program, racks can be installed in commercial districts on public property with the permission of the adjacent business owner. Over 700 racks have been installed since 1999. Recently, eight multi-user electronic bicycle "eLockers" have been located in Downtown Oakland at Broadway and 14th Street. Additional lockers will be placed at Broadway and 20th Street in the near future.

2.4 PEDESTRIAN CONDITIONS

Sidewalks can be found along the roadways in the study corridor ranging from 6-15 feet in width with the wider sidewalks found in the Downtown. There are some sections which include tree plantings along the roadways although the only planting strips used as a buffer between the roadway and sidewalk are found on Broadway north of Broadway Terrace.

Most of the major intersections outside the Downtown include pedestrian-actuated traffic signals at the crosswalks. Traffic signals in the Downtown, particularly on Webster and Franklin Streets between 14th and 20th Streets, do not require pedestrian actuation for the pedestrian signal phase.

2.5 PARKING CONDITIONS

Parallel on-street parking is available along most of the Broadway Corridor. Parking is mostly controlled with 1-2 hour meters except for Broadway north of Broadway Terrace which has no parking time limits. Parking demand is greater in the Downtown, specifically on the one-way couplet of Webster and Franklin Streets between Grand Avenue and 14th Street. This area also experiences considerable double parking activity. However, because these are one-way streets, the double parking and legal parking activity does not significantly delay traffic flows. Parking on the upper portion of the study area, Broadway from 25th Street to Keith Avenue is more readily available and turnover is infrequent. Consequently parking activity also does not inhibit traffic flows in this portion of the corridor.

2.6 ANALYSIS METHODOLOGY

Operation of the study intersections were evaluated using Level of Service (LOS) calculations. LOS is a qualitative description of the performance of an intersection based on the average delay per vehicle. Intersection levels of service ranges from LOS A, which indicates free flow or excellent conditions with short delays, to LOS F, which indicates congested or overloaded conditions with extremely long delays.

2.6.1 Signalized Intersections

The signalized intersection level of service methodology approved and adopted by the City of Oakland bases an intersection's operation on average control vehicular delay for all vehicles entering the intersection. It is calculated using the method described in Chapter 16 of the 2000 *Highway Capacity Manual* (HCM) with adjusted saturation flow rates to reflect conditions in Alameda County. The average delay for signalized intersections is calculated using the SYNCHRO analysis software and is correlated to a level of service designation as shown in Table 2-1. In the City of Oakland, LOS A through E are considered satisfactory service levels within the Downtown Area, while LOS A through D are considered satisfactory for the remainder of the City.

Table 2-1
Level of Service Criteria – Signalized Intersections

Level of Service		Average Delay
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	≤ 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	10.1 – 20.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	20.1 – 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	35.1 – 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. This is considered to be the limit of acceptable delay.	55.1 – 80.0
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	≥ 80.1

Source: Highway Capacity Manual, Transportation Research Board, 2000

NOTES: Delay presented in seconds per vehicle.

2.7 INTERSECTION OPERATING CONDITIONS

2.7.1 Existing Traffic Volumes and Lane Configurations

Within the study area, twenty-four study intersections were selected for detailed analysis as stated in Chapter 1. This list includes all signalized intersections within the study corridor proposed for bikeway improvements with the exception of Broadway at 45th Street, Broadway at 41st Street, Webster at 15th and 21st Streets, and Franklin at 15th and 21st Streets. Upon examination of the existing intersection operations along the corridor, the City and WSA agreed that these intersections were observed to operate with minimal delay and are not expected to be significantly impacted by the proposed project. In addition, three intersections along the existing segment of bike lanes (Broadway at Piedmont, Hawthorne and 27th Street) were included in the analysis because of their significance to the operation of adjacent segments. The list of study intersections is included in Table 2-2 and their locations are mapped in Figure 2-2.

Existing intersection operating conditions were evaluated at all intersections during the morning peak hour (usually from 7:00 AM to 8:00 AM) and evening peak hour (usually from 5:00 PM to 6:00 PM). Turning movement counts at eight out of 24 study intersections were collected by WSA in April 2006. The turning movement counts at the remaining 16 intersections were obtained from recent traffic studies performed in the City of Oakland. These volumes were adjusted to be consistent with the turning movement counts collected by WSA at other intersections. Other traffic data sources include:

- *Kaiser Permanante Oakland Medical Center Replacement Project*, Fehr and Peers, December 2005.
- *MTC Regional Signal Timing Program, Task 2: Existing Conditions Analysis, Broadway, 20th Street, Harrison Street, Fruitvale Avenue, High Street, MacArthur Boulevard, Martin Luther King Jr. Way, and San Leandro Street, City of Oakland*; TJKM, October 2005.
- *Oakland Uptown Project*, Korve Engineering, September 2003.

The data source of turning movement volumes for the study intersections is shown in Table 2-2. The resulting AM and PM peak hour intersection turning movement volumes are presented in Figure 2-3 with the existing intersection lane configurations included on Figure 2-4. In addition, the results of traffic counts conducted by WSA are included in Appendix A.

2.7.2 Existing Intersection Level of Service

The LOS of the study intersections under Existing Conditions is presented in Table 2-3. During both the AM and PM peak hours, all 24 study intersections are operating under acceptable conditions (LOS D or better) except the intersection of Broadway/51st Street/Pleasant Valley Avenue. This intersection operates at LOS E and LOS F under the AM and PM peak hours, respectively. The SYNCHRO calculation worksheets are included in Appendix B.

2.7.3 Field Observations

Field observations of the key study intersections in the study corridor were conducted to verify the calculated operations. In general, the observations indicated that most of the study intersections were operating at or near the calculated levels of service. In fact, most of the

intersections were found to operate with little or no delay. The two exceptions, however, were Broadway at MacArthur Boulevard and Broadway at 51st Street/Pleasant Valley Avenue. Both these intersections have relatively long signal cycles with protected left turn movements on all directions. These intersections were observed to operate with high delays. This finding is reflected in the LOS conditions presented in Table 2-3.

Table 2-2
List of Study Intersections

Study Intersection		Source of Existing Turning Movement Volumes
1.	Broadway/Keith Avenue	A
2.	Broadway/Manila Avenue/Monroe Avenue	A
3.	Broadway/Broadway Terrace	B
4.	Broadway/College Avenue	B
5.	Broadway/51st Street/Pleasant Valley Avenue	B
6.	Broadway/ 42nd Street/Mather Street	A
7.	Broadway/40th Street	B
8.	Broadway/MacArthur Boulevard	B
9.	Broadway/Piedmont Avenue	B
10.	Broadway/Hawthorne Avenue/Brook Street	B
11.	Broadway/27th Street	B
12.	Broadway/26th Street	C
13.	Broadway/25th Street/Webster Street	C
14.	Broadway/W Grand Avenue	B
15.	Broadway/Franklin Street/22nd Street	A
16.	Webster Street/W Grand Avenue	D
17.	Webster Street/20th Street	C
18.	Franklin Street/20th Street	C
19.	Webster Street/19th Street	A
20.	Franklin Street/19th Street	A
21.	Webster Street/17th Street	D
22.	Franklin Street/17th Street	D
23.	Webster Street/14th Street	A
24.	Franklin Street/14th Street	A

Source: Wilbur Smith Associates, June 2006
NOTES:
A – Source: WSA Traffic Counts, April 2006.
B – Source: *Kaiser Permanante Oakland Medical Center Replacement Project*, Fehr and Peers, December 2005.
C – Source: *MTC Regional Signal Timing Program, Task 2: Existing Conditions Analysis*; TJKM, October 2005.
D - Source: *Oakland Uptown Project*, Korve Engineering, September 2003.

Table 2-3
Peak Hour Intersection Levels of Service – Existing Conditions

Intersection	AM Peak Delay	AM Peak LOS	PM Peak Delay	PM Peak LOS
1. Broadway/Keith Avenue	9.8	A	14.1	B
2. Broadway/Manila Avenue/Monroe Avenue	15.0	B	13.5	B
3. Broadway/Broadway Terrace	15.4	B	15.8	B
4. Broadway/College Avenue	10.5	B	20.0	C
5. Broadway/51st Street/Pleasant Valley Avenue	**61.7**	**E**	**>80**	**F**
6. Broadway/42nd Street/Mather Street	6.3	A	5.5	A
7. Broadway/40th Street	10.5	B	17.2	B
8. Broadway/W MacArthur Boulevard	46.0	D	44.2	D
9. Broadway/Piedmont Avenue	19.9	B	23.9	C
10. Broadway/Hawthorne Avenue/Brook Street	21.8	C	16.4	B
11. Broadway/27th Street	11.1	B	12.7	B
12. Broadway/26th Street	2.7	A	4.6	A
13. Broadway/25th Street/Webster Street	4.1	A	6.0	A
14. Broadway/W Grand Avenue[1]	14.4	B	16.0	B
15. Broadway/22nd Street/Franklin Street[1]	12.8	B	12.4	B
16. Webster Street/W Grand Avenue[1]	25.3	C	40.3	D
17. Webster Street/20th Street[1]	19.8	B	20.3	C
18. Franklin Street/20th Street	10.3	B	10.7	B
19. Webster Street/19th Street[1]	8.4	A	9.2	A
20. Franklin Street/19th Street[1]	7.7	A	5.9	A
21. Webster Street/17th Street[1]	4.0	A	4.6	A
22. Franklin Street/17th Street[1]	11.2	B	10.4	B
23. Webster Street/14th Street[1]	10.0	A	10.3	B
24. Franklin Street/14th Street[1]	6.3	A	7.3	A

Source: Wilbur Smith Associates, June 2006
NOTES:
1 – Intersection located in Downtown Oakland.
LOS – Level of Service
Delay is presented in seconds per vehicle.
Intersection vehicular delays are presented per Synchro output.
Bold indicates unacceptable LOS.

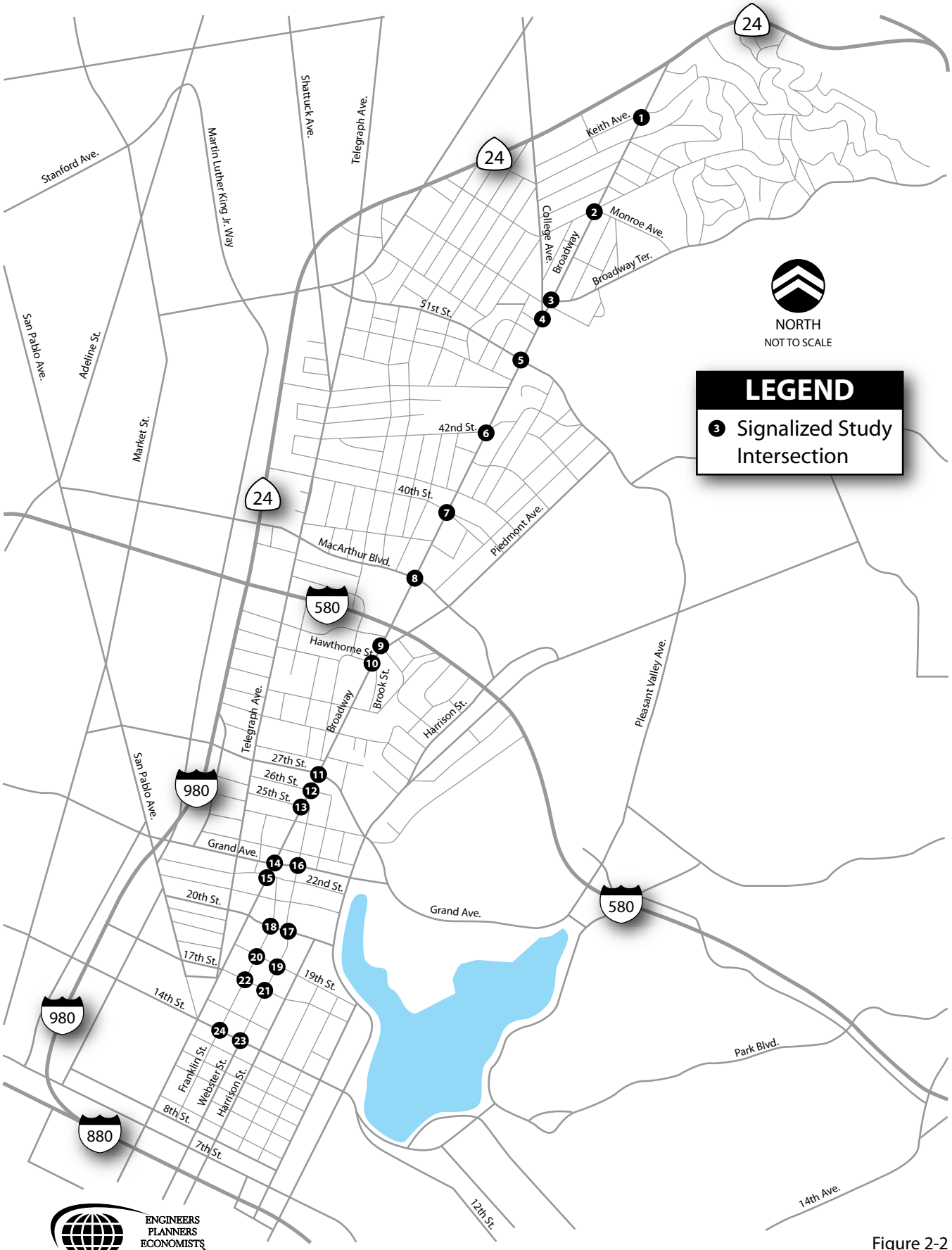

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Figure 2-2
STUDY INTERSECTION LOCATIONS
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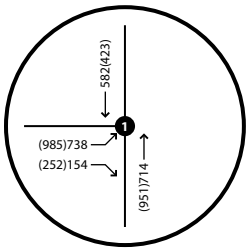
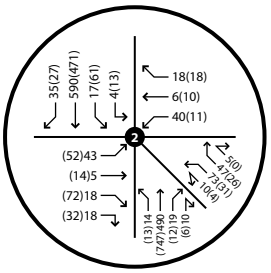
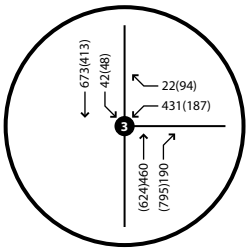


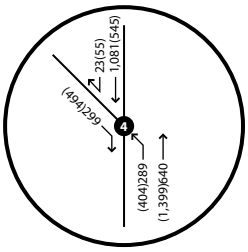
Broadway/Keith Ave.



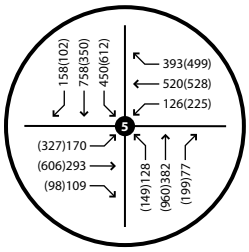
Broadway/Manila Ave./Monroe Ave.



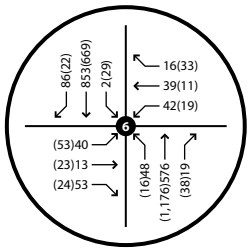
Broadway/Broadway Terrace



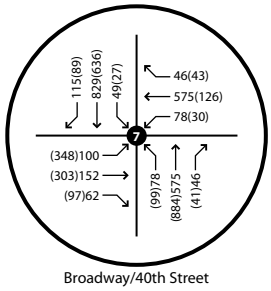
Broadway/College Ave.



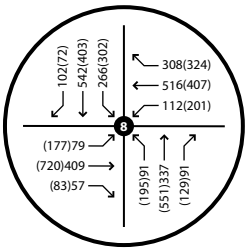
Broadway/51st Street/Pleasant Valley Ave.



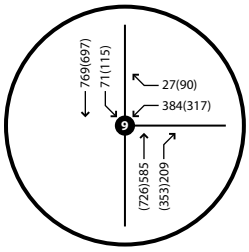
Broadway/42nd Street/Mather Street



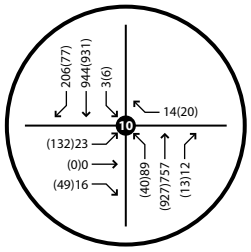
Broadway/40th Street



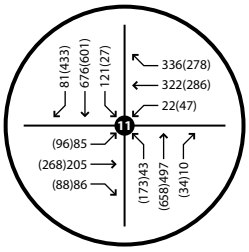
Broadway/MacArthur Blvd.



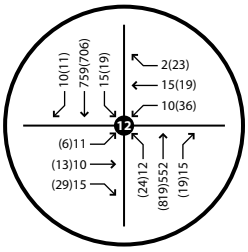
Broadway/Piedmont Ave.



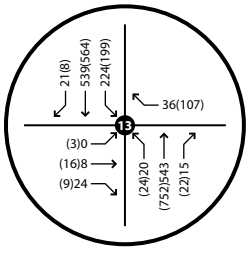
Broadway/Hawthorne Ave./Brook Street



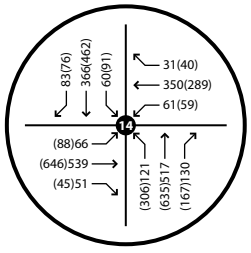
Broadway/27th Street



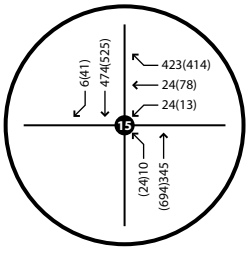
Broadway/26th Street



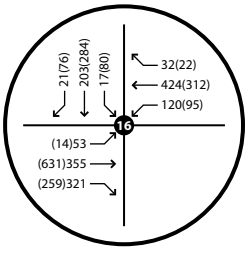
Broadway/25th Street/Webster Street



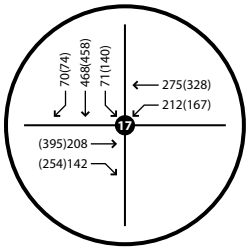
Broadway/W. Grand Ave.



Broadway/Franklin Street/22nd Street



Webster Street/W. Grand Ave.



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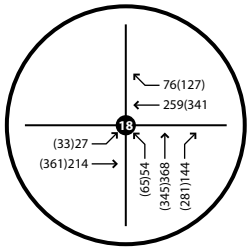

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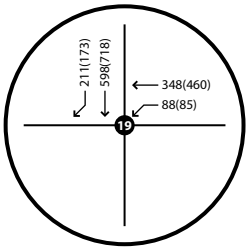

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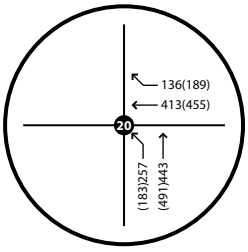

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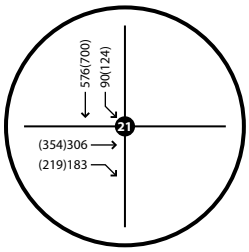

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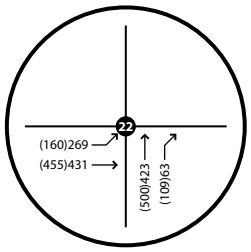

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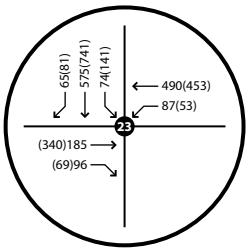
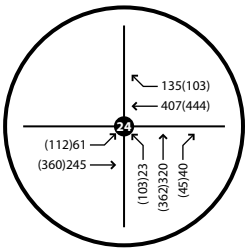


Webster Street/14th Street



Franklin Street/14th Street

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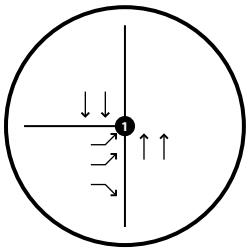
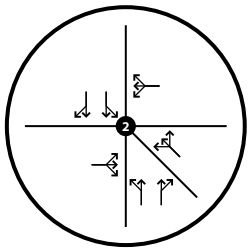
LEGEND 269(160) - AM(PM) Peak Hour Volumes

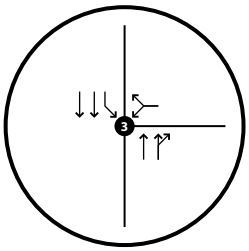
Figure 2-3
AM/PM PEAK HOUR INTERSECTION VOLUMES - EXISTING CONDITIONS



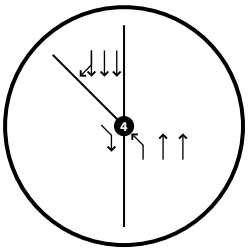
Broadway/Keith Ave.



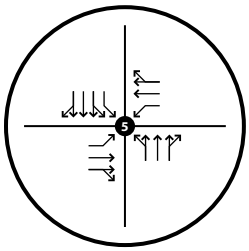
Broadway/Manila Ave./Monroe Ave.



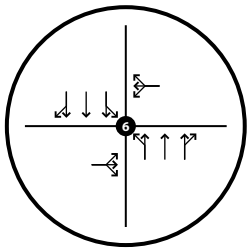
Broadway/Broadway Terrace



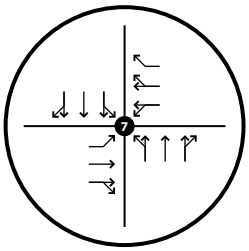
Broadway/College Ave.



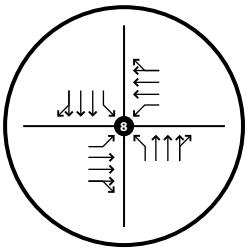
Broadway/51st Street/Pleasant Valley Ave.



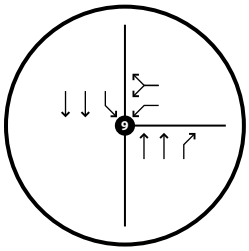
Broadway/42nd Street/Mather Street



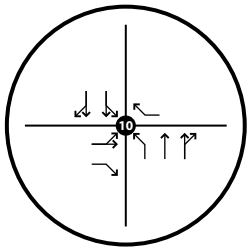
Broadway/40th Street



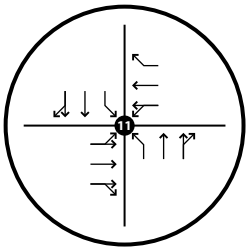
Broadway/MacArthur Blvd.



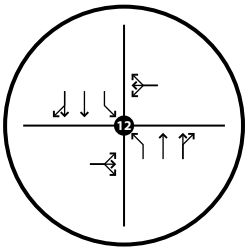
Broadway/Piedmont Ave.



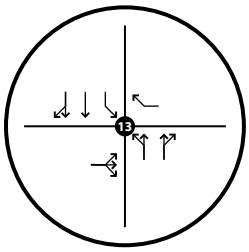
Broadway/Hawthorne Ave./Brook Street



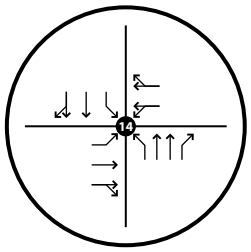
Broadway/27th Street



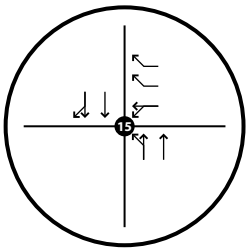
Broadway/26th Street



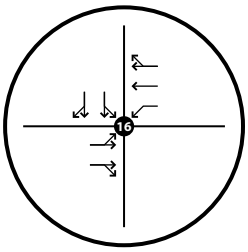
Broadway/25th Street/Webster Street



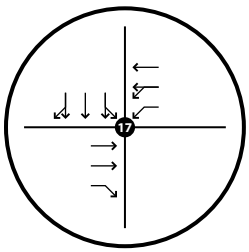
Broadway/W. Grand Ave.



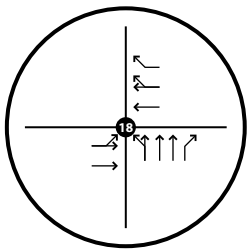
Broadway/Franklin Street/22nd Street



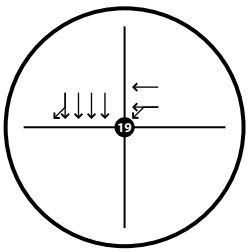
Webster Street/W. Grand Ave.



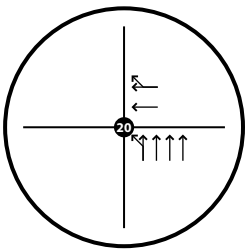
Webster Street/20th Street



Franklin Street/20th Street



Webster Street/19th Street



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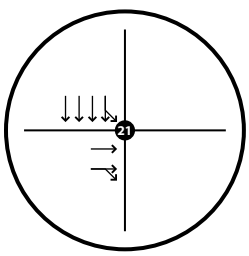
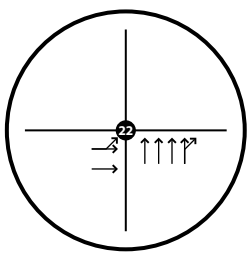
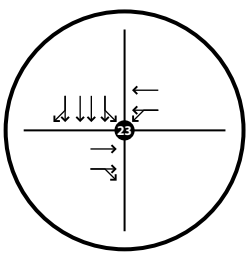


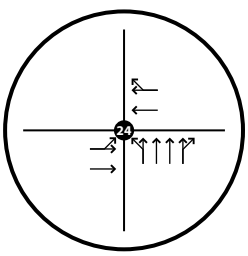
Webster Street/17th Street



Franklin Street/17th Street



Webster Street/14th Street



Franklin Street/14th Street

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Figure 2-4
INTERSECTION GEOMETRIC CONFIGURATIONS - EXISTING CONDITIONS

Chapter 3
PROJECT CONDITIONS

This chapter presents the assessment of transportation impacts due to the proposed bikeway improvements on the Broadway Corridor. The purpose of this analysis is to identify the likely impacts of the proposed project on the surrounding transportation system and to identify improvements to mitigate the significant impacts.

3.1 PROPOSED BIKEWAY IMPROVEMENTS

The Broadway Corridor extends from Highway 24 to Downtown Oakland (14th Street). A detailed description of the bikeway improvements proposed for the Broadway Corridor is included in Table 3-1.

3.1.1 Selection of Bikeway Cross-sections

The proposed cross-sections for the Broadway Corridor were identified through a citywide feasibility analysis applied to all streets on the recommended bikeway network. This analysis was applied to approximately 700 segments of potential bikeways. Twelve segments were included for the Broadway Corridor. The segments were defined as lengths of roadway with uniform characteristics including width, lane configuration, and parking configuration. The analysis criteria included

- **Street grade analysis** established guidelines to determine the hills that are appropriate for bicycle facilities. The Broadway Corridor does not have significant street gradients and was not included in this analysis.
- **Curb-to-curb street width** was identified for all collector and arterial streets through aerial photographs, field measurements, feasibility studies and as-built drawings. The street width analysis then identified proposed cross-sections based upon "minimum" lane widths (7' parking lanes, 5' bike lanes, 11' outer travel lanes, 10' inner travel lanes, and 10' two-way center turn lanes).
- **Existing motor vehicle volumes** were used to conduct a capacity analysis for proposed cross-sections which would require conversion of travel lanes to accommodate bike lanes or wider curb lanes. This analysis was not expected to determine the operational viability of proposed projects but rather provides planning-level guidance as to which segments merit an engineering level of analysis to determine the operational viability of those proposed projects. Several segments of the Broadway Corridor were included in this analysis.
- **Bicycle/bus interactions** compared potential bikeways to existing AC Transit, Emery-Go-Round, and AirBART bus routes to minimize the complications in both design and operations of having designated bikeways on heavily used transit streets. Broadway is an important transit street, carrying several major rapid or trunk lines for AC Transit. Under these conditions, the opportunity to designate bikeways on adjacent parallel streets would be considered. For the Broadway Corridor, the bikeway facilities were relocated off of Broadway to Webster/Franklin Streets along the southern portion of the corridor.

Based upon this analysis, a proposed cross-section was identified for each segment selected from the set of cross-sections outlined in the Oakland Bicycle Master Plan. The cross-sections are defined for one-way or two-way streets and with bike lanes or with shared lanes. The cross-sections are described by the following conventions.

- **Two-way streets with bike lanes (T)** - This set of cross-sections includes two bicycle lanes and parallel parking on both sides of the street. The "T" stands for a two-way street while the number identifies the travel lanes (including two-way center turn lanes for the T3 and T5 cross-sections).
- **Two-way streets with shared lanes (TS)** - These cross-sections identify rights-of-way where bicycle lanes are not feasible but there is adequate width for the use of shared lane pavement markings. The cross-sections include parallel parking on both sides of the street. The names follow the same pattern as the two-way streets with the added "S" indicating the shared lane.
- **One-way streets (W)** - These cross-sections identify one-way streets with parallel parking on both sides. The "W" stands for a one-way street. Like the two-way streets, the number refers to the number of travel lanes (although, of course, there are no center turn lanes in the W3 cross-section). The WS2 cross-section specifies a one-way, two-lane street without a bicycle lane but including a shared lane treatment. The W2 and W3 cross-sections include one bicycle lane.

3.1.2 Proposed Cross-sections for the Broadway Corridor

The bikeway cross-sections for the Broadway Corridor defined by the citywide feasibility analysis served as the starting point for the Broadway Corridor Bikeway Feasibility Study. The street segments were furthered evaluated through review of aerial photos of the corridor and through on-site observation to verify the most appropriate bikeway cross-section. The northern portion of the Broadway Corridor Bikeway from SR24 (Keith Avenue) to I-580 is located on Broadway itself. The segment from I-580 to Broadway at Webster/25th Street currently includes bike lanes. As a T4 cross-section (two travel lanes in each direction and bike lanes), this existing segment is not proposed for changes and was included in this analysis only to determine potential impacts on adjacent segments.

South from the Broadway/Webster/25th Street intersection, the bikeway is located on the one-way couplet of Webster/Franklin Streets in downtown. However, the one-way street system forces cyclists traveling northbound on Franklin Street to use Broadway from the Broadway/Franklin intersection (at 22nd Street) to Broadway/Webster intersection. To better accommodate bicyclists through this constrained section of Broadway, it is proposed that Webster Street from Grand Avenue to 21st Street (distance of two blocks) be converted from one-way to two-way operation in the future. However, this one-way to two-way conversion is beyond the scope of this study; in the short-term, the segment of Broadway from 25th Street to 22nd Street is proposed as an arterial bike route.

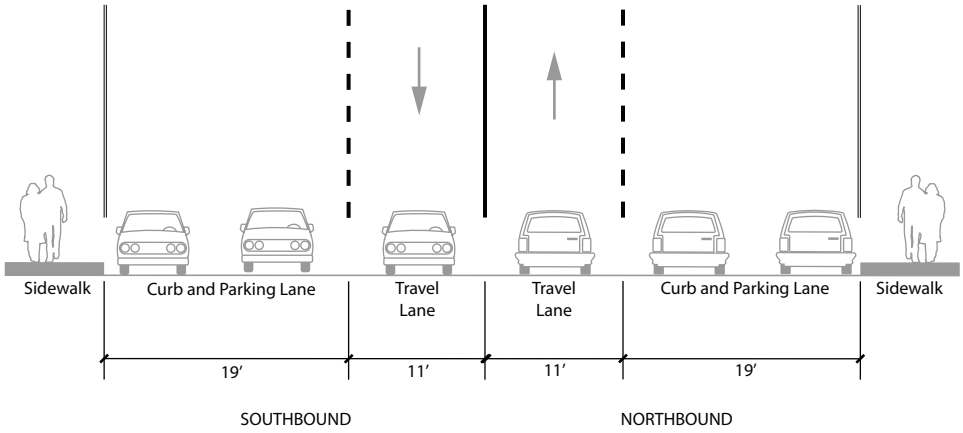
Proposed bikeway treatments for the Broadway Corridor are described in Table 3-1. Existing and proposed roadway cross-sections for each road segment are illustrated in Figures 3-1A – I.

Table 3-1
Proposed Segment Cross-sections for the Broadway Corridor Bikeway Feasibility Study

Street	From	To	Existing Cross-section	Proposed Cross-section	Lane Changes
Broadway	SR-24 (Keith Avenue)	Broadway Terrace	2 travel lanes in each direction; no center median	T3	Travel lane reduction from 4 to 2 lanes; add center left turn lane and bike lanes
Broadway	Broadway Terrace	College Avenue	2 travel lanes northbound; 3 travel lanes southbound; no center median	T4	Travel lane reduction in southbound direction from 3 to 2 lanes; add bike lanes
Broadway	College Avenue	51st Street/ Pleasant Valley Ave	Road width varies from 80-100'; 3 travel lanes in southbound and 2 travel lanes plus a left-turn lane from Broadway to College Avenue in northbound; 4-8' raised median	T5	Travel lane reduction to 4 lanes; retain left-turn lane to College Avenue; remove parking on southbound approach to 51st Street; add bike lanes
Broadway	51st Street/ Pleasant Valley Ave	MacArthur Boulevard	3 travel lanes in each direction; 4' raised median	T4	Travel lane reduction from 6 to 4 lanes; add bike lanes
Broadway	MacArthur Boulevard	I-580	3 travel lanes in each direction	T4	Travel lane reduction from 6 to 4 lanes; add bike lanes
Broadway	I-580	25th Street/ Webster Street	2 travel lanes in each direction; 12' raised median; bike lanes	None	None; Existing bike lanes
Broadway	25th Street/ Webster Street	22nd Street/ Franklin Street	2 travel lanes in each direction; 7' raised median	TS4	Restripe for wider outside lanes; add sharrows
Webster Street	25th Street/ Broadway	Grand Avenue	2 travel lanes in SB direction; 1 travel lane in NB direction	TS2	Remove lane in SB direction; widen travel lanes; add sharrows
Webster Street	Grand Avenue	20th Street	One-way travel; 3 travel lanes in SB direction	W2	Remove 1 travel lane; add SB bike lane
Webster Street	20th Street	14th Street	One-way travel; 4 travel lanes in SB direction	W3	Travel lane reduction from 4 to 3 1-way lanes; add SB bike lane
Franklin Street	Broadway/ 22nd Street	20th Street	One-way travel; 3 travel lanes in NB direction	W2	Travel lane reduction from 3 to 2 lanes; add NB bike lane
Franklin Street	20th Street	14th Street	One-way travel; 4 travel lanes in NB direction	W3	Travel lane reduction from 4 to 3 1-way lanes; add NB bike lane

Broadway - Keith Ave to Broadway Terrace

Existing (60′ curb-to-curb width)



Proposed Bike Lane - Class 2
(T3 cross-section)

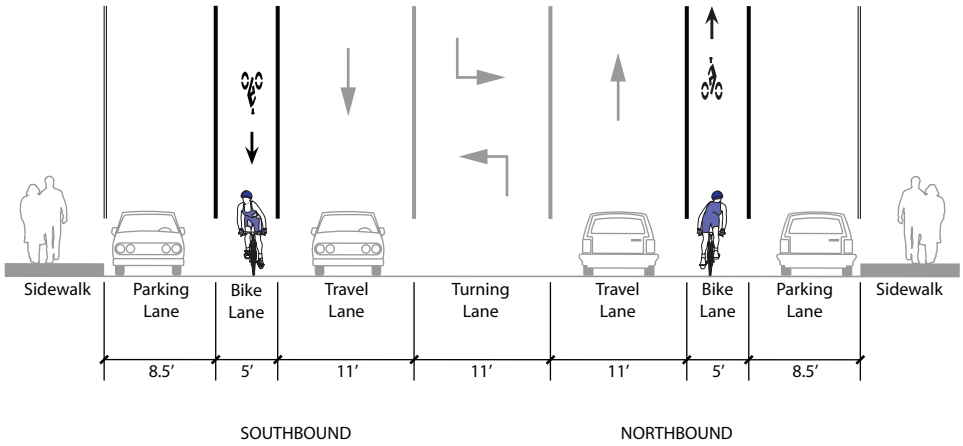


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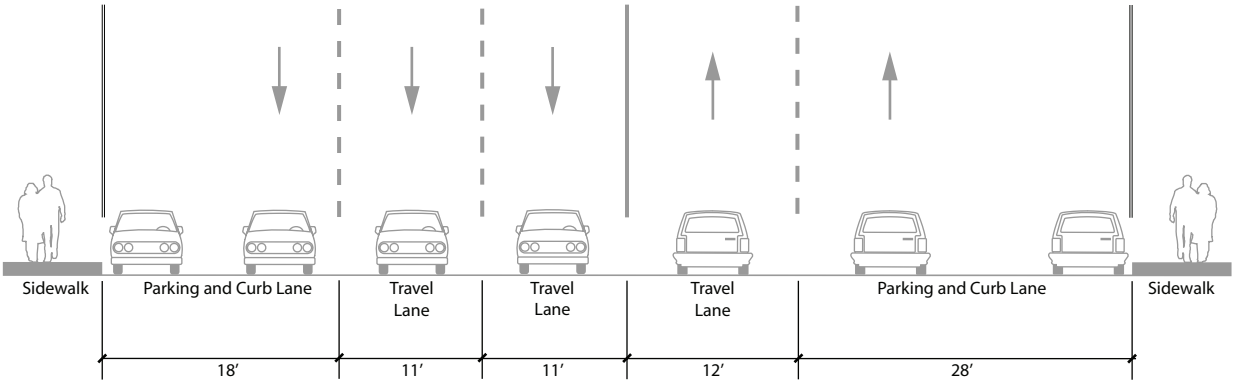
Figure 3-1A
PROPOSED CROSS-SECTIONS
529370/ELEVATIONS-BDWY - 11/29/06

Broadway - Broadway Terrace to College Ave

Existing (80′ curb-to-curb width)



Proposed Bike Lane - Class 2
(T3 cross-section)

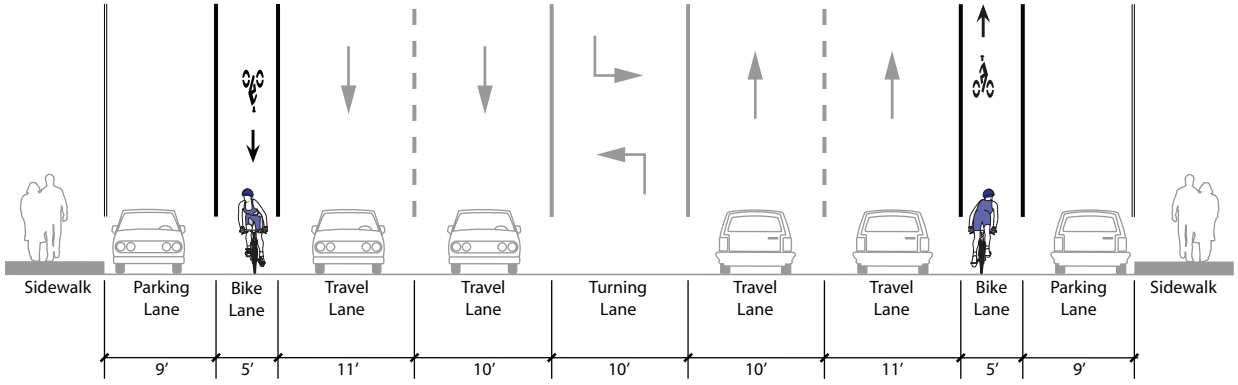


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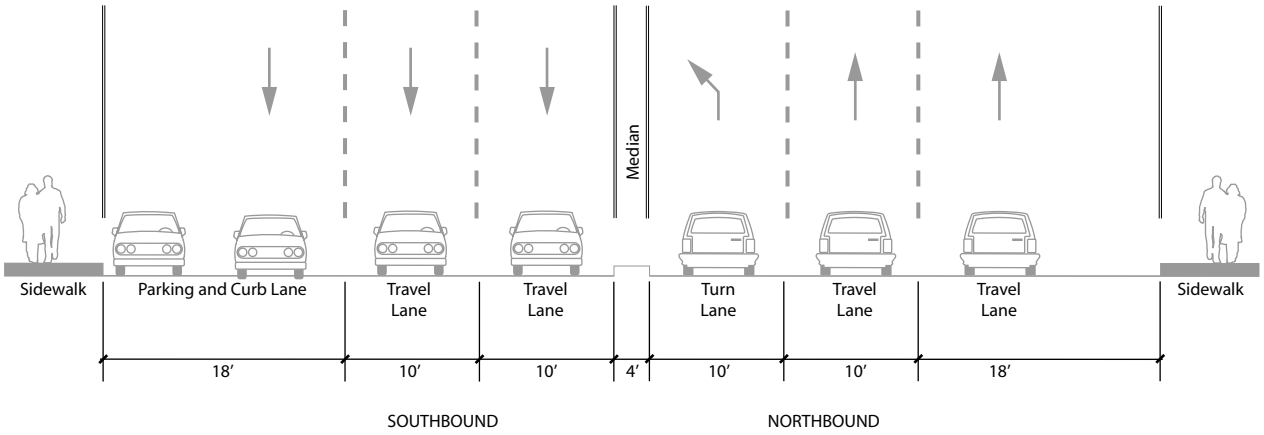
Figure 3-1B
PROPOSED CROSS-SECTIONS
529370/ELEVATIONS-BDWY - 11/29/06

Broadway - College Ave to 51st Street/Pleasant Valley

Existing (curb-to-curb width varies from 80' to 100'. Width is 80' between College and Coronado, then widens to 100' between Coronado and 51st Street/Pleasant Valley)



Proposed Bike Lane - Class 2
(T4 cross-section)

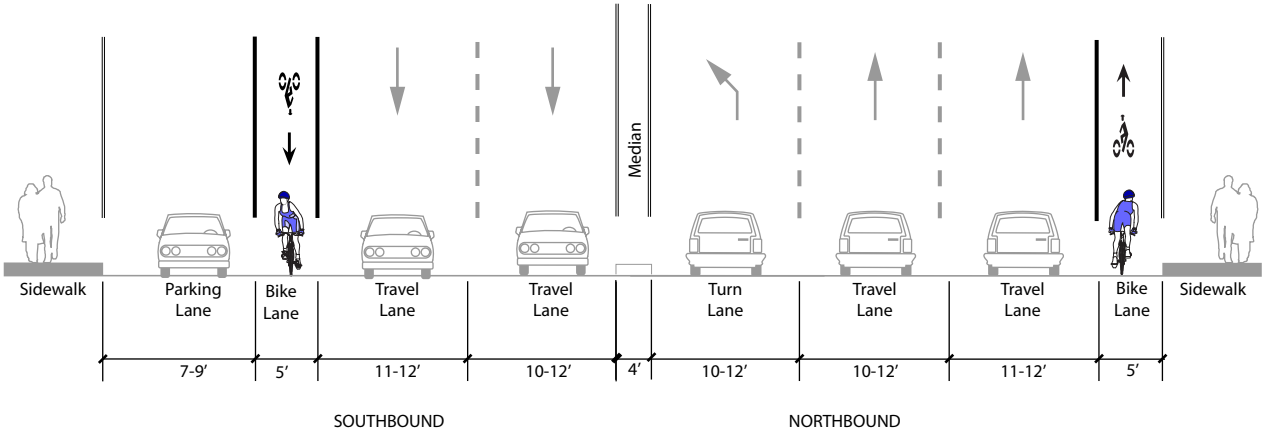


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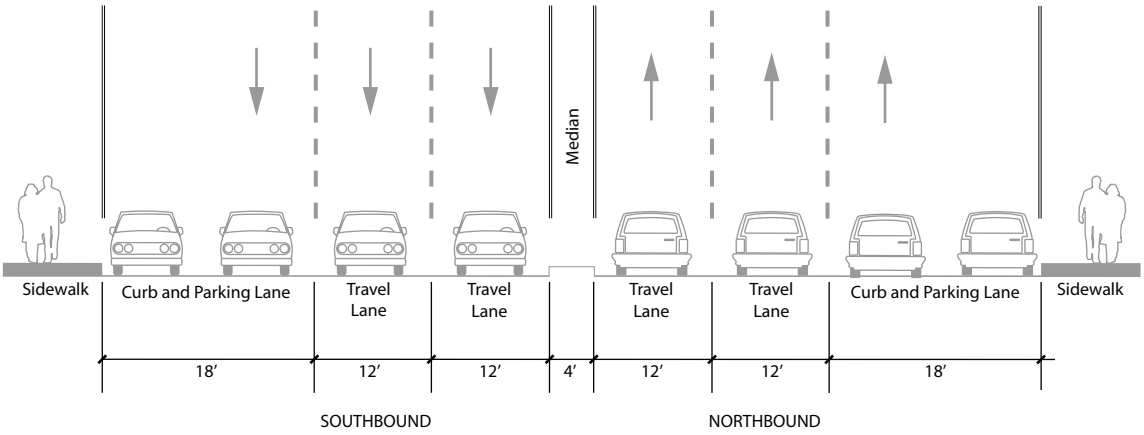
Figure 3-1C
PROPOSED CROSS-SECTIONS
529370/ELEVATIONS-BDWY - 11/29/06

Broadway - 51st Street/Pleasant Valley to MacArthur Blvd

Existing (80′ curb-to-curb width)



Proposed Bike Lane - Class 2
(T4 cross-section)

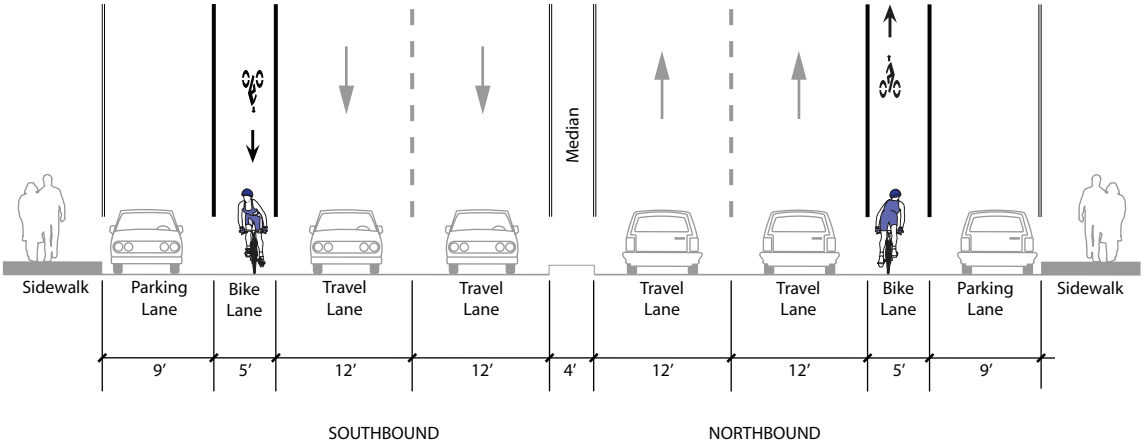


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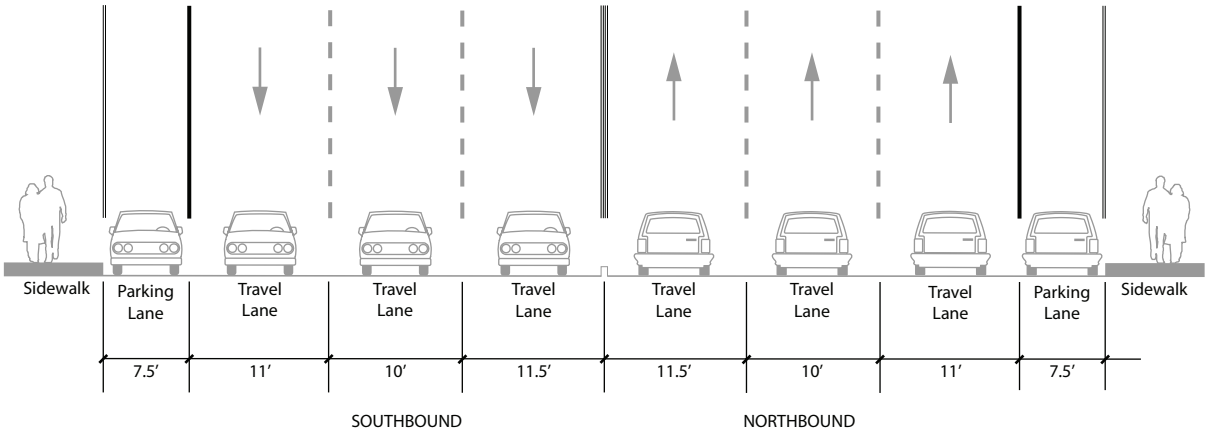
Figure 3-1D
PROPOSED CROSS-SECTIONS
529370/ELEVATIONS-BDWY - 11/29/06

Broadway - MacArthur Blvd to I-580

Existing (80′ curb-to-curb width)



Proposed Bike Lane - Class 2
(T4 cross-section)

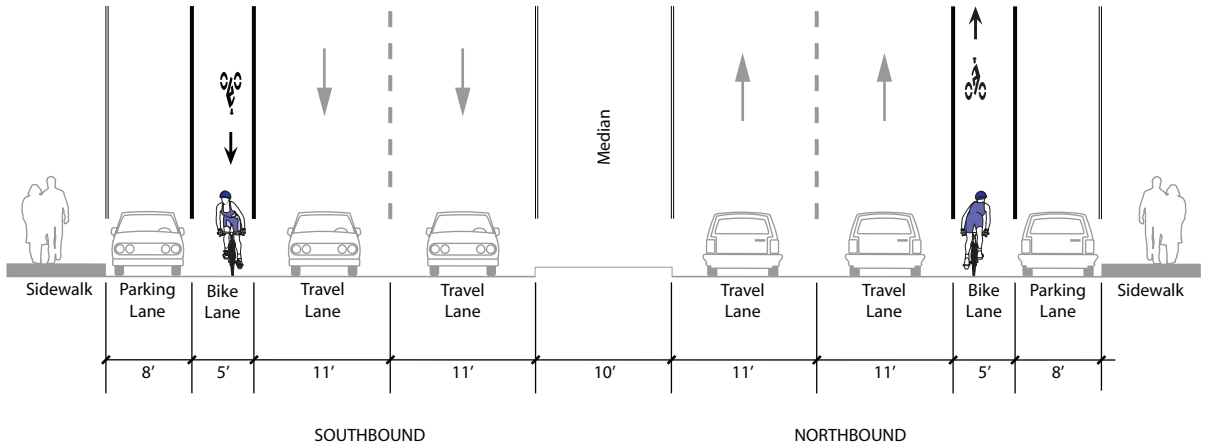


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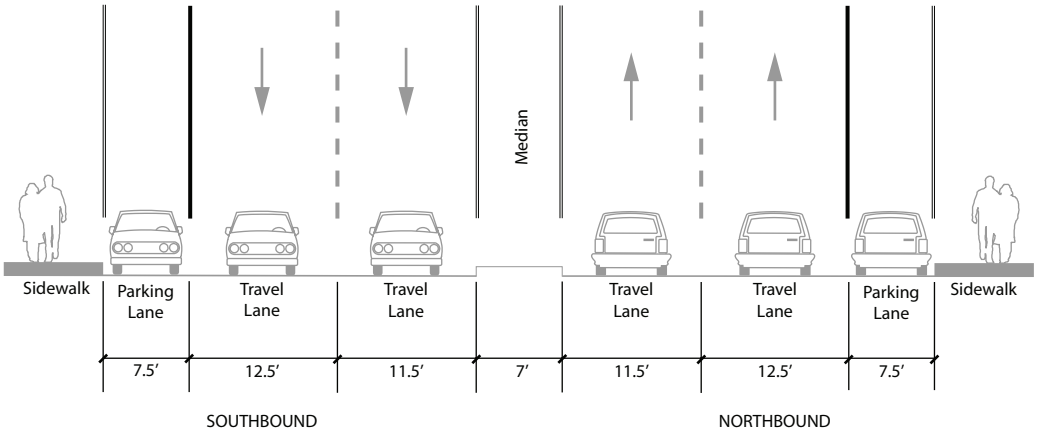
Figure 3-1E
PROPOSED CROSS-SECTIONS
529370/ELEVATIONS-BDWY - 11/29/06

Broadway - 25th St./Webster St. to 22nd St./Webster St.

Existing (70′ curb-to-curb width)



Proposed Bike Route - Class 3
(T4 cross-section)

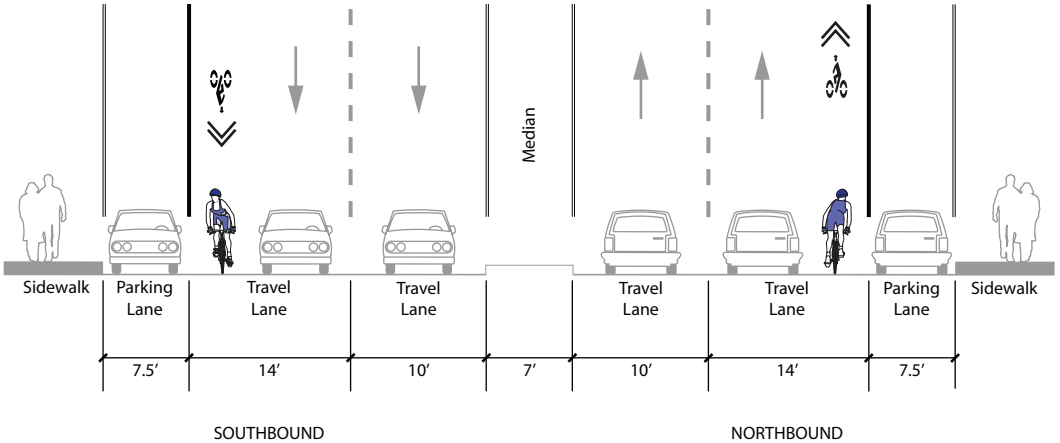


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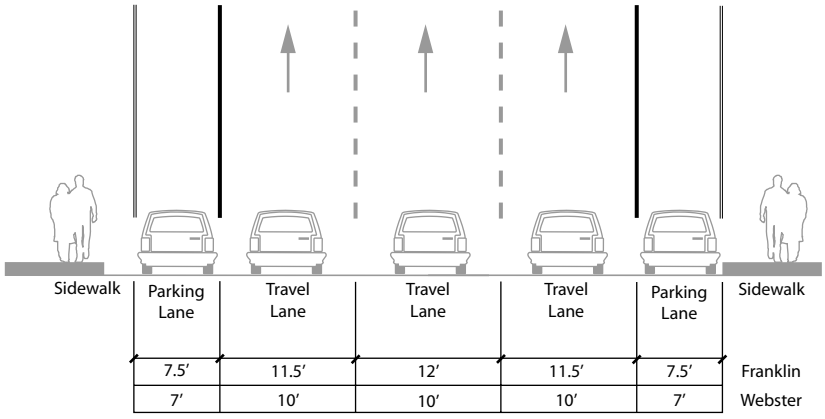
Figure 3-1F
PROPOSED CROSS-SECTIONS
529370/ELEVATIONS-BDWY - 11/29/06

Franklin - Broadway to 20th St. (Northbound)
Webster - Grand Ave. to 20th St. (Southbound)

Existing (50′ curb-to-curb width - Franklin)
(44′ curb-to-curb width - Webster)



Proposed Bike Lane - Class 2
(W2 cross-section)

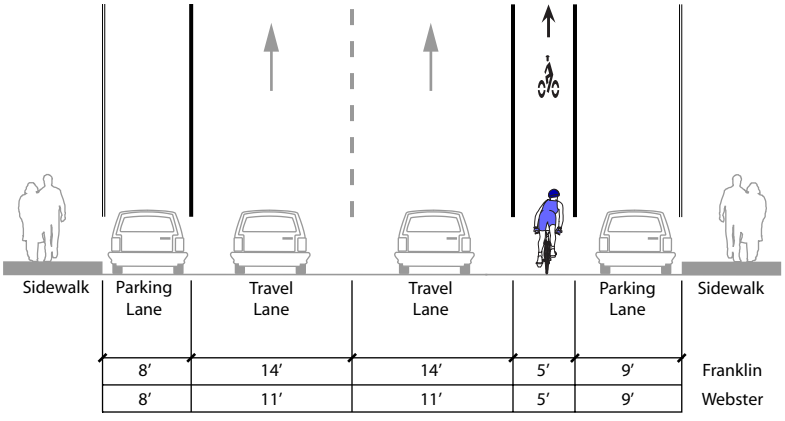


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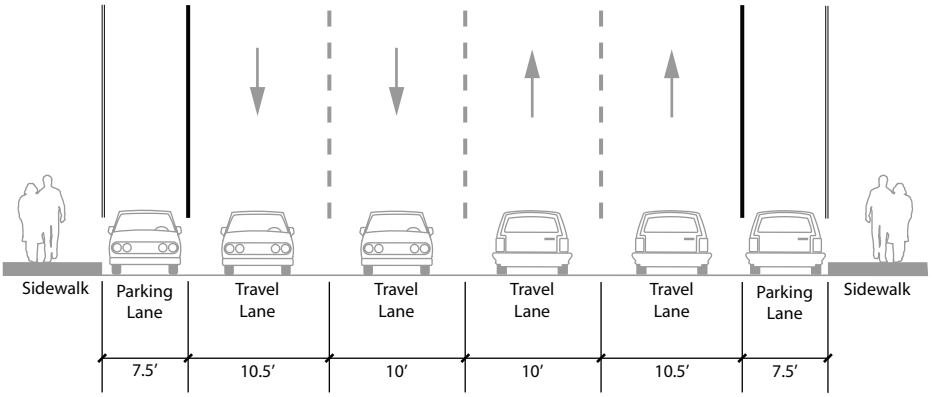
Figure 3-1G
PROPOSED CROSS-SECTIONS
529370/ELEVATIONS-BDWY - 11/29/06

Franklin - 20th St. to 14th St. (Northbound)
Webster - 20th St. to 14th St. (Southbound)

Existing (56′ curb-to-curb width)



Proposed Bike Lane - Class 2
(W3 cross-section)

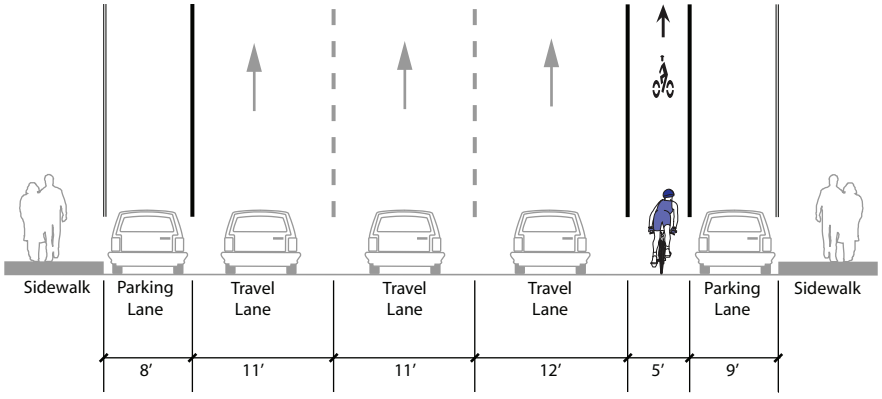


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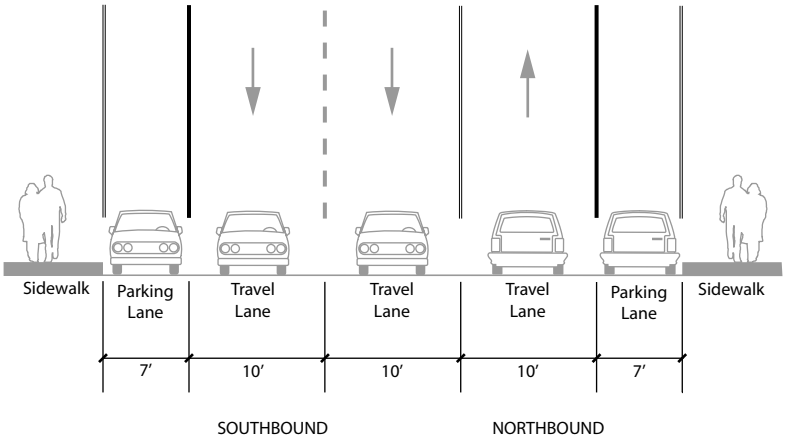
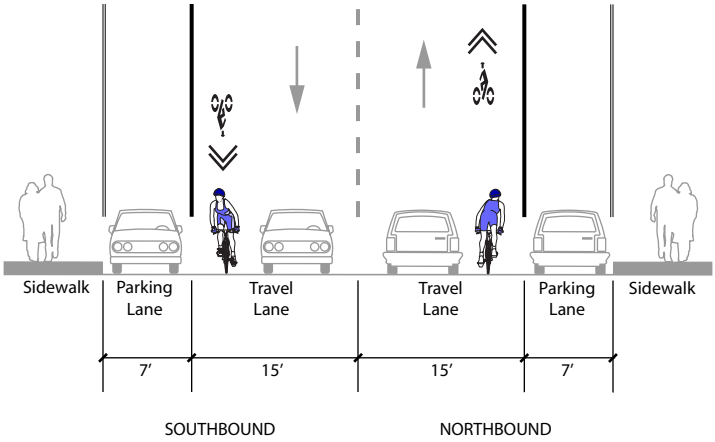
Figure 3-1H
PROPOSED CROSS-SECTIONS
529370/ELEVATIONS-BDWY - 11/29/06

Webster - 25th St./Broadway to Grand Ave.

Existing (44′ curb-to-curb width)



Proposed Bike Route - Class 3
(TS2 cross-section)



3.2 THRESHOLDS OF SIGNIFICANCE

3.2.1 Signalized Intersections

Significant traffic impacts at signalized intersections would occur if the project causes an increase in traffic that is substantial in relation to the baseline traffic load and capacity of the street system (i.e., result in a substantial increase in either the volume-to-capacity ratio on roads, or delay at intersections), or change the condition of an existing street (i.e., street closures, changing direction of travel) in a manner that would have a substantial impact on access or traffic load and capacity of the street system. Specifically, the project would have a significant impact if it would cause:

- The baseline level of service (LOS)[1] to change from an acceptable level (LOS D or better for a signalized intersection that is located ***outside*** the Downtown area[2]) to an unacceptable level;
- Exacerbation of unacceptable operations (LOS E for a signalized intersection that is located ***outside*** the Downtown area) by increasing the total intersection average vehicle delay by four or more seconds, or degrading the baseline operations from LOS E to LOS F;
- The baseline level of service (LOS) to change from an acceptable level (LOS E or better for a signalized intersection that is located ***within*** the Downtown area) to an unacceptable level;
- An increase in the average vehicle delay for any of the critical movement of six seconds or more, or degrade to worse than LOS E (i.e., LOS F) at a signalized intersection for ***all areas*** where the baseline level of service is LOS E;
- At a signalized intersection for all areas where the baseline level of service is LOS F :
  (a) The total intersection average vehicle delay to increase by two or more seconds,
  (b) An increase in average vehicle delay for any of the critical movements of four seconds or more, or
  (c) An increase in the volume-to-capacity (v/c) ratio that exceeds three percent (but only if the delay values cannot be measured accurately); or
- A project's contribution to cumulative impacts is considered "considerable" when the project contributes five percent or more of the cumulative traffic increase as measured by the difference between "Existing" and "2025 With Project" conditions and results in a substantial increase in traffic. In other words, the project must contribute 5%[3] or more of the incremental growth and exceed at least one of the thresholds listed above.

[1] LOS and delay are based on the *2000 Highway Capacity Manual*, Transportation Research Board.
[2] 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.
[3] The five percent threshold is based on the fact that day-to-day traffic volumes can fluctuate by as much as ten percent, and therefore a variation of less than five percent is unlikely to be perceptible to the average motorist.

3.2.2 Roadway Segments

The project would have a significant impact on regional roadways if it would cause a roadway segment on the Metropolitan Transportation System to operate at LOS F or increase the v/c ratio by more than three percent for a roadway segment that would operate at LOS F without the project.[4] The roadway analysis uses the 2025 baseline forecasts from the ACCMA Countywide Travel Demand Forecasting Model, which capture the cumulative effects of future growth on the regional roadways.

3.2.3 Transit

The proposed project would have a significant impact on transit services if it would generate added transit ridership and include the following:

(a) Increase the average ridership on AC Transit lines by three percent at bus stops where the average load factor with the project in place would exceed 125 percent over a peak 30-minute period;

(b) Increase the peak-hour average ridership on BART by three percent where the passenger volume would exceed the standing capacity of BART trains; or

(c) Increase the peak-hour average ridership at a BART station by three percent where average waiting time at fare gates would exceed one minute.

3.2.4 Traffic, Circulation and Safety

The project would have a significant effect on circulation if it would increase traffic hazards to motor vehicles, bicycles, or pedestrians due to a design feature (e.g., sharp curves or dangerous intersections) that does not comply with Caltrans design standards (as defined by the latest edition of the Caltrans Highway Design Manual), or due to incompatible uses. For the purposes of this study, when Caltrans design standards were unavailable or unclear, then other documents, such as A Policy on Geometric Design of Highways and Streets, the Manual of Uniform Traffic Control Devices (MUTCD), and other design manuals, were used (AASHTO, 2001; FHWA, 2000).

The project would have a significant effect on pedestrian safety if it would substantially increase traffic hazards to pedestrians due to introduction of incompatible uses or to a design feature (e.g., sharp curves or dangerous intersections) that does not comply with Caltrans design standards.

3.2.5 Parking (non-CEQA)

The Court of Appeals has held that parking is not a part of the permanent physical environment, that parking conditions change over time as people change their travel patterns, and that unmet parking demand created by a project need not be considered a significant environmental impact under CEQA unless it would cause significant secondary effects. Parking supply/demand varies by time of day, day of week, and seasonally. As parking demand increases faster than the supply, parking prices rise to reach equilibrium between supply and demand. Decreased availability and increased costs result in changes to people's mode and pattern of travel.

[4] LOS and delay are based on the *Highway Capacity Manual*, Transportation Research Board, National Research Council, 1985, as required by the Alameda County CMA.

However, the City of Oakland, in its review of the proposed project, wants to ensure that the project's effect on parking spaces along with measures to lessen parking demand (by encouraging the use of non-auto travel modes) would result in minimal adverse effects to project occupants and visitors, and that any secondary effects (such as on air quality due to drivers searching for parking spaces) would be minimized. Although not required by CEQA, parking conditions are evaluated in this document.

Parking deficits may be associated with secondary physical environmental impacts, such as air quality and noise effects, caused by congestion resulting from drivers circling as the block for a parking space. However, the absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit service, shuttles, taxis, bicycles or travel by foot), may induce drivers to shift to other modes of travel, or change their overall travel habits. Any such resulting shifts to transit service, in particular, would be in keeping with the City's "Transit First" policy.

Additionally, regarding potential secondary effects, cars circling and looking for a parking space in areas of limited parking supply are typically temporary conditions, often offset by a reduction in vehicle trips due to others who are aware of constrained parking conditions in a given area. Hence, any secondary environmental impacts that might result from a shortfall in parking in the vicinity of the proposed project are considered less than significant.

3.3 INTERSECTION OPERATING CONDITIONS

The geometric configurations of the study intersections are modified based on the proposed prototype cross-sections for the project-level analysis as mentioned in Table 3-1. The proposed intersection lane configurations under Project Conditions are presented in Figure 3-2. The resulting LOS of the study intersections under the Existing plus Project Conditions are summarized in Table 3-2 and compared to their level of service under existing conditions.

Under the Existing plus Project Conditions, 23 of the 24 study intersections operate at an acceptable LOS during the AM peak period. The only intersection operating under unacceptable conditions during the AM peak period is Broadway/51st Street/Pleasant Valley Avenue. This intersection is currently operating at LOS E but would operate at LOS F under Existing plus Project Conditions. Other intersections in the study corridor would experience some increase in delay with the more major increases occurring on the northern segment intersections (intersections located on Broadway between Keith Avenue and 40th Street). No change in delay was observed on the central segment intersections (intersections located on Broadway between MacArthur Boulevard and 22nd Street/Franklin Street). On the southern segment intersections (intersections located on Franklin and Webster Streets between Grand Avenue and 14th Street) only minor increases in delay were observed.

During the PM peak period, all study intersections operate under acceptable conditions except the two intersections of Broadway/Broadway Terrace and Broadway/51st Street/Pleasant Valley Avenue. Both intersections would operate at LOS F under Existing plus Project Conditions during the PM peak period. It should be noted that the Broadway/51st Street/Pleasant Valley Avenue intersection currently operates at LOS F. Similar to the AM peak period, other intersections in the study corridor would experience some increase in delay with the more major increases occurring on the northern segment. No change in delay was observed on the central segment intersections with only minor increases in delay on the southern segment intersections.

Table 3-2
Comparison of Peak Hour Intersection Levels of Service – Existing Conditions / Existing plus Project Conditions

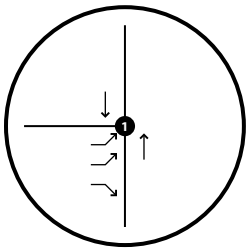
	AM Peak				PM Peak			
	Existing		Existing plus Project		Existing		Existing plus Project	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Broadway/Keith Avenue	9.8	A	15.3	B	14.1	B	33.2	C
2. Broadway/Manila Avenue/Monroe Avenue	15.0	B	15.3	B	13.5	B	16.6	B
3. Broadway/Broadway Terrace	15.4	B	33.7	C	15.8	B	**>80**	**F**
4. Broadway/College Avenue	10.5	B	11.0	B	20.0	C	20.5	C
5. Broadway/51st Street/Pleasant Valley Avenue[A2 / P5]	**61.7**	**E**	**>80**	**F**	**>80**	**F**	**>80**	**F**
6. Broadway/42nd Street/Mather Street	6.3	A	6.8	A	5.5	A	6.3	A
7. Broadway/40th Street	10.5	B	11.2	B	17.2	B	20.4	C
8. Broadway/MacArthur Boulevard	46.0	D	46.4	D	44.2	D	45.7	D
9. Broadway/Piedmont Avenue	19.9	B	19.9	B	23.9	C	23.9	C
10. Broadway/Hawthorne Avenue/Brook Street	21.0	C	21.0	C	15.9	B	15.9	B
11. Broadway/27th Street	11.1	B	11.1	B	12.7	B	12.7	B
12. Broadway/26th Street	2.7	A	2.7	A	4.6	A	4.6	A
13. Broadway/25th Street/Webster Street	4.1	A	4.1	A	6.0	A	6.0	A
14. Broadway/W Grand Avenue[1]	14.4	B	14.4	B	16.0	B	16.0	B
15. Broadway/22nd Street/Franklin Street[1]	12.8	B	12.8	B	12.4	B	12.4	B
16. Webster Street/W Grand Avenue[1]	25.3	C	25.6	C	40.3	D	41.5	D
17. Webster Street/20th Street[1]	19.8	B	20.1	C	20.3	C	20.7	C

Table 3-2
Comparison of Peak Hour Intersection Levels of Service – Existing Conditions / Existing plus Project Conditions

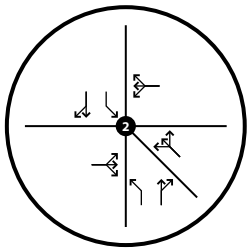
	AM Peak				PM Peak			
	Existing		Existing plus Project		Existing		Existing plus Project	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
18. Franklin Street/20th Street[1]	10.3	B	10.4	B	10.7	B	10.7	B
19. Webster Street/19th Street[1]	8.4	A	8.5	A	9.2	A	9.4	A
20. Franklin Street/19th Street[1]	7.7	A	7.8	A	5.9	A	5.9	A
21. Webster Street/17th Street[1]	4.0	A	4.1	A	4.6	A	4.9	A
22. Franklin Street/17th Street[1]	11.2	B	11.2	B	10.4	B	10.6	B
23. Webster Street/14th Street[1]	10.0	A	10.2	B	10.3	B	10.7	B
24. Franklin Street/14th Street[1]	6.3	A	6.4	A	7.3	A	7.4	A

Source: Wilbur Smith Associates, June 2006

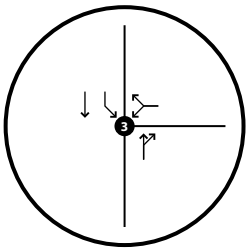
NOTES:
1 – Intersection located in the Oakland Downtown.
A2 – During AM peak hour, project impact meets the second threshold of significance.
P5 – During PM peak hour, project impact meets the fifth threshold of significance.
LOS – Level of Service
Delay is presented in seconds per vehicle.
Intersection vehicular delays are presented per Synchro output.
Bold indicates unacceptable LOS.



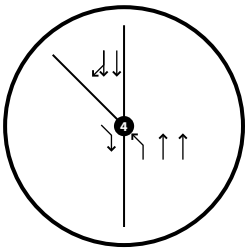
Broadway/Keith Ave.



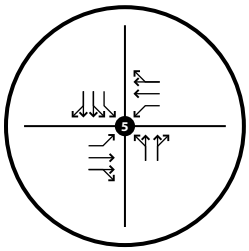
Broadway/Manila Ave./Monroe Ave.



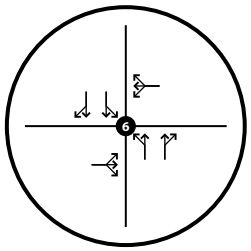
Broadway/Broadway Terrace



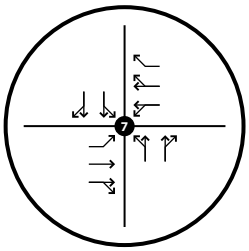
Broadway/College Ave.



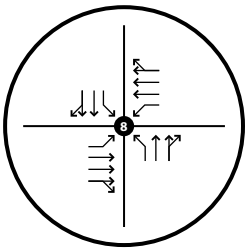
Broadway/51st Street/Pleasant Valley Ave.



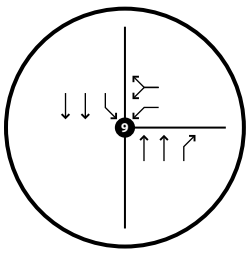
Broadway/42nd Street/Mather Street



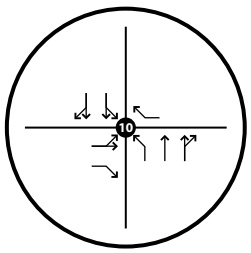
Broadway/40th Street



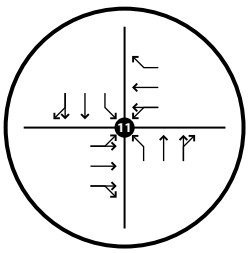
Broadway/MacArthur Blvd.



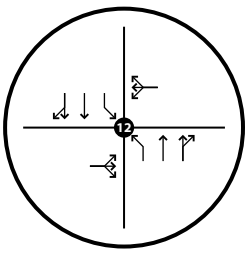
Broadway/Piedmont Ave.



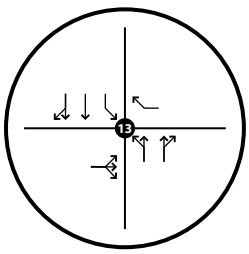
Broadway/Hawthorne Ave./Brook Street



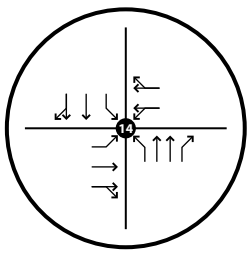
Broadway/27th Street



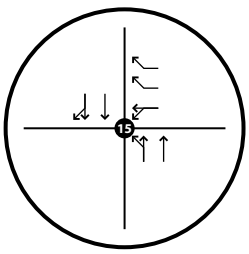
Broadway/26th Street



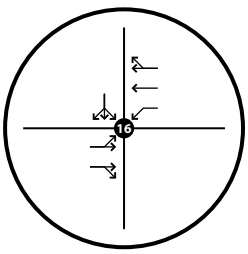
Broadway/25th Street/Webster Street



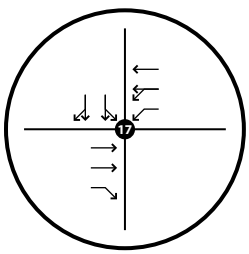
Broadway/W. Grand Ave.



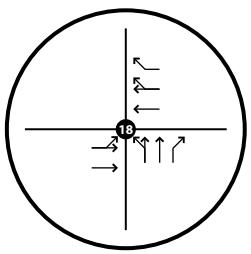
Broadway/Franklin Street/22nd Street



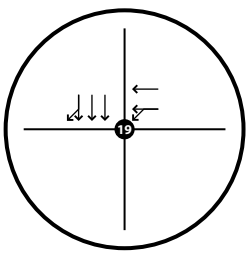
Webster Street/W. Grand Ave.



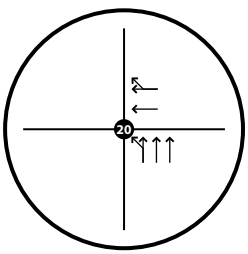
Webster Street/20th Street



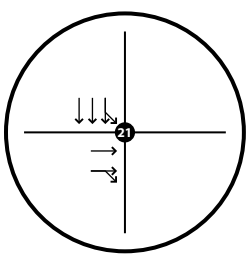
Franklin Street/20th Street



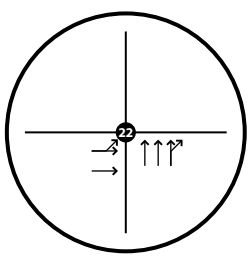
Webster Street/19th Street



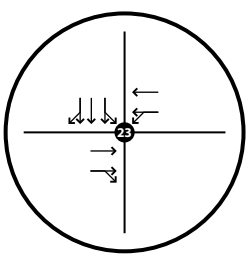
Franklin Street/19th Street



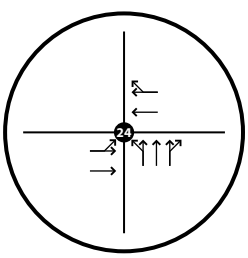
Webster Street/17th Street



Franklin Street/17th Street



Webster Street/14th Street



Franklin Street/14th Street

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Figure 3-2
INTERSECTION GEOMETRIC CONFIGURATIONS
EXISTING PLUS PROJECT CONDITIONS

3.4 INTERSECTION IMPACTS AND MITIGATION MEASURES

This section discusses the transportation impacts associated with the proposed project on the study intersections under Existing Conditions along with recommendations for mitigation to reduce the impacts to less-than-significant levels. This discussion focuses on the operation of the intersections; recommended mitigation measures are expected to be incorporated with proposed segment cross-sections described in Table 3-1.

Impact 3.4A: Transportation impact at intersection of Broadway/Broadway Terrace under Existing plus Project Conditions

Under Existing Conditions, the Broadway/Broadway Terrace intersection is operating at LOS B during both AM and PM peak hours. Under Existing plus Project Conditions, the intersection LOS would degrade to LOS C during AM peak hour and LOS F during PM peak hour. Per *City of Oakland CEQA Thresholds/Criteria of Significance Guidelines*, a project would cause significant impact if the LOS of a signalized intersection located outside the Oakland Downtown area would be degraded to worse than LOS D. Based on the definition of Oakland Downtown area provided in the *Oakland General Plan*, the Broadway/Broadway Terrace intersection is located outside the Downtown area. Since the proposed project would degrade the LOS of this intersection during the PM peak hour from LOS B to LOS F, the proposed project is expected to result in a significant impact at the intersection.

Mitigation: The following mitigation measures are recommended:

- Northbound approach – Change shared through-right-turn lane to an exclusive right-turn lane; and
- Southbound approach – Change the exclusive left-turn lane to a shared through-left-turn lane.

Impact after Mitigation: With application of the above mitigation measures, the intersection would operate at LOS B during the AM peak hour and LOS A during the PM peak hour resulting in less-than-significant impact as shown in Chapter 6, Table 6-1.

Impact 3.4B: Transportation impact at intersection Broadway/51st Street/Pleasant Valley Avenue under Existing plus Project Conditions

Under Existing Conditions, the Broadway/51st Street/Pleasant Valley Avenue intersection is operating at LOS E and LOS F during the AM and PM peak hours, respectively. Under Existing plus Project Conditions, the LOS of the intersection would drop to LOS F during the AM peak period and remain at LOS F during the PM peak period. Per *City of Oakland CEQA Thresholds/Criteria of Significance Guidelines*, a project would cause significant impact if the average vehicle delay at a signalized intersection operating at LOS F would be increased by two (2) or more seconds. Under Existing plus Project Conditions, the proposed project would increase the average vehicle delay by more than two seconds and continue to operate at LOS F during the PM peak period. During the AM peak period, the intersection LOS would degrade to worse than LOS E. According to the significance criteria, the proposed project would result in a significant impact at this intersection under Existing plus Project Conditions during both the AM and PM peak periods.

Mitigation: The following mitigation measure is recommended:

- End the bike lanes in advance of the intersection to maintain the existing lane configuration at each approach on Broadway. On the far side of the intersection, the bike lanes would resume after the current three travel lanes merge to two travel lanes.

Impact after Mitigation: With application of the above mitigation measure, the intersection would operate at the same LOS under "Existing Conditions" and "Existing Plus Recommended Improvements Conditions" and thus the Project would not cause an impact.

The following alternative was considered to lessen the increase in motor vehicle delay associated with the Project while still providing an improvement in bicycle conditions. This alternative would still cause a significant impact and is thus not recommended. (See Figure 6-5A and Figure 6-5B for a conceptual plan of this alternative.)

- Northbound and southbound approaches – End the bike lane before the intersection to retain the existing number of travel lanes at the approaches. Change the shared through-left-turn lane to an exclusive left-turn lane; and
- Adjust signal timing from split phase to protected left-turn timing.

With application of the above modifications, the intersection would operate at LOS E during the AM peak hour and LOS F during the PM peak hour. There would be an increase in vehicle delay from 61.6 to 70.0 seconds in the AM peak hour and from 117.5 to 189.2 seconds in the PM peak hour. Per *City of Oakland CEQA Thresholds/Criteria of Significance Guidelines*, this would result in a significant impact. To pursue this alternative, the City of Oakland would be required to prepare further environmental review that identifies significant and unavoidable impacts for which the City must adopt a statement of overriding considerations.

3.5 TRANSIT

The proposed project is not expected to significantly affect transit services. It should be noted that while the project proposes reductions in travel lanes (from 2 to 1) on the segment of Broadway from Highway 24 to College Avenue and on Webster Street from 25th Street to Grand Avenue, there is no transit service on these segments.

Similarly, travel lane reductions from four to three and three to two on southern segments of Webster and Franklin Streets would not significantly affect transit service because these segments have limited bus service and operate as one-way facilities on streets with relatively low traffic volumes. Transit service is limited to Route 15 on Franklin Street with two buses per hour between 12th and 20th Streets and Route 802 on Webster Street between 12th and 17th Streets with hourly all night service.

AC Transit currently operates a major bus route, Route 51 and night service, Route 851, along the Broadway Corridor between College Avenue and 14th Street. On average there are 6 buses per hour on Route 51. Route 851 begins service at midnight to replace Route 51 and operates at hourly intervals. It is expected with the proposed project that the addition of bike lanes would increase bicycle traffic on this section of Broadway. Consequently the potential for conflict between buses and bicycles would increase. Obviously, the addition of bike lanes is intended to improve safety conditions for all users. While the removal of traffic lanes is recommended along this section of the Broadway Corridor to accommodate bike lanes, at least two travel lanes are maintained in each direction along the segments that are also used by transit. This allows additional travel lanes for buses to safely pass bicyclists, double parked vehicles and slower traffic without compromising bicyclist or motorist safety or resulting in schedule delays. These travel lanes also provide the roadway width for bicyclists to safely pass stopped and loading buses on the left. Although, it is expected that the proposed project would not have a significant affect on transit service, it would be beneficial for the City, AC Transit and the bicycle community to work together to address concerns related to the behaviors of bicyclists, motorists and bus drivers which compromise safety on the roadway.

In terms of ridership impact, the proposed project is not expected to generate additional trips associated with this development.

3.6 PEDESTRIAN

The proposed project is not recommending modification to or removal of pedestrian facilities such as sidewalks, crosswalks, or refuge islands. The proposed bike lanes on the Broadway Corridor would provide a beneficial impact to pedestrian facilities. Bicycle lanes provide an added buffer between the sidewalk and the vehicle travel lanes. In addition, on-street bikeways that propose a travel lane removal would decrease the number of vehicle lanes a pedestrian would need to traverse when crossing the street.

3.7 BICYCLE

The proposed project recommends the addition of bikeway facilities including bike lanes and bike routes in the Broadway Corridor. The project would not disrupt existing bicycle facilities

on Broadway or those which connect to the corridor on Broadway, Webster Street or Franklin Street. Instead the proposed project would provide improved conditions for bicycle travel in the Broadway Corridor. The bike lanes along most of the corridor provide a designated space only for bicycles on the roadway. In addition, the width of the bike lane and parking lanes provides some clearance from the door zone of parked cars and would result in reduction of collisions caused by 'dooring' (opening of parked car doors into path of bicycle). Bike lane and route signage and pavement markings will alert motorists to the likelihood of bicyclists on the road and improve the function of the roadways as a multi-modal facility. Bikeway signage would also provide direction for bicyclists to major destinations and to other bikeways that intersect with the Broadway Corridor.

3.8 PARKING

The proposed project would not generate additional trips and thereby increase the demand for parking on the Broadway Corridor. In fact, with the implementation of bike lanes, there is the potential that trips currently made by car will instead be made by bicycle resulting in a reduction in parking demand. In addition, no parking spaces would be removed to implement the bicycle facilities. Therefore, the proposed project would not significantly affect parking in the Broadway Corridor.

3.9 CONSTRUCTION

Construction activities for the implementation of bike lanes and routes along the Broadway Corridor would be temporary and would not significantly affect operation of these roadways. Restriping of existing lanes and reconfiguring of intersections as required by the project would be conducted during off-peak periods to minimize the effect of these improvements. Additionally, projects will implement standard construction management practices consistent with the standard conditions of approval that the City uniformly applies to construction projects.

Chapter 4
CUMULATIVE CONDITIONS

This chapter presents the results of the level of service calculations under Cumulative Conditions Year 2025. Cumulative Conditions are defined as Existing Condition volumes that are increased by growth rates from the date of analysis through Year 2025. Information regarding the growth rates is discussed later in this chapter.

4.1 CUMULATIVE CONDITIONS TRAFFIC FORECASTS (2025)

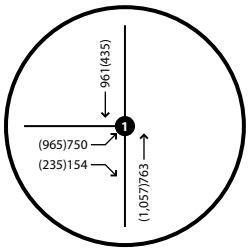
The 2025 traffic volume forecasts and the base year volumes (2006), which correspond to the existing level of development within the project study area, were provided as roadway link volumes to WSA by the City of Oakland in May 2006. WSA applied the link-volume forecasts to develop the 2025 intersection-level forecasts as described below.

Peak hour intersection turning volumes were developed for each study intersection from the provided link-volume forecasts. These turning movement volumes were developed using 'furnessing' process. The 'furnessing' process used by WSA is in accordance with NCHRP 255: Highway Traffic Data for Urbanized Area Project Planning & Design (Chapter 8). This process involves balancing the intersection volumes and using an iterative process to compare them to the existing traffic distribution. The process seeks to balance the total ins and outs from each approach to the volumes projected by the model. Figure 4-1 presents the resulting peak hour volumes under 2025 conditions.

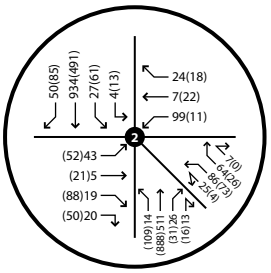
4.2 INTERSECTION OPERATING CONDITIONS UNDER CUMULATIVE CONDITIONS (2025) NO PROJECT

Table 4.1 presents the operating conditions of the study intersections under Year 2025 AM and PM peak hour conditions. During the AM peak period, all intersections would operate under acceptable conditions except the intersection of Broadway/51st Street/Pleasant Valley Avenue. This intersection would operate at LOS F under Year 2025 in the AM peak period.

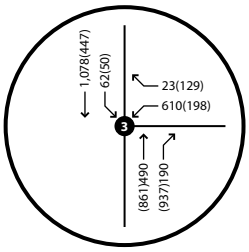
During the PM peak period, 22 of the 24 study intersections would operate at an acceptable LOS. The two study intersections that would operate under unacceptable conditions are Broadway/51st Street/Pleasant Valley Avenue (LOS F) and Broadway/MacArthur Boulevard (LOS E). The SYNCHRO calculation worksheets are included in Appendix D.



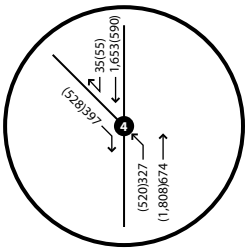
Broadway/Keith Ave.



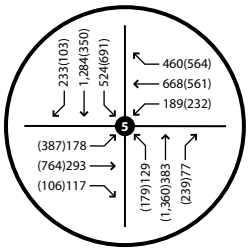
Broadway/Manila Ave./Monroe Ave.



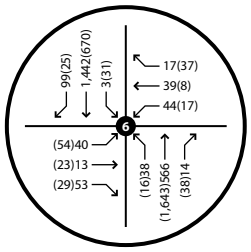
Broadway/Broadway Terrace



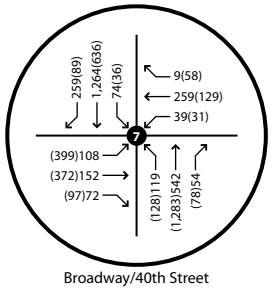
Broadway/College Ave.



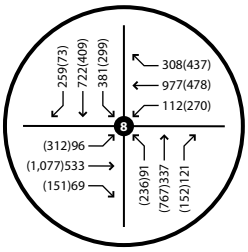
Broadway/51st Street/Pleasant Valley Ave.



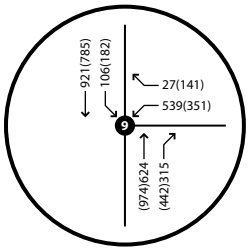
Broadway/42nd Street/Mather Street



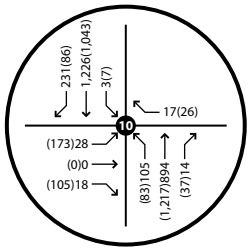
Broadway/40th Street



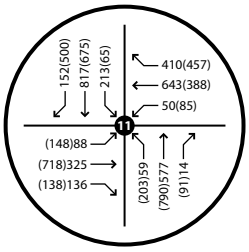
Broadway/MacArthur Blvd.



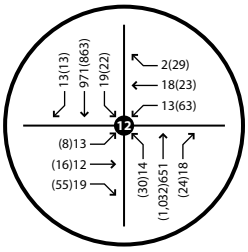
Broadway/Piedmont Ave.



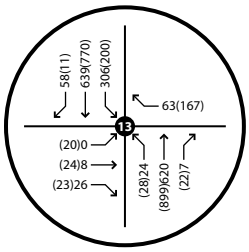
Broadway/Hawthorne Ave./Brook Street



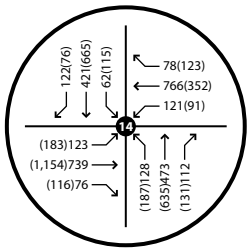
Broadway/27th Street



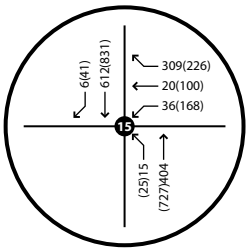
Broadway/26th Street



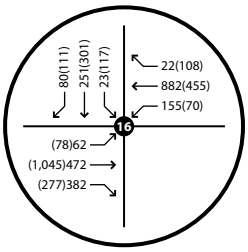
Broadway/25th Street/Webster Street



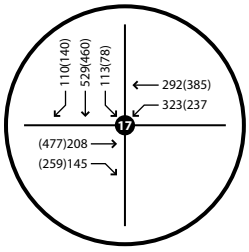
Broadway/W. Grand Ave.



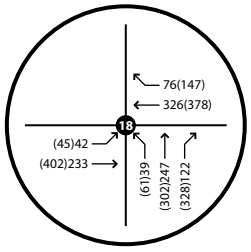
Broadway/Franklin Street/22nd Street



Webster Street/W. Grand Ave.



Webster Street/20th Street



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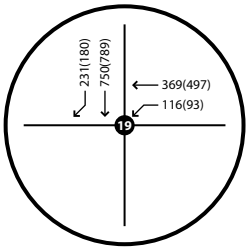
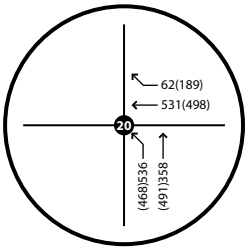


Webster Street/19th Street



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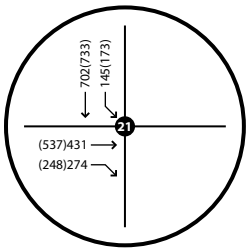
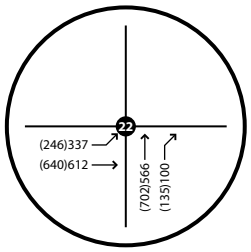


Webster Street/17th Street



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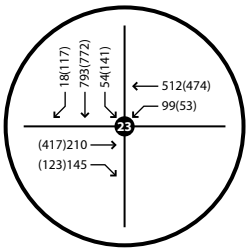
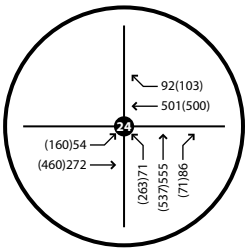


Webster Street/14th Street



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LEGEND 269(160) - AM(PM) Peak Hour Volumes

Figure 4-1
AM/PM PEAK HOUR INTERSECTION VOLUMES - YEAR 2025 CONDITIONS

Table 4-1
Peak Hour Intersection Levels of Service – Cumulative Conditions (2025) No Project

Intersection	AM Peak Delay	AM Peak LOS	PM Peak Delay	PM Peak LOS
1. Broadway/Keith Avenue	11.5	B	14.8	B
2. Broadway/Manila Avenue/Monroe Avenue	17.6	B	19.2	B
3. Broadway/Broadway Terrace	22.6	C	23.1	C
4. Broadway/College Avenue	20.4	C	28.6	C
5. Broadway/51st Street/Pleasant Valley Avenue	**>80**	**F**	**>80**	**F**
6. Broadway/42nd Street/Mather Street	6.2	A	5.7	A
7. Broadway/40th Street	12.2	B	21.9	C
8. Broadway/MacArthur Boulevard	48.1	D	**62.1**	**E**
9. Broadway/Piedmont Avenue	25.8	C	20.3	C
10. Broadway/Hawthorne Avenue/Brook Street	25.5	C	23.6	C
11. Broadway/27th Street	14.9	B	30.1	C
12. Broadway/26th Street	2.8	A	6.2	A
13. Broadway/25th Street/Webster Street	5.4	A	8.6	A
14. Broadway/Grand Avenue[1]	15.4	B	21.4	C
15. Broadway/22nd Street/Franklin Street[1]	10.4	B	12.0	B
16. Webster Street/Grand Avenue[1]	18.0	B	18.8	B
17. Webster Street/20th Street[1]	20.1	C	21.7	C
18. Franklin Street/20th Street	12.0	B	10.6	B
19. Webster Street/19th Street[1]	8.5	A	9.4	A
20. Franklin Street/19th Street[1]	8.0	A	6.2	A
21. Webster Street/17th Street[1]	4.9	A	5.6	A
22. Franklin Street/17th Street[1]	10.8	B	10.8	B
23. Webster Street/14th Street[1]	9.6	A	11.1	B
24. Franklin Street/14th Street[1]	8.4	A	9.3	A

NOTES: Source: Wilbur Smith Associates, June 2006
1 – Intersection located in the Oakland Downtown area.
LOS – Level of Service
Delay is presented in seconds per vehicle.
Intersection vehicular delays are presented per Synchro output.
Bold indicates unacceptable LOS.

4.3 YEAR 2025 PLUS PROJECT INTERSECTION OPERATING CONDITIONS

Table 4-2 exhibits the delay and LOS values of the study intersections under Year 2025 plus Project during both the AM and PM peak hour conditions. Under Year 2025 plus Project Conditions, 22 of the 24 study intersections would operate at an acceptable LOS during the AM peak period. The two intersections that would operate under unacceptable conditions under Year 2025 plus Project Conditions are the Broadway/Broadway Terrace and Broadway/51st Street/Pleasant Valley Avenue intersections. These intersections are expected to operate at LOS F.

During the PM peak period, all the study intersections are expected to operate under acceptable conditions except the following four intersections:

- Broadway/Broadway Terrace
- Broadway/51st Street/Pleasant Valley Avenue
- Broadway/40th Street
- Broadway/MacArthur Boulevard.

The intersections of Broadway/Broadway Terrace and Broadway/51st Street/Pleasant Valley Avenue would operate at LOS F, while the intersections of Broadway/40th Street and Broadway/MacArthur Boulevard would operate at LOS E during the PM peak period. The SYNCHRO calculation worksheets under Year 2025 plus Project Conditions are included in Appendix E.

Table 4-2
Comparison of Peak Hour Intersection Levels of Service – Year 2025 Conditions / Year 2025 plus Project Conditions

Intersection	AM Peak				PM Peak			
	Year 2025 No Project		Year 2025 plus Project		Year 2025 No Project		Year 2025 plus Project	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Broadway/Keith Avenue	11.5	B	22.7	C	14.8	B	44.8	D
2. Broadway/Manila Avenue/Monroe Avenue	17.6	B	41.4	D	19.2	B	30.3	C
3. Broadway/Broadway Terrace	22.6	C	**>80**	**F**	23.1	C	**>80**	**F**
4. Broadway/College Avenue	20.4	C	25.2	C	28.6	C	28.8	C
5. Broadway/51st Street/Pleasant Valley Avenue[A5 / P5]	**>80**	**F**	**>80**	**F**	**>80**	**F**	**>80**	**F**
6. Broadway/42nd Street/Mather Street	6.2	A	7.6	A	5.7	A	8.0	A
7. Broadway/40th Street	12.2	B	15.2	B	21.9	C	**55.2**	**E**
8. Broadway/MacArthur Boulevard	48.1	D	48.6	D	**62.1**	**E**	**70.6**	**E**
9. Broadway/Piedmont Avenue	25.8	C	25.8	C	20.3	C	20.3	C
10. Broadway/Hawthorne Avenue/Brook Street	25.5	C	25.5	C	23.6	C	23.6	C
11. Broadway/27th Street	14.9	B	14.9	B	30.1	C	30.1	C
12. Broadway/26th Street	2.8	A	2.8	A	6.2	A	6.2	A
13. Broadway/25th Street/Webster Street	5.4	A	5.4	A	8.6	A	8.6	A
14. Broadway/Grand Avenue[1]	15.6	B	15.5	B	21.4	C	21.2	C
15. Broadway/22nd Street/Franklin Street[1]	10.4	B	10.5	B	12.0	B	12.0	B
16. Webster Street/Grand Avenue[1]	18.0	B	19.4	B	18.8	B	36.6	D
17. Webster Street/20th Street[1]	20.1	C	20.7	C	21.7	C	22.2	C

Table 4-2
Comparison of Peak Hour Intersection Levels of Service – Year 2025 Conditions / Year 2025 plus Project Conditions

Intersection	AM Peak				PM Peak			
	Year 2025 No Project		Year 2025 plus Project		Year 2025 No Project		Year 2025 plus Project	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
18. Franklin Street/20th Street[1]	12.0	B	12.3	B	10.6	B	10.6	B
19. Webster Street/19th Street[1]	8.5	A	8.7	A	9.4	A	9.7	A
20. Franklin Street/19th Street[1]	8.0	A	8.2	A	6.2	A	6.3	A
21. Webster Street/17th Street[1]	4.9	A	5.0	A	5.6	A	5.6	A
22. Franklin Street/17th Street[1]	10.8	B	11.0	B	10.8	B	11.2	B
23. Webster Street/14th Street[1]	9.6	A	9.9	A	11.1	B	11.9	B
24. Franklin Street/14th Street[1]	8.4	A	8.6	A	9.3	A	9.8	A

Source: Wilbur Smith Associates, June 2006

NOTES:
1 – Intersection located in the Oakland Downtown.
A5 – During AM peak hour, project impact meets the fifth threshold of significance.
P5 – During PM peak hour, project impact meets the fifth threshold of significance.
LOS – Level of Service
Delay is presented in seconds per vehicle.
Intersection vehicular delays are presented per Synchro output.
Bold indicates unacceptable LOS.

4.4 INTERSECTION IMPACTS AND MITIGATION MEASURES (2025 CONDITIONS)

This section discusses the transportation impacts associated with the proposed project on the study intersections under Year 2025 Conditions along with recommendations for mitigation to reduce the impacts to less-than-significant levels.

Impact 4.4A: Transportation impact at Broadway/Broadway Terrace intersection under Year 2025 Conditions

Under Year 2025 Conditions, the intersection at Broadway/Broadway Terrace would operate at LOS C during both AM and PM peak hours. Under Year 2025 plus Project Conditions, the LOS of the intersection would drop to LOS F during both AM and PM peak hours. Per *City of Oakland CEQA Thresholds/Criteria of Significance Guidelines*, a project would cause significant impact if the LOS of a signalized intersection located outside the Oakland Downtown area would be degraded to worse than LOS D. Based on the definition of the Oakland Downtown area provided in the *Oakland General Plan*, the Broadway/Broadway Terrace intersection is not contained within Downtown. Since the proposed project would degrade the LOS of this intersection during both AM and PM peak hours from LOS C to LOS F, a transportation impact would result.

Mitigation: The following mitigation measures are recommended:

- Northbound approach – Change shared through-right-turn lane to an exclusive right-turn lane; and
- Southbound approach – Change the exclusive left-turn lane to a shared through-left-turn lane.

Impact after Mitigation: With application of the above mitigation measures, the intersection would operate at LOS C during the AM peak hour and LOS B during the PM peak hour resulting in less-than-significant impact as shown in Chapter 6, Table 6-2.

Impact 4.4B: Transportation impact at Broadway/51st Street/Pleasant Valley Avenue intersection under Year 2025 Conditions

Under Year 2025 Conditions, the Broadway/51st Street/Pleasant Valley Avenue intersection would operate at LOS F, with an average vehicle delay of 117.3 seconds during the AM peak hour and 199.9 seconds during the PM peak hour. Under Year 2025 plus Project Conditions, the LOS of the intersection would remain at LOS F under both AM and PM peak hours, but the average vehicle delay increases to 191.1 seconds during the AM peak hour and 303.8 seconds during the PM peak hour. Per *City of Oakland CEQA Thresholds/Criteria of Significance Guidelines*, a project would cause significant impact if the average vehicle delay at a signalized intersection operating at LOS F would be increased by two (2) or more seconds. During Year 2025 AM and PM peak hours, the proposed project would increase the average vehicle delay at this intersection by more than two seconds, resulting in a significant transportation impact.

Mitigation: The following mitigation measure is recommended:

- End the bike lanes in advance of the intersection to maintain the existing lane configuration at each approach on Broadway. On the far side of the intersection, the bike lanes would resume after the current three travel lanes merge to two travel lanes.

Impact after Mitigation: With application of the above mitigation measure, the intersection would operate at the same LOS under "Year 2025 No Project Conditions" and "Year 2025 plus Recommended Improvements Conditions" and thus the Project would not cause an impact.

The following alternative was considered to lessen the increase in motor vehicle delay associated with the Project while still providing an improvement in bicycle conditions. This alternative would still cause a significant impact and is thus not recommended. (See Figure 6-5A and Figure 6-5B for a conceptual plan of this alternative.)

- Northbound and southbound approaches – End the bike lane before the intersection to retain the existing number of travel lanes at the approaches. Change the shared through-left-turn lane to an exclusive left-turn lane; and
- Adjust signal timing from split phase to protected left-turn timing.

With application of the above modifications, the intersection would operate at LOS F during both the AM and PM peak hours as shown in Chapter 6, Table 6-2. There would be an increase in vehicle delay from 117 to 137 seconds in the AM peak hour and from 199.9 to 208.9 seconds in the PM peak hour. Per *City of Oakland CEQA Thresholds/Criteria of Significance Guidelines*, this would result in a significant impact. To pursue this alternative, the City of Oakland would be required to prepare further environmental review that identifies significant and unavoidable impacts for which the City must adopt a statement of overriding considerations.

Impact 4.4C: Transportation impact at the intersection of Broadway/40th Street under Year 2025 Conditions

Under Year 2025 Conditions, the Broadway/40th Street intersection would operate at LOS B and LOS C during the AM and PM peak hours, respectively. Under Year 2025 plus Project Conditions, the LOS of the intersection would remain at LOS B during the AM peak but drop to LOS E during the PM peak hour. Based on the definition of the Oakland Downtown area provided in the *Oakland General Plan*, the intersection at Broadway/40th Street is located outside the Downtown area. Since the proposed project would degrade the intersection operating conditions during the PM peak hour from LOS C to LOS E, a transportation impact would result.

Mitigation: The following mitigation measures are recommended:

- Northbound and southbound approaches – End the bike lane before the intersection to retain the existing number of travel lanes at the approaches. Change the shared through-left-turn lane to an exclusive left-turn lane; and
- Adjust the signal timing for Broadway from split phase to protected-left-turn phase.

Impact after Mitigation: With application of the above mitigation measures, the intersection would operate at LOS C during the AM peak hour and LOS C during the PM peak hour resulting in less-than-significant impact as shown in Chapter 6, Table 6-2.

Impact 4.4D: Transportation impact at the intersection of Broadway/MacArthur Boulevard under Year 2025 Conditions

Under Year 2025 Conditions, the Broadway/MacArthur Boulevard intersection would operate at LOS D and LOS E during the AM and PM peak hours, respectively. Under Year 2025 plus Project Conditions, the LOS of the intersection would remain at LOS D during the AM peak and LOS E during the PM peak hour. However, the average vehicle delay would increase from 48.1 seconds to 48.6 seconds in the AM peak hour and from 62.1 seconds to 70.6 seconds in the PM peak hour. Based on the definition of the Oakland Downtown area provided in the *Oakland General Plan*, the intersection at Broadway/MacArthur Boulevard is located outside the Downtown area. Per *City of Oakland CEQA Thresholds/Criteria of Significance Guidelines*, a project would cause significant impact if the average vehicle delay at a signalized intersection operating at LOS E were increased by 4 or more seconds. Since the proposed project would increase average vehicle delay by more than 4 seconds during the PM peak hour, a transportation impact would result.

From the LOS analysis, it was determined that the increase in delay under Year 2025 project conditions for the PM peak hour resulted from the lane reduction at the northbound approach. Mitigation of this impact could be accomplished by keeping the existing geometric configuration and not reducing the number of travel lanes. However, without the reduction of travel lanes, it would 1) not be possible to include a bike lane in the northbound direction and 2) would require a third receiving lane on Broadway to the north of MacArthur. Consequently, the three lanes would have to merge to two lanes thereby delaying the start of the bike lane on this leg.

The Broadway/MacArthur intersection will be undergoing significant changes in the future with implementation of the Kaiser Permanente Oakland Medical Center project. The EIR[1] for this project recognized that significant transportation impacts would occur at this intersection under Year 2025 conditions but was unable to identify any feasible mitigation measures to fully improve operations at Broadway/MacArthur to acceptable levels. The EIR suggested that signal timing changes and an expanded Transportation Demand Management (TDM) program would reduce congestion at the intersection but would not be sufficient to fully mitigate the impact. It is recommended that bicycle access improvements be included with such future modifications to the Broadway/MacArthur Boulevard intersection.

Mitigation: The following mitigation measure is recommended:

- End the bike lanes in advance of the intersection to maintain the existing lane configuration at each approach on Broadway. On the far side of the intersection, the bike lanes would resume after the current three travel lanes merge to two travel lanes.

[1] Kaiser Permanente Oakland Medical Center Master Plan Project Draft EIR, Environmental Science Associates, March 2006.

Impact after Mitigation: With application of the above mitigation measure, the intersection would operate at the same LOS under "Year 2025 No Project Conditions" and "Year 2025 Plus Recommended Improvements Conditions" and thus the Project would not cause an impact.

Chapter 5
MTS ROADWAY SEGMENT ANALYSIS

As stated at the beginning of this report, to be consistent with policies of the Alameda County Congestion Management Agency (ACCMA), this analysis of roadway segments is conducted to identify potential impacts on the Broadway Corridor, which is included as a part of the Metropolitan Transportation System (MTS). It should be noted that, based on direction from ACCMA staff, only the Broadway Corridor was requested for includsion in this analysis. This chapter includes discussion of analysis methodology, traffic forecast, significant criteria, and analysis results.

5.1 ANALYSIS METHODOLOGY

As requested by ACCMA, surface street segments along the Broadway Corridor from 22nd Street to SR-24 were analyzed. The following street segments were included.

- Keith Avenue – Manila Avenue
- Manila Avenue – College Avenue
- 51st Avenue – 42nd Street
- 42nd Street – 40th Street
- 40th Street – MacArthur Boulevard
- MacArthur Boulevard – Piedmont Avenue
- Piedmont Avenue – 29th Street
- 29th Street – 27th Street
- 27th Street – 25th Street
- 25th Street – Grand Avenue
- Grand Avenue – 22nd Street

Operating conditions of the MTS surface street segments are assessed based on volume-to-capacity (V/C) ratios. For a surface street, roadway capacity is defined as 800 vehicles per hour per lane. The level of service criteria used in this study is based on methodology presented in the *Highway Capacity Manual 1985, Special Report 209*. This criterion is approved by ACCMA. Table 5-1 presents the level of service definitions ranging from LOS A to LOS F. Roadway segments with V/C ratio greater than 1. 0 are considered to be operating at LOS F.

5.2 TRAFFIC FORECASTS

In this study, WSA used the Alameda Countywide Travel Model (ACTM, also referred to as Countywide Model). ACTM is an EMME/2 model, executed by DKS Associates to forecast Year 2025 traffic volumes under two scenarios: Year 2025 No Project Conditions and Year 2025 with Project Conditions. Year 2025 No Project traffic volumes for roadway segments were derived directly from the ACCMA model.

As discussed in the previous chapter, this project-level analysis along the Broadway Corridor has been performed as a part of the Oakland Bicycle Master Plan Update project. For the Year 2025 with Project scenario, lane reductions are included for the following sections along Broadway:

1. From SR-24 (Keith Avenue) to College Avenue (from 2 lanes to 1 lane in each direction)
2. From College Avenue to MacArthur Boulevard (from 3 to 2 lanes in each direction)

5.3 SIGINIFICANT CRITERIA

According to the threshold of significance mentioned in Chapter 3, the addition of project traffic would cause a significant impact on a MTS roadway segment if:

1. The addition of project traffic would degrade the roadway segment's operating condition to LOS F. Therefore, for this analysis, an impact will be identified if the addition of project traffic would cause the V/C ratio to increase greater than 1.0.
2. The addition of project trips would cause the V/C ratio to increase by more than 3 percent on the roadway segment that already operates at LOS F without the project traffic.

Table 5-1
Levels of Service – Roadway Segments

Level of Service	Volume/Capacity Ratio
A	0.35
B	0.58
C	0.75
D	0.90
E	1.00
F	NA

Source: Highway Capacity Manual, 1985

NOTES:
NA – Not Applicable

5.4 ANALYSIS RESULTS

The roadway segment analysis under the 2025 Conditions for both the northbound and southbound directions was summarized in Table 5-2. The proposed project is not expected to cause any of the study segments to degrade to LOS F or increase the V/C ratio of a segment already operating at LOS F by more than three percent. Thus, the proposed project is not expected to result in a significant impact on any MTS roadway segments.

Table 5-2
Roadway Segment Analysis – MTS Criteria

Broadway Study Segment	Year 2025 No Project Conditions				Year 2025 with Project Conditions				% V/C Change	Impact?
	Number of Lanes	Volume	V/C Ratio	LOS	Number of Lanes	Volume	V/C Ratio	LOS		
Northbound Direction										
Keith Avenue - Manila Avenue	2	792	0.50	B	1	489	0.61	C	23%	No
Manila Avenue - College Avenue	2	1191	0.74	C	1	672	0.84	D	13%	No
College Avenue - 51st Street	2	2325	1.45	F	2	1927	1.20	F	-17%	No
51st Street - 42nd Street	3	1698	0.71	C	2	1377	0.86	D	22%	No
42nd Street - 40th Street	3	1907	0.79	D	2	1566	0.98	E	23%	No
40th Street - MacArthur Boulevard	3	1916	0.80	D	2	1585	0.99	E	24%	No
MacArthur Boulevard - Piedmont Avenue	2	1358	0.85	D	2	1137	0.71	C	-16%	No
Piedmont Avenue - 29th Street	2	1096	0.69	C	2	1021	0.64	C	-7%	No
29th Street - 27th Street	2	885	0.55	B	2	838	0.52	B	-5%	No
27th Street - 25th Street	2	511	0.32	A	2	481	0.30	A	-6%	No
25th Street - West Grand Avenue	1	385	0.48	B	1	345	0.43	B	-10%	No
West Grand Avenue - 22nd Street	2	857	0.54	B	2	817	0.51	B	-5%	No

Table 5-2
Roadway Segment Analysis – MTS Criteria

Broadway Study Segment	Year 2025 No Project Conditions				Year 2025 with Project Conditions				% V/C Change	Impact?
	Number of Lanes	Volume	V/C Ratio	LOS	Number of Lanes	Volume	V/C Ratio	LOS		
Southbound Direction										
Keith Avenue - Manila Avenue	2	515	0.32	A	1	570	0.71	C	121%	No
Manila Avenue - College Avenue	2	394	0.25	A	1	416	0.52	B	111%	No
College Avenue - 51st Street	3	860	0.36	B	2	834	0.52	B	45%	No
51st Street - 42nd Street	3	332	0.14	A	2	328	0.21	A	48%	No
42nd Street - 40th Street	3	536	0.22	A	2	531	0.33	A	49%	No
40th Street - MacArthur Boulevard	3	610	0.25	A	2	610	0.38	B	50%	No
MacArthur Boulevard - Piedmont Avenue	2	275	0.17	A	2	271	0.17	A	-1%	No
Piedmont Avenue - 29th Street	2	643	0.40	B	2	654	0.41	B	2%	No
29th Street - 27th Street	2	521	0.33	A	2	541	0.34	A	4%	No
27th Street - 25th Street	2	139	0.09	A	2	137	0.09	A	-1%	No
25th Street - West Grand Avenue	1	138	0.17	A	1	138	0.17	A	0%	No
West Grand Avenue - 22nd Street	2	351	0.22	A	2	350	0.22	A	0%	No

Chapter 6
RECOMMENDED IMPROVEMENTS

As presented in Chapters 3 and 4, the traffic impacts of the proposed Broadway Corridor Bikeway were evaluated following the guidelines of the City of Oakland and the Alameda County Congestion Management Agency. 24 key intersections were included in the evaluation under Existing, Project, and 2025 Cumulative Conditions during the AM and PM peak hours. The intersection configurations that were included in this analysis for With Project Conditions were based upon the cross-sections selected for each segment by the citywide feasibility analysis as described in Section 3.1 and Table 3-1 of Chapter 3. The results of the analysis indicate that under Existing Conditions, the proposed project would result in a significant impact to the following intersections:

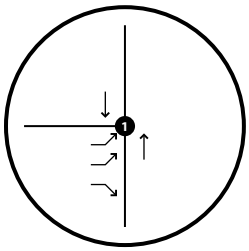
1. Broadway/51st Street/Pleasant Valley Avenue – This intersection currently operates at LOS E in the AM peak and LOS F in the PM peak. With the project under Existing Conditions, this intersection will operate at LOS F for both periods.
2. Broadway/Broadway Terrace – This intersection currently operates at LOS B in both AM and PM peak periods. With the project under Existing Condition, it will operate at LOS C in the AM peak and LOS F in the PM peak.

As discussed in Chapter 4, the results of the Year 2025 plus Project analysis indicate that the proposed project would result in a significant impact to the following intersections:

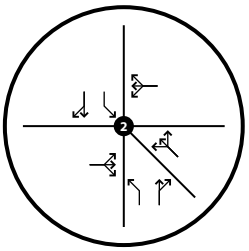
1. Broadway/51st Street/Pleasant Valley Avenue – This intersection is expected to operate at LOS F for both peak periods with and without the project. The project, however, would also result in an increase in delay of more than 2 seconds.
2. Broadway/Broadway Terrace – This intersection is expected to operate at LOS C in both AM and PM peak periods. With the project, it is expected to operate at LOS F in both periods.
3. Broadway/40th Street – This intersection is expected to operate at LOS B and LOS C for the AM and PM peak periods, respectively. With the project, it is expected to operate at LOS B in the AM peak and LOS E in the PM peak.
4. Broadway/MacArthur Boulevard – This intersection is expected to operate at LOS D and LOS E for the AM and PM peak periods, respectively. With the project, it is expected to also operate at LOS D in the AM peak and LOS E in the PM peak.

6.1 IMPACT ASSESSMENT

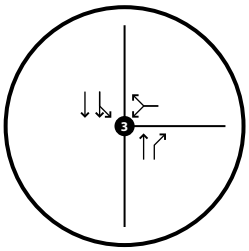
The measures recommended to mitigate the impacts of the project are discussed in Chapters 3 and 4. These mitigations were evaluated using the same methodology to determine the intersection modifications that would minimize the impact on traffic operations while maximize the benefits to bicycle travel. The results of this mitigation analysis are included in Table 6-1 for existing conditions and Table 6-2 for Cumulative Conditions. Recommended intersection geometries are shown in Figure 6-1. The SYNCHRO calculation worksheets are included in Appendices F and G.



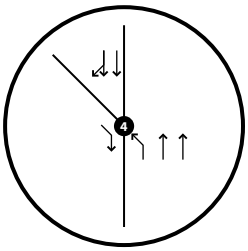
Broadway/Keith Ave.



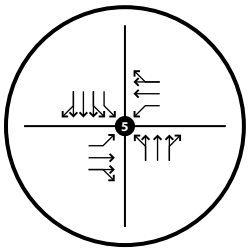
Broadway/Manila Ave./Monroe Ave.



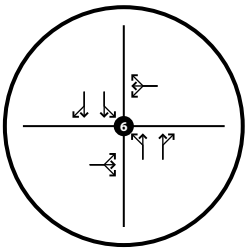
Broadway/Broadway Terrace



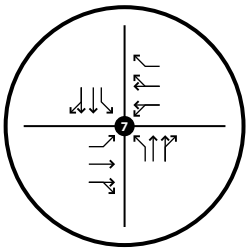
Broadway/College Ave.



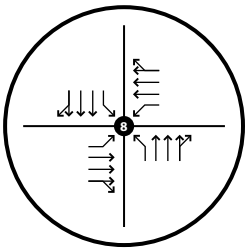
Broadway/51st Street/Pleasant Valley Ave.



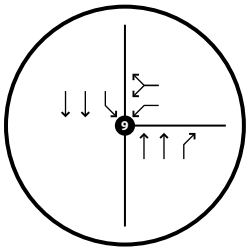
Broadway/42nd Street/Mather Street



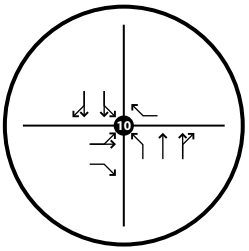
Broadway/40th Street



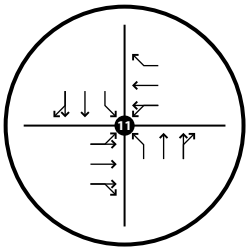
Broadway/MacArthur Blvd.



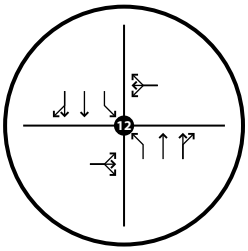
Broadway/Piedmont Ave.



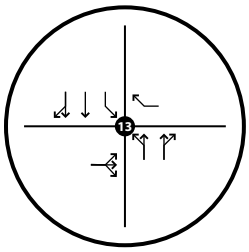
Broadway/Hawthorne Ave./Brook Street



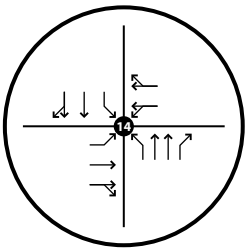
Broadway/27th Street



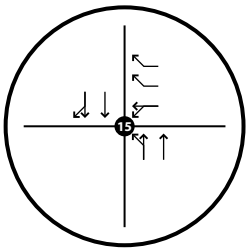
Broadway/26th Street



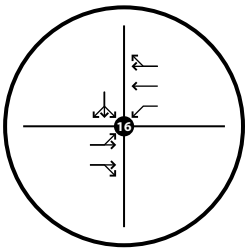
Broadway/25th Street/Webster Street



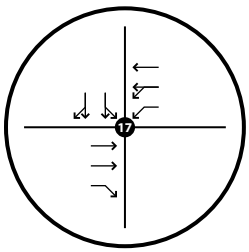
Broadway/W. Grand Ave.



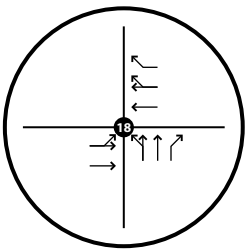
Broadway/Franklin Street/22nd Street



Webster Street/W. Grand Ave.



Webster Street/20th Street



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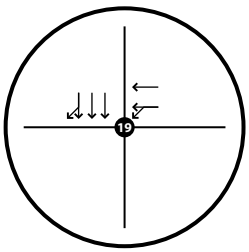
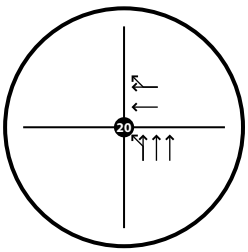
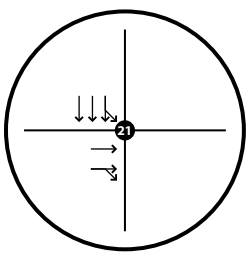


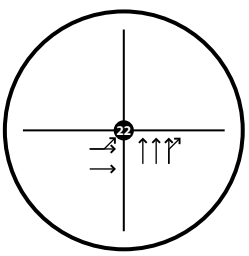
Webster Street/19th Street



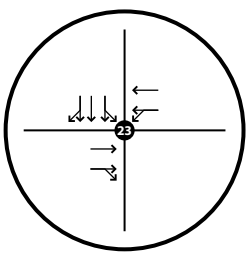
Franklin Street/19th Street



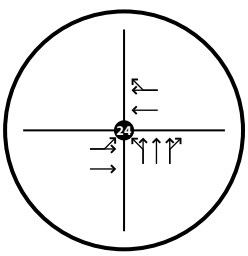
Webster Street/17th Street



Franklin Street/17th Street



Webster Street/14th Street



Franklin Street/14th Street

ENGINEERS
PLANNERS
ECONOMISTS
Wilbur Smith Associates

Figure 6-1
INTERSECTION GEOMETRIC CONFIGURATIONS
EXISTING PLUS RECOMMENDED IMPROVEMENTS CONDITIONS

Table 6-1
Comparison of Peak Hour Intersection Levels of Service
Existing Conditions / Existing plus Project Conditions / Recommended Improvements Conditions

		AM Peak						PM Peak					
		Existing		Existing plus Project		Existing plus Recommended Improvements		Existing		Existing plus Project		Existing plus Recommended Improvements	
	Intersection	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1.	Broadway/Keith Avenue	9.8	A	15.3	B	15.3	B	14.1	B	33.2	C	33.2	C
2.	Broadway/Manila Avenue/Monroe Avenue	15.0	B	15.3	B	15.3	B	13.5	B	16.6	B	16.6	B
3.	Broadway/Broadway Terrace	15.4	B	33.7	C	13.4	B	15.8	B	>80	F	9.5	A
4.	Broadway/College Avenue	10.5	B	11.0	B	16.3	B	20.0	C	20.5	C	16.7	B
5.	Broadway/51st Street/Pleasant Valley Avenue	61.7	E	>80	F	61.7	E	>80	F	>80	F	>80	F
6.	Broadway/42nd Street/Mather Street	6.3	A	6.8	A	7.3	A	5.5	A	6.3	A	8.6	A
7.	Broadway/40th Street	10.5	B	11.2	B	16.3	B	17.2	B	20.4	C	19.9	B
8.	Broadway/MacArthur Boulevard	46.0	D	46.4	D	46.4	D	44.2	D	45.7	D	45.7	D
9.	Broadway/Piedmont Avenue	19.9	B	19.9	B	19.9	B	23.9	C	23.9	C	23.9	C
10.	Broadway/Hawthorne Avenue/Brook Street	21.0	C	21.0	C	21.0	C	15.9	B	15.9	B	15.9	B
11.	Broadway/27th Street	11.1	B	11.1	B	11.1	B	12.7	B	12.7	B	12.7	B
12.	Broadway/26th Street	2.7	A	2.7	A	2.7	A	4.6	A	4.6	A	4.6	A
13.	Broadway/25th Street/Webster Street	4.1	A	4.1	A	4.1	A	6.0	A	6.0	A	6.0	A
14.	Broadway/W Grand Avenue[1]	14.4	B	14.4	B	14.4	B	16.0	B	16.0	B	16.0	B

Table 6-1
Comparison of Peak Hour Intersection Levels of Service
Existing Conditions / Existing plus Project Conditions / Recommended Improvements Conditions

		AM Peak						PM Peak					
		Existing		Existing plus Project		Existing plus Recommended Improvements		Existing		Existing plus Project		Existing plus Recommended Improvements	
	Intersection	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
15.	Broadway/22nd Street/Franklin Street[1]	12.8	B	12.8	B	12.8	B	12.4	B	12.4	B	12.4	B
16.	Webster Street/W Grand Avenue[1]	25.3	C	25.6	C	25.6	C	40.3	D	41.5	D	41.5	D
17.	Webster Street/20th Street[1]	19.8	B	20.1	C	20.1	C	20.3	C	20.7	C	20.7	C
18.	Franklin Street/20th Street[1]	10.3	B	10.4	B	10.4	B	10.7	B	10.7	B	10.7	B
19.	Webster Street/19th Street[1]	8.4	A	8.5	A	8.5	A	9.2	A	9.4	A	9.4	A
20.	Franklin Street/19th Street[1]	7.7	A	7.8	A	7.8	A	5.9	A	5.9	A	5.9	A
21.	Webster Street/17th Street[1]	4.0	A	4.1	A	4.1	A	4.6	A	4.9	A	4.9	A
22.	Franklin Street/17th Street[1]	11.2	B	11.2	B	11.2	B	10.4	B	10.6	B	10.6	B
23.	Webster Street/14th Street[1]	10.0	A	10.2	B	10.2	B	10.3	B	10.7	B	10.7	B
24.	Franklin Street/14th Street[1]	6.3	A	6.4	A	6.4	A	7.3	A	7.4	A	7.4	A

Source: Wilbur Smith Associates, June 2006

NOTES:
1 – Intersection located in the Oakland Downtown.
LOS – Level of Service
Delay is presented in seconds per vehicle.
Intersection vehicular delays are presented per Synchro output.

Table 6-2
Comparison of Peak Hour Intersection Levels of Service
Year 2025 Conditions / Year 2025 plus Project Conditions / Recommended Improvements Conditions

		AM Peak						PM Peak					
		Year 2025 No Project		Year 2025 plus Project		Year 2025 plus Recommended Improvements		Year 2025 No Project		Year 2025 plus Project		Year 2025 plus Recommended Improvements	
	Intersection	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1.	Broadway/Keith Avenue	11.5	B	22.7	C	22.7	C	14.8	B	44.8	D	44.8	D
2.	Broadway/Manila Avenue/Monroe Avenue	17.6	B	41.4	D	41.4	D	19.2	B	30.3	C	30.3	C
3.	Broadway/Broadway Terrace	22.6	C	>80	F	32.6	C	23.1	C	>80	F	15.3	B
4.	Broadway/College Avenue	20.4	C	25.2	C	22.6	C	28.6	C	28.8	C	21.6	C
5.	Broadway/51st Street/Pleasant Valley Avenue	>80	F	>80	F	>80	F	>80	F	>80	F	>80	F
6.	Broadway/42nd Street/Mather Street	6.2	A	7.6	A	8.1	A	5.7	A	8.0	A	7.3	A
7.	Broadway/40th Street	12.2	B	15.2	B	23.3	C	21.9	C	55.2	E	28.4	C
8.	Broadway/MacArthur Boulevard	48.1	D	48.6	D	48.1	D	62.1	E	70.6	E	62.1	E
9.	Broadway/Piedmont Avenue	25.8	C	25.8	C	25.8	C	20.3	C	20.3	C	20.3	C
10.	Broadway/Hawthorne Avenue/Brook Street	25.5	C	25.5	C	25.5	C	23.6	C	23.6	C	23.6	C
11.	Broadway/27th Street	14.9	B	14.9	B	14.9	B	30.1	C	30.1	C	30.1	C
12.	Broadway/26th Street	2.8	A	2.8	A	2.8	A	6.2	A	6.2	A	6.2	A
13.	Broadway/25th Street/Webster Street	5.4	A	5.4	A	5.4	A	8.6	A	8.6	A	8.6	A
14.	Broadway/W Grand Avenue[1]	15.6	B	15.5	B	15.5	B	21.4	C	21.2	C	21.2	C

Table 6-2
Comparison of Peak Hour Intersection Levels of Service
Year 2025 Conditions / Year 2025 plus Project Conditions / Recommended Improvements Conditions

		AM Peak						PM Peak					
		Year 2025 No Project		Year 2025 plus Project		Year 2025 plus Recommended Improvements		Year 2025 No Project		Year 2025 plus Project		Year 2025 plus Recommended Improvements	
	Intersection	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
15.	Broadway/22nd Street/Franklin Street[1]	10.4	B	10.5	B	10.5	B	12.0	B	12.0	B	12.0	B
16.	Webster Street/W Grand Avenue[1]	18.0	B	19.4	B	19.4	B	18.8	B	36.6	D	36.6	D
17.	Webster Street/20th Street[1]	20.1	C	20.7	C	20.7	C	21.7	C	22.2	C	22.2	C
18.	Franklin Street/20th Street[1]	12.0	B	12.3	B	12.3	B	10.6	B	10.6	B	10.6	B
19.	Webster Street/19th Street[1]	8.5	A	8.7	A	8.7	A	9.4	A	9.7	A	9.7	A
20.	Franklin Street/19th Street[1]	8.0	A	8.2	A	8.2	A	6.2	A	6.3	A	6.3	A
21.	Webster Street/17th Street[1]	4.9	A	5.0	A	5.0	A	5.6	A	5.6	A	5.6	A
22.	Franklin Street/17th Street[1]	10.8	B	11.0	B	11.0	B	10.8	B	11.2	B	11.2	B
23.	Webster Street/14th Street[1]	9.6	A	9.9	A	9.9	A	11.1	B	11.9	B	11.9	B
24.	Franklin Street/14th Street[1]	8.4	A	8.6	A	8.6	A	9.3	A	9.8	A	9.8	A

Source: Wilbur Smith Associates, June 2006

NOTES:
1 – Intersection located in the Oakland Downtown.
LOS – Level of Service
Delay is presented in seconds per vehicle.
Intersection vehicular delays are presented per Synchro output.

6.2 RECOMMENDED IMPROVEMENTS

The proposed segment cross-sections recommended for the Broadway Corridor are presented in Table 3-1 and illustrated in Figures 3.1A through 3.1I. Note that these recommendations are conceptual; further engineering analysis, design and community outreach will be required prior to installation. Design of these facilities should follow the standard practice for traffic controls for bicycle facilities as defined in the *Manual on Uniform Traffic Control Devices (MUTCD) for Streets and Highways, 2003 Edition, Part 9* or the *MUTCD 2003 California Supplement*.

The recommended improvements for the Broadway Corridor Bikeway, based upon Table 3.1 and the intersection analysis conducted in Chapters 3 and 4, are described below beginning at the south end of the corridor.

Franklin/Webster Streets from 14th Street to 20th Street

- For this one-way couplet, bicycle lanes can be added by reducing the travel lanes from four lanes to three lanes.

Franklin Street from 20th Street to 22nd Street/Broadway

- Add bike lane to this one-way street (northbound) with the reduction of travel lanes from three to two lanes.

Webster Street from 20th Street to Grand Avenue

- Add bike lane to this one-way street (southbound) with the reduction of travel lanes from three to two lanes.
- For future study, consider converting this one-way street to two-way travel to improve the connection for northbound bicycle travel.

Webster Street from Grand Avenue to 25th Street/Broadway

- This section of Webster Street carries two-way traffic with two southbound travel lanes and one northbound travel lane.
- Remove one travel lane in the southbound direction to widen both travel lanes. Use sharrow treatment for these shared travel lanes (bicycle routes).
- At the intersection of Broadway and 25th Street/Webster Street, the following improvement is recommended and illustrated in Figure 6-2.
    - Northbound – Add a right-turn bike lane pocket before the intersection with dashed striping to existing lane on Broadway.

Figure 6-2
Conceptual Bikeway Improvements
Broadway at 25th/Webster Street

Broadway from 22nd/Franklin Street to 25th Street/Webster Street

- To accommodate northbound travel, restripe inside lane to 10' and add sharrow treatment to the curb lane. For consistency, apply this modification to both directions of travel.

Broadway from 25th Street/Webster Street to I-580

- This segment currently has bike lanes. No further modifications are necessary.
- At the intersection of Broadway and Piedmont Avenue in the northbound direction – Add through bike lane to left of the excusive right-turn lane. To install this lane, it will be necessary to shave back the center median approximately 3-4 feet. This improvement is illustrated in Figure 6-3.

Broadway from I-580 to MacArthur Boulevard

- To accommodate bike lanes, reduce the number of travel lanes from six to four with two travel lanes in each direction.
- At the intersection of Broadway/MacArthur Boulevard, maintain the existing lane configuration at each approach on Broadway by ending the bike lanes in advance of the intersection. On the far side of the intersection, the bike lanes would resume after the current three travel lanes merge to two travel lanes. This mitigation would avoid a significant impact to motor vehicle delay at this intersection under Year 2025 conditions.

Broadway from MacArthur Boulevard to 51st Street/Pleasant Valley Boulevard

- Reduce the number of travel lanes along this segment from six to four lanes with two travel lanes in each direction.
- Restripe to include bike lanes.
- At the intersection of Broadway and 40th Street, the following improvements are recommended and illustrated on Figure 6-4.
    - Northbound and southbound approaches – End the bike lane before the intersection to retain the existing number of travel lanes at the approaches. Change the shared through-left-turn lane to an exclusive left-turn lane; and
    - Adjust the signal timing for Broadway from split phase to protected-left-turn phase.
- At the intersection of Broadway and 51st Street/Pleasant Valley Avenue, maintain the existing lane configuration at each approach on Broadway by ending the bike lanes in advance of the intersection. On the far side of the intersection, the bike lanes would resume after the current three travel lanes merge to two travel lanes. This mitigation would avoid a significant impact to motor vehicle delay at this intersection under existing conditions and Year 2025 conditions.

Broadway from 51st Street/Pleasant Valley Blvd. to College Avenue

- Reduce through travel lanes from six to four lanes with two travel lanes in each direction. See Figures 6-5A to C.
- Restripe for bike lanes

Broadway from College Avenue to Broadway Terrace

- Reduce through travel lanes from six to four lanes with two travel lanes in each direction. See Figures 6-5C and D.
- Restripe for bike lanes
- At the intersection of Broadway and Broadway Terrace, the following improvements are recommended.
    - Northbound approach – Change shared through-right-turn lane to an exclusive right-turn lane. Install a bike lane to the left of the exclusive right-turn lane.
    - Southbound approach – Change the exclusive left-turn lane to a shared through-left-turn lane. Restripe to accommodate bike lane.

Broadway from SR-24(Keith Avenue) to Broadway Terrace

- Reduce from four to two travel lanes (one in each direction); add bike lanes and two-way center turn lane.

Figure 6-3
Broadway at Piedmont Avenue

Figure 6-4
Broadway at 40th Street

0 10 20 40 Feet

N

NOTE: The Conceptual Bikeway Improvements at the Broadway/51st intersection are included for illustrative purposes only and are not part of the recommended Project. To pursue this alternative, the City of Oakland would be required to prepare further environmental review that identifies significant and unavoidable impacts for which the City must adopt a statement of overriding considerations.

Figure 6-5A
Conceptual Bikeway Improvements
Upper Broadway-Broadway/51st St Intersection

0 10 20 40 Feet

N

NOTE: The Conceptual Bikeway Improvements at the Broadway/51st intersection are included for illustrative purposes only and are not part of the recommended Project. To pursue this alternative, the City of Oakland would be required to prepare further environmental review that identifies significant and unavoidable impacts for which the City must adopt a statement of overriding considerations.

Figure 6-5B
Conceptual Bikeway Improvements
Upper Broadway-51st St to College

0 10 20 40 Feet

N

Figure 6-5C
Conceptual Bikeway Improvements
Upper Broadway-Broadway/College Intersection

Figure 6-5D
Conceptual Bikeway Improvements
Upper Broadway-Broadway/Broadway Terrace Intersection

APPENDIX F

Revisions to the Preliminary Proposed Bikeway Network

APPENDIX F

Revisions to the Preliminary Proposed Bikeway Network

The Notice of Preparation (NOP) and Initial Study (IS) issued for the Bicycle Master Plan ("Project") EIR presented a preliminary proposed bikeway network that included existing bikeways and potential bikeways as well as a list of streets that would be considered for Bicycle Lanes (Class 2). Subsequent to publication of the NOP and IS, the City conducted a citywide feasibility analysis to evaluate the preliminary proposed bikeway network and potential alternatives. The evaluation criteria addressed street grade, curb-to-curb street width, existing motor vehicle volumes, and bicycle/bus interactions to identify proposed bikeway alignments and recommended cross-sections for those streets. The purpose of the analysis was to develop feasible proposals that would maximize bicyclist safety and access while minimizing potentially adverse effects on motor vehicle circulation, motor vehicle parking, and bus operations. The citywide feasibility analysis is explained in the Project Description (Chapter 3 of the Draft EIR).

Overall, approximately 700 segments of potential bikeway were evaluated as part of the citywide feasibility analysis. The results led to the rerouting of 140 segments of potential bikeway that ultimately were not included in the Proposed Bikeway Network. Bikeways were relocated to other streets in the same travel corridor where that relocation would reduce the potential for adverse effects while providing adequate or improved accommodation for bicyclists. Additional bikeway segments were retained but changed to a different bikeway type in order to reduce or avoid potential impacts. The results of the citywide feasibility analysis were vetted through fieldwork, a Citizens Advisory Committee, and discussions with neighborhood groups and merchants associations. Table F-1 below lists the roadway segments that were included in the preliminary proposed bikeway network and specifies how those proposals were affected by the citywide feasibility analysis. Table F-2 shows the potential bikeway segments that were considered but rejected in developing the Proposed Bikeway Network.

TABLE F-1
BIKEWAY SEGMENTS FROM THE PRELIMINARY NETWORK
(AS PRESENTED IN THE INITIAL STUDY / NOP) BUT NOT INCLUDED IN THE PROPOSED PROJECT

Street	From	To	Changes
14th Ave	E 8th St	MacArthur Blvd	Facility Type
14th St	Mandela Parkway	Lakeside	Facility Type
20th St	Harrison St	San Pablo Ave	Facility Type
22nd Ave	E 21st St	E 12th St	Facility Type
23rd Ave	29th Ave	Ardley Ave	Alignment
27th St	San Pablo Ave	Bay Place	None
29th Ave	23rd Ave	E 7th St	None
2nd St	Brush St	Oak St	Facility Type
35th Ave	San Leandro St	Redwood Rd	Alignment, Facility Type
3rd St	Mandela Parkway	Brush St	None
40th St	Adeline St	Piedmont Ave	Alignment
42nd Ave	Courtland Ave	San Leandro St	Alignment
4th Ave	Park Blvd	E 10th St	Facility Type
50th Ave	Foothill Blvd	San Leandro St	Alignment
51st St	Shattuck Ave	Broadway	Facility Type
52nd St	51st St	Market St	Alignment
55th St	Vallejo St	Vicente Wy	Alignment
5th Ave	E 10th St	Embarcadero	None
66th Ave	International Blvd	Oakport	Facility Type
73rd Ave	Edwards Ave	International Blvd	Alignment
7th St	Wood St	5th Ave	Alignment, Facility Type
81st Ave	San Leandro St	International Blvd	Alignment
82nd Ave	Golf Links Rd	International	Alignment, Facility Type
8th St	Wood St	Oak St	Facility Type
98th Ave	Golf Links Rd	Airport Dr	Alignment
9th St	Castro St	Oak St	Facility Type
Adeline St	3rd St	61st St	None
Airport Dr	Neil Armstrong Wy	Hegenberger Rd	Facility Type
Alameda Ave	Fruitvale Ave	High St	None
Alcatraz Ave	San Pablo Ave	College Ave	Alignment
Ardley	MacArthur Blvd	23rd Ave	Facility Type
Bancroft Ave	42nd Ave	Durant Ave	None
Bay Place	27th St	Grand Ave	Facility Type
Beaumont Ave	14th Ave	Park Blvd	Alignment
Broadway	Embarcadero	Highway 24 overcrossing at Caldecott Ln	Alignment
Broadway Terrace	Broadway	Mountain Blvd	Alignment
Buell / Calaveras / Daisy / Davenport	MacArthur Blvd	Mountain Blvd	Facility Type
Caldecott Ln	FWY overcrossing	Tunnel Rd	None
Camden St	Seminary Ave	Bancroft Ave	None
Campus Dr	Redwood Rd	Keller	Alignment
Carson St	Mountain Blvd	Tompkins Ave	Alignment
Claremont	Telegraph Ave	Grizzly Peak Blvd	None
Doolittle Dr	Harbor Bay Pkwy	Eden Rd	None
E 10th St	Madison St	9th Ave	Alignment
E 12th St	1st Ave	54th Ave	Facility Type
E 15th St	Lakeshore Ave	14th Ave	None
E 18th St	Park Blvd	Lakeshore Ave	Facility Type
E 21st St	14th Ave	Mitchell St	Facility Type
Edes Ave	Hegenberger Rd	105th Ave	Facility Type
Edgewater Dr	Bay Trail	Hegenberger Rd	None
Edwards Ave	Mountain Blvd	73rd Ave	Alignment, Facility Type
Embarcadero	Oak St	E 7th St	None

TABLE F-1 (continued)
BIKEWAY SEGMENTS FROM THE PRELIMINARY NETWORK
(AS PRESENTED IN THE INITIAL STUDY / NOP) BUT NOT INCLUDED IN THE PROPOSED PROJECT

Street	From	To	Changes
Fontaine St	Keller Ave	Golf Links Rd	Alignment
Foothill Blvd	Lakeshore Ave	50th Ave	Facility Type
Franklin St	6th St	Broadway at 22nd St	Alignment
Fruitvale Ave	Alameda Ave	MacArthur Blvd	Facility Type
Golf Links Rd	82nd Ave	Grass Valley Rd	Facility Type
Grand Ave	Jean St	Interstate 80	Facility Type
Harrison St	20th St	Monte Vista Ave	Facility Type
Havenscourt Bl	Bancroft Ave	International Blvd	None
Hegenberger Rd	International Blvd	Airport Dr	None
High St	Tompkins Ave	Tidewater Ave	Alignment
International Blvd[a]	1st Ave	Durant Ave	Alignment, Facility Type
Joaquin Miller Rd	Skyline Blvd	Hwy 13	Alignment, Facility Type
Lakeshore Ave	E 12th St	Wala Vista	Alignment, Facility Type
Lakeside Dr	14th St	20th St	None
Lincoln Ave	MacArthur Blvd	Highway 13	Alignment
Linda Ave	Piedmont Ave	Rose Ave	Facility Type
MacArthur Blvd	Hollis St	Durant Ave	Alignment, Facility Type
Madison St	2nd St	Lakeside Dr	Facility Type
Mandela Pkwy	3rd St	Horton St	None
Market St	3rd St	Alcatraz Ave	None
Martin Luther King Jr. Way	20th St	2nd St	None
Monterey Blvd	Park Blvd	Redwood Rd	Facility Type
Moraga Ave	Pleasant Valley Ave	Mountain Blvd	Facility Type
Mountain Blvd	Broadway Ter	Golf Links Rd	Alignment, Facility Type
Oak St	Embarcadero	14th St	None
Oakland Ave	Harrison St	Monte Vista Ave	None
Oakport St	High St	Edgewater Dr	Alignment
Park Blvd	E 18th St	Mountain Blvd	Facility Type
Peralta St	MacArthur Blvd	Mandela Pkwy	Alignment
Piedmont Ave	Broadway	Pleasant Valley Ave	None
Pleasant Valley Ave	Broadway	Rose Ave	Facility Type
Redwood Rd	Skyline Blvd	35th Ave	Alignment, Facility Type
Ron Cowan Pkwy	Airport Dr	Harbor Bay Pkwy	Facility Type
San Leandro St	Fruitvale Ave	Apricot Ave	Alignment, Facility Type
Santa Clara Ave	MacArthur Blvd	Grand Ave	None
Seminary Ave	Sunnymere Ave	San Leandro St	Alignment
Shattuck Ave	Telegraph Ave	Woolsey St	Facility Type
Shepherd Canyon Rd	Saroni Dr	Skyline Blvd	Alignment
Telegraph Ave[a]	Broadway	Woolsey St	Facility Type
Tunnel Rd	Berkeley Border	Caldecott Ln	None
Webster St	2nd St	Broadway at 25th St	Alignment, Facility Type
West St	14th St	52nd St	Alignment

Changes – Definitions of Terms
Alignment: Some or all of the bikeway was rerouted to another street.
Facility Type: Some or all of the bikeway is no longer proposed for Class 2 Bicycle Lanes.
None: No change was made from the Preliminary Proposed Bikeway Network.

[a] Telegraph Ave (Aileen Street to 20th Street) and International Boulevard (54th Avenue to 82nd Avenue) are only provisionally designated as part of the Proposed Bikeway Network. The provisional designation will only be lifted, and those segments automatically incorporated into the Proposed Bikeway Network, if further environmental review is performed and appropriate CEQA findings are adopted by the City.

SOURCE: WSA 2006

TABLE F-2
POTENTIAL BIKEWAY SEGMENTS CONSIDERED BUT REJECTED

Roadway	From	To
13th Ave	Park Blvd	E 21st St
23rd Ave	E 30th St	E 12th St
26th Ave	E 24th St	Logan St
2nd Ave	E 10th St	E 15th St
35th Ave	MacArthur Blvd	San Leandro St
40th St	Telegraph Ave	Piedmont Ave
42nd Ave	Courtland Ave	San Leandro St
50th Ave	Foothill Blvd	San Leandro St
52nd St	51st St	Market St
53rd St	Market St	Adeline St
55th St	Adeline St	Vallejo St
73rd Ave	Edwards Ave	MacArthur Blvd
7th Ave	Booker St	E 24th St
7th St	MLK Jr Wy	5th Ave
81st Ave	San Leandro St	International Blvd
82nd Ave	Bancroft Ave	Rudsdale St
98th Ave	Stanley Ave	Airport Dr
Airport Access Rd	Hegenberger Rd	Doolittle Dr
Airport Dr Path	Ron Cowan Pkwy	Neil Armstrong Wy
Alcatraz Ave	California St	Herzog St
Alida St	Lincoln Ave	Coolidge Ave
Aliso Ave	Carson St	35th Ave
Beaumont Ave	14th Ave	Park Blvd
Booker St	Spruce St	7th Ave
Broadway	25th St	Embarcadero
Broadway Ter	Clarewood Dr	Lake Temescal Path
Brookdale Ave	Coolidge Ave	Foothill Blvd
Brooklyn Ave	Lakeshore Ave	Park Blvd
Campus Dr	Merritt College Entrance	Keller Ave
Carson St	Mountain Blvd	Tompkins Ave
Coolidge Ave	Alida St	Foothill Blvd
Courtland Ave	High St	42nd Ave
E 10th St	5th Ave	9th Ave
E 24th St	7th Ave	26th Ave
E 8th St	9th Ave	14th Ave
Edwards Ave	Sunnymere Ave	Sunkist Dr
Florence Ave	Mountain Blvd	Duncan Wy
Fontaine St	Keller Ave	Golf Links Rd
Hansom Dr	Skyline Blvd	Keller Ave
Harrison St	Monte Vista Ave	Bayo Vista Ave
Hassler Wy	Oakport St	Edgewater Dr
Herzog St	65th St	Alcatraz Ave
High St	MacArthur Blvd	E 12th St
International Blvd	1st Ave	54th Ave
Joaquin Miller Rd	Robinson Dr	Mountain Blvd
Keith St	College Ave	Broadway
Lakeshore Ave	Foothill Blvd	12th St
Lesser St	Tidewater Ave	Oakport St
Lincoln Ave	Hwy 13	MacArthur Blvd

TABLE F-2 (continued)
POTENTIAL BIKEWAY SEGMENTS CONSIDERED BUT REJECTED

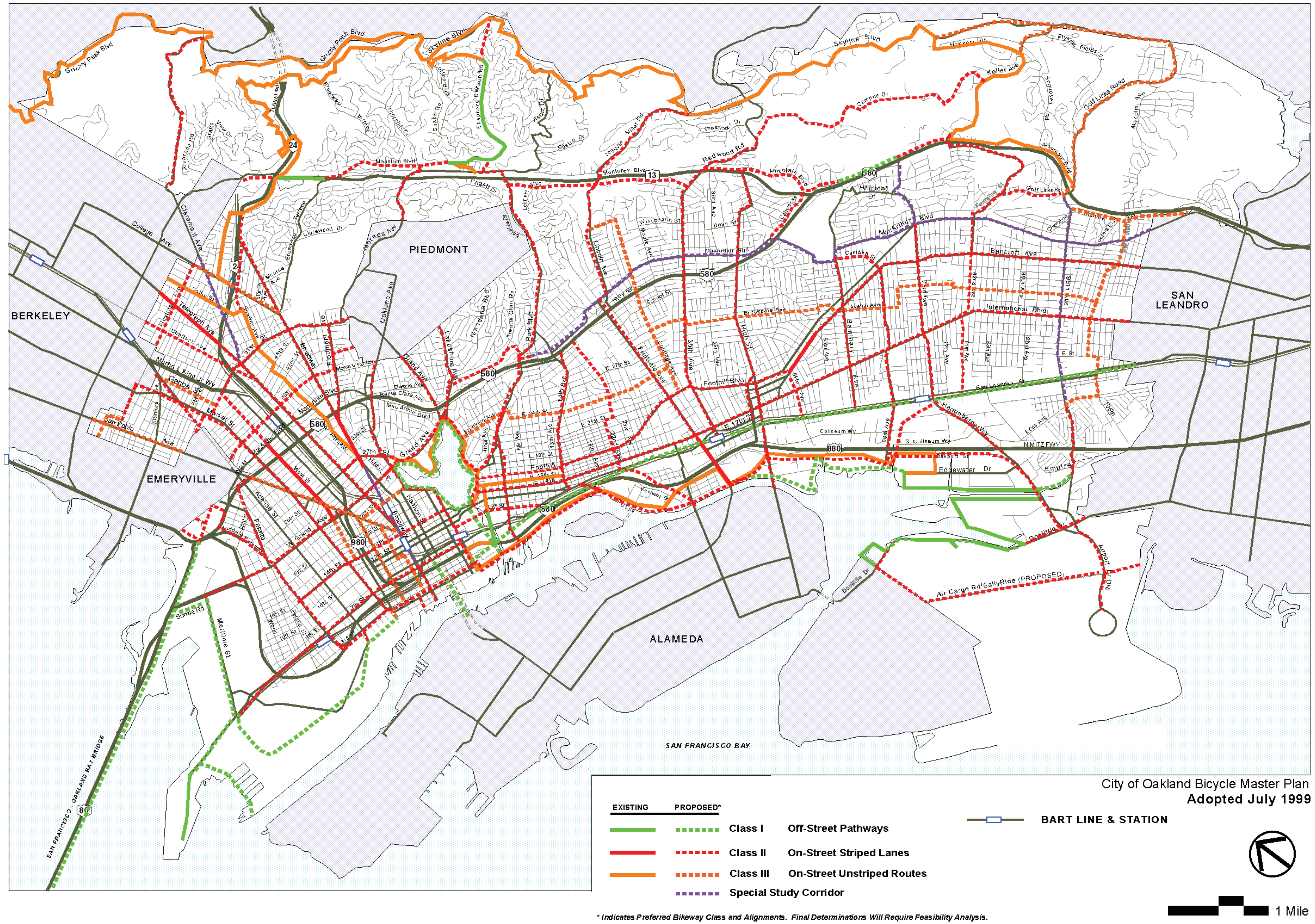
Roadway	From	To
Logan St	26th Ave	Coolidge Ave
MacArthur Blvd	Hollis St	Market St
MacArthur Blvd	Fairmount Ave	Adams St
Moraga Ave	Mountain Blvd	Thornhill Dr
Mountain Blvd	Florence Ave	Fernwood Dr
Oakport St	High St	Edgewater Dr
Peralta St	MacArthur Blvd	32nd St
Redwood Rd	Skyline Blvd	Campus Dr
Ron Cowan Pkwy	Airport Dr	Air Cargo Wy
Rudsdale St	82nd Ave	81st Ave
San Leandro St	Fruitvale Ave	54th Ave
San Pablo Ave	Haskell St	48th St
San Pablo Ave	36th St	32nd St
Santa Clara Ave	Harrison St	Vernon Ave
Seminary Ave	MacArthur Blvd	San Leandro St
Shepherd Canyon Rd	Saroni Dr	Skyline Blvd
Spruce St	Park Blvd	Booker St
Sunkist Dr	Edwards Ave	73rd Ave
Tompkins Ave	Carson St	High St
Webster St	8th St	2nd St
West St	Grand Ave	14th St

NOTES: Roadway segments considered for inclusion on the bikeway network but rejected through the citywide feasibility analysis

SOURCE: WSA, (2007)

APPENDIX G

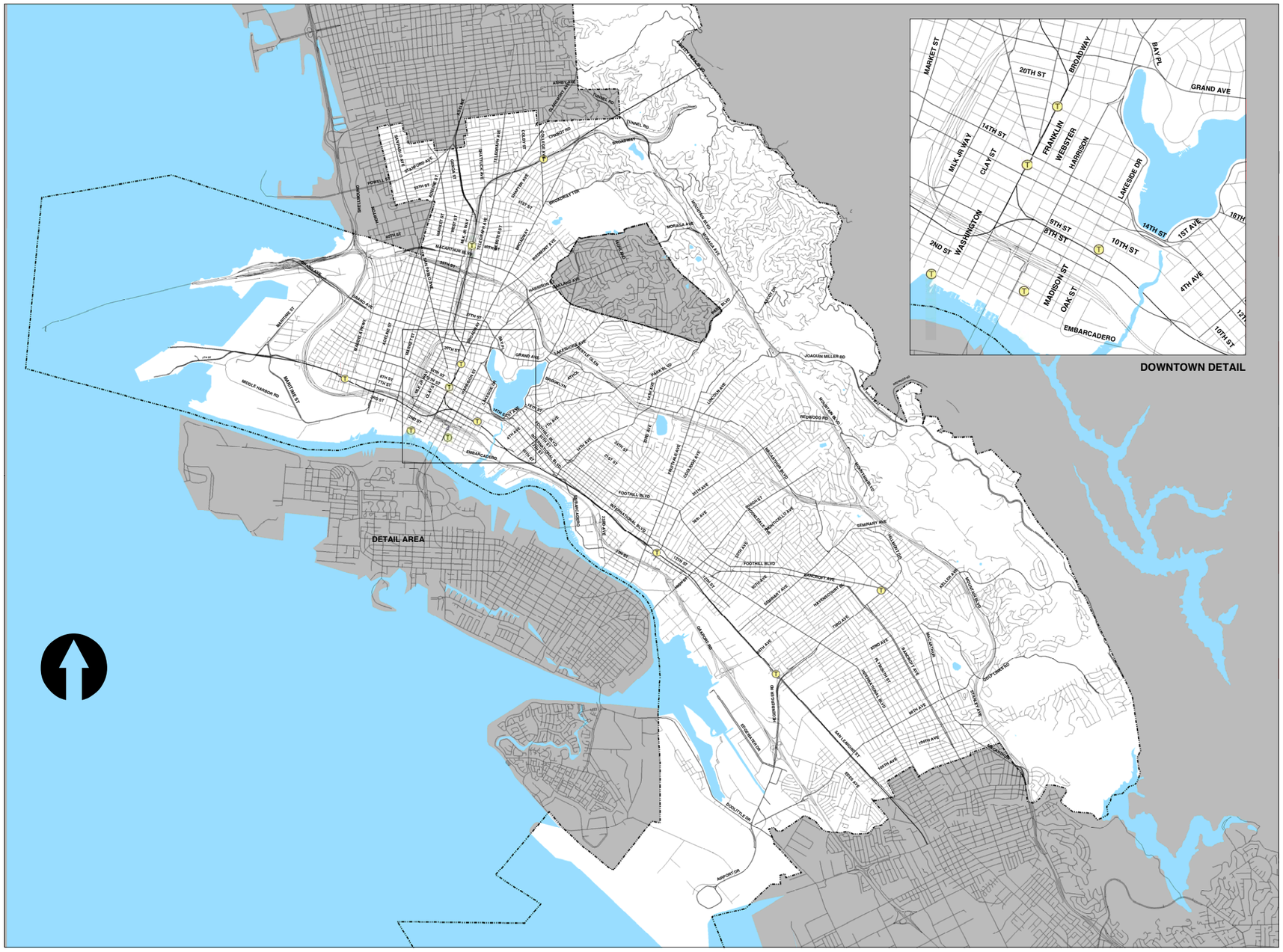
11 x 17 Color Map Figures



SOURCE: City of Oakland Community & Economic Development Agency

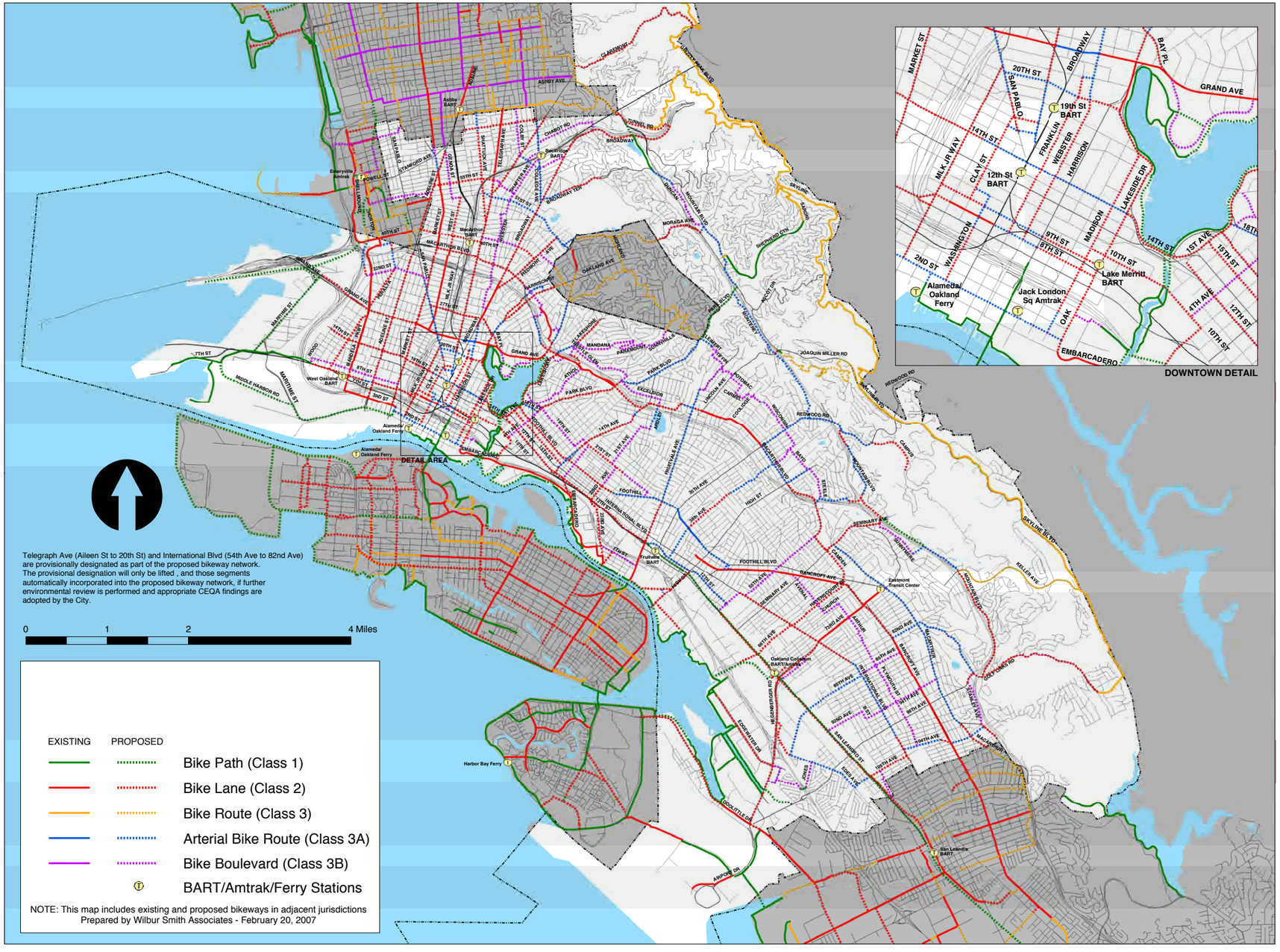
City of Oakland Bicycle Master Plan Update . 204374

Figure 5-1
1999 Bicycle Master Plan



SOURCE: Wilbur Smith Associates, 2006

Figure 4.A-1
Regional and Local Roadways

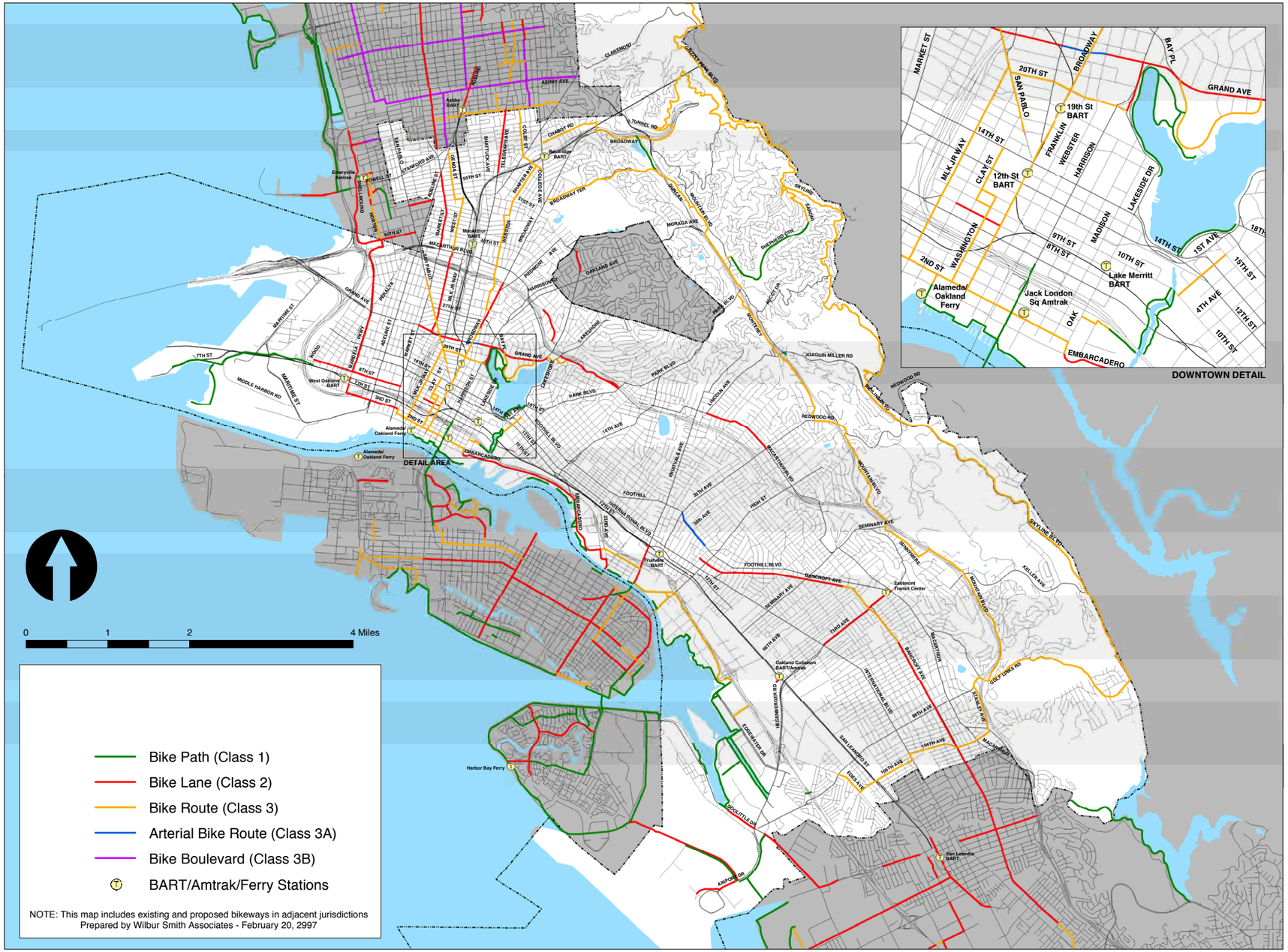


SOURCE: Wilbur Smith Associates, 2007

City of Oakland Bicycle Master Plan Update . 204374

Figure 3-2

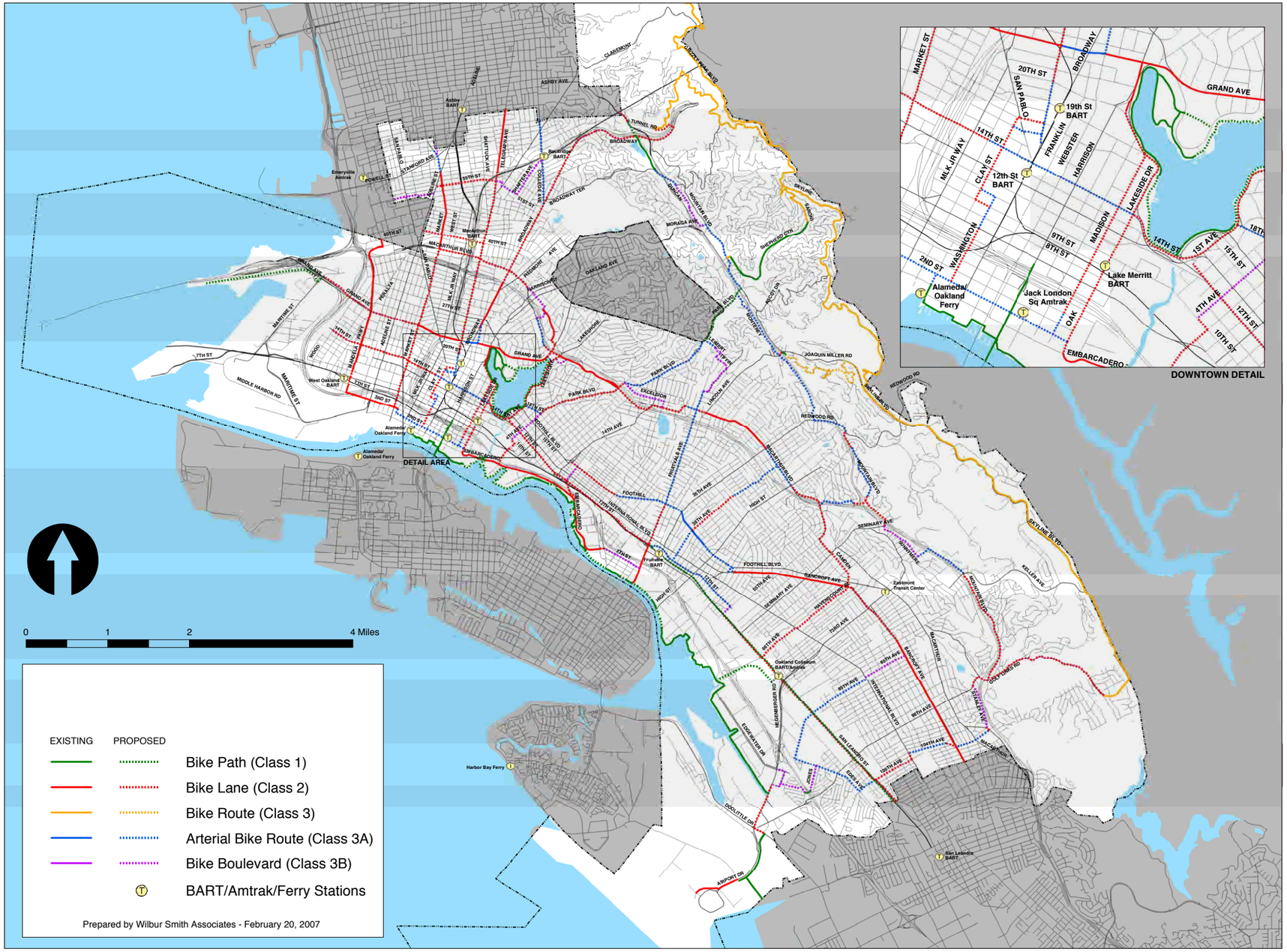
Proposed Bikeway Network



SOURCE: Wilbur Smith Associates, 2007

City of Oakland Bicycle Master Plan Update . 204374

Figure 3-1
Existing Bikeways



SOURCE: Wilbur Smith Associates, 2007

Figure 5-2
Primary Bikeways