Alternatives Analysis for the Park Blvd Path (Leimert Blvd to Monterey Blvd)
[JWP, DRAFT – February 26, 2013]

Introduction

The City of Oakland's Bicycle Master Plan (2007) proposes a bicycle path parallel to Park Blvd and along Dimond Canyon between Leimert Blvd and Monterey Blvd. The proposal is also included in the Alameda Countywide Bicycle Plan (2012) as part of a connection between the Highway 13 corridor and the Oakland waterfront at Fruitvale Ave. There is community interest in the proposal for residents walking and bicycling between the Oakmore neighborhood and Montclair Village, and from the bicycling community as a popular route for riding into the Oakland Hills. Interest in the concept dates to at least 1993 when the City submitted unsuccessful grant applications for federal funding. That proposal was to widen Park Blvd (except for the bridges) and install bike lanes in one or both directions. The current proposal includes access improvements for both bicyclists and pedestrians. This alternatives analysis presents the existing conditions plus four alternatives that highlight tradeoffs between project cost, the accommodation of different user groups, and changes to motor vehicle circulation.

Existing Conditions

Park Blvd from Leimert Blvd to Monterey Blvd is primarily a four-lane unimproved roadway of 47-48 feet in width. For three segments, the roadway is on bridge structure over the side slope of Dimond Canyon. The bridges include 10-foot wide sidewalks separated from the travel lanes by a drop curb. The entire segment is approximately 0.7 miles in length, measured from the intersections of Leimert Blvd to Monterey Blvd.

The segment is used regularly by pedestrians and bicyclists, although the overall volumes appear to be modest. The pedestrian users include walkers, joggers, and dog walkers, and these users have beaten an informal path in the roadway shoulder connecting the concrete sidewalks on the bridges. Bicycle users include casual cyclists (who typically ride on the informal path) and longer distance recreational cyclists (who typically ride in the street) on their way to or from Skyline Blvd.

Motor vehicle counts were collected most recently in February/March 2009 north of El Centro Ave as part of a speed survey for Park Blvd between I-580 and Mountain Blvd. The survey found an average daily traffic (ADT) volume of 18,668 (9,466 NB and 9,202 SB); an AM Peak Hour volume of 1,773 (635 NB and 1,138 SB); and a PM Peak Hour Volume of 1,705 (1,112 NB and 594 SB). These data are generally consistent with data from March 2003 showing an ADT of 18,753 vehicles.

Alternatives

The following four alternatives are under consideration based on the outcomes of two key choices. First, should the project create the necessary width on the canyon-side of the Park Blvd shoulder, or should it gain width from the roadway? Second, should bicyclists and pedestrians

be accommodated on a mixed-use path, or should the project create a sidewalk and an uphill bike lane?

Alternatives Matrix: Two Key Choices Create Four Alternatives

	Mixed-use path	*Sidewalk + bike lane*
Gain width on canyon-side	Alternative 1A	Alternative 1B
Gain width from road-side	Alternative 2A	Alternative 2B

Alternative 1A adds a 10' wide path to the shoulder of Park Blvd, connecting to the 10' existing sidewalks on the bridge structures. To the maximum extent feasible, the path would be separated from the roadway by a buffer of at least 5' in width. Where this lateral separation is not possible, a guardrail plus railing would be installed to keep cars off of the path and to keep bicyclists on the path from falling into the roadway. All alternatives include sharrows and bicycle warning signs in the downhill direction of Park Blvd. Most bicyclists would likely use the path in the uphill direction. Faster moving bicyclists would be encouraged to use the roadway in the downhill direction. This alternative requires the redesign of the northeast corner of the Park Blvd/Leimert Blvd intersection and the southeast corner of the Park Blvd/Monterey Blvd intersection to allow bicyclists to safely enter and exit the path. This alternative also requires the most extensive retaining walls and thus has the highest cost (as summarized in the comparison table below).

Pros: Separates bicyclists and pedestrians from the roadway.
Provides landscaped buffer where feasible.

Cons: Requires retaining walls that will be by far the most expensive project element.
Mixes bicyclists and pedestrians on the path.
Requires fences at many locations to separate the path from both the roadway and the retaining walls. Based on the current draft conceptual design, 44% of the improved path will have barriers on both sides, 14% will have a barrier on the road side only, and 42% will have no barriers on either side.

Issues: Improve layout to find ideal balance between buffer and retaining wall size (to be completed in design phase, if selected as preferred alternative.

Alternative 1B adds an 8' pedestrian path and an uphill bike lane while maintaining the existing four travel lanes on Park Blvd. This option does not require a traffic study, nor does it require modifications to the intersections at either end of the path. It is technically the easiest alternative and one of the lower cost alternatives. Its greatest weakness is that it requires narrow travel lanes and a narrow bike lane on and near the bridges. In other locations, it may be feasible to widen Park Blvd by modest amounts in order to include a striped buffer between the bike lane and the travel lanes.

Pros: Separates bicyclists from pedestrians by putting bicyclists in the roadway.
Potential to use permeable material for pedestrian path

Cons: Requires retaining walls, although less extensive than Alternative 1A.
Requires shift in face of curb and some utility relocation.

Issues: How will transitions occur at the viaducts?
Cost estimate and unknowns associated with roadway widening?
Needs coordination with City of Piedmont to shift center line of the road 1.5' west.

Alternative 2A is similar to Alternative 1A but with the following differences. Park Blvd in the uphill direction would be reduced from two travel lanes to one travel lane. This alternative requires less extensive retaining walls because the path would be built into the roadway as opposed to into the canyon. Eliminating an uphill travel lane would generally maintain the roadway centerline in its existing location. For 0.5 miles of Park Blvd above Leimert Blvd, the centerline is the boundary between the Cities of Oakland and Piedmont. Removing an uphill travel lane would avoid work in Piedmont's jurisdiction. It would also maintain two downhill travel lanes and thus encourage faster moving bicyclists to use the roadway by maintaining a second lane for vehicles to pass. This alternative requires a traffic study to analyze the removal of the travel lane. A preliminary analysis of existing and forecasted traffic volumes suggests that removal of the travel lane could cause vehicular congestion. See the section below on "Traffic Study Scope" for additional details. Alternative 2A would serve users in the same manner as Alternative 1A, and it would require the same intersection modifications at either end of the path.

Pros: Separates bicyclists and pedestrians from the roadway.
May not require retaining walls.
Landscape buffer feasible for entire length of project.
Cons: Traffic study & CEQA may lead to infeasible project or public opposition.
Issues: Should we include the known slope stabilization issues in the cost estimate?

Alternative 2B would also remove an uphill travel lane from Park Blvd with the same traffic implications. But rather than a Class 1 bicycle path, the alternative includes an 8' pedestrian path plus an uphill bike lane, or potentially a cycle track. The uphill bikeway would be separated from motor vehicle traffic by a striped buffer of approximately 3' in width. A cycle track would replace the striped buffer with a raised barrier. Such a barrier could cause drainage issues and would require regular street sweeping. Because the City's street sweepers are too wide for the cycle track, the cycle track is likely infeasible from a maintenance perspective. Where feasible, a minimum 5' buffer would be included between the bikeway and the pedestrian path. Alternatives 2A and 2B have the same overall width and thus both require the same amount of retaining wall. Alternative 2B is less expensive than Alternative 2A because the pedestrian path does not require a raised barrier to separate it from the roadway. The main difference between these two alternatives is how users are served. In Alternative 2A, bicyclists are explicitly encouraged to use the path. In Alternative 2B, bicyclists are explicitly encouraged to use the roadway. However, there is no physical means for preventing bicyclists from using the pedestrian path.

Pros: Separates bicyclists from pedestrians by putting bicyclists in the roadway.
May not require retaining walls.
Cons: Traffic study & CEQA may lead to infeasible project or public opposition.

Issues: Should we include the known slope stabilization issues in the cost estimate?

Alternatives Comparison

Alternative	Facility Type	Traffic Study	Cost Estimate
1A	Mixed-use path		≥ $2,500,000
1B	On-street bikeway plus pedestrian path		≤ $2,500,000
2A	Mixed-use path	✓	$750,000
2B	On-street bikeway plus pedestrian path	✓	$750,000

Common of All Alternatives

Pros: All alternatives could include reconfiguration of the Leimert Blvd and Monterey Blvd intersections to eliminate the slip right turns.
All alternatives will improve the street segment by adding curb and gutter to the locations that currently do not have curb and gutter and have raveling roadway edges.

Issues: The conceptual design includes curb and gutter for the entire project length. A solution is needed for roadway runoff (drainage) at segments that currently do not have curb and gutter. There are adjacent storm drain pipes that can be connected to.
Need to work with City of Piedmont to install sharrows in Southbound lane.

Traffic Study Scope

Alternatives #2A and #2B remove an uphill (northbound) travel lane from Park Blvd and thus require a traffic study to determine their feasibility. The study would analyze traffic volumes to determine how a single uphill travel lane would affect vehicular travel speeds, travel times, and the signalized intersection at Park Blvd and Leimert Blvd. This traffic signal could be optimized to allow the most green time on Park Blvd in the PM peak hour to allow more continuous flow. The study would determine the distance needed on the northbound far-side of the intersection for the two lanes to merge into a single lane without backing up into the signalized intersection. The study would also examine the maximum carrying capacity of a single northbound lane on Park Blvd to determine the effects of the lane removal on motor vehicle speeds and travel times between Leimert Blvd and Monterey Ave. Staff estimates that the traffic study alone would cost under $15,000.

Based on a preliminary review of the traffic data, it is likely that the lane reduction would cause vehicular congestion in the future year scenario (model year 2035). The peak hour directional volumes and average daily traffic are in the upper range for a single travel lane. As per the table below, AM peak hour traffic is projected to increase by 33% to 74% while PM peak hour traffic is projected to increase by 59% to 80%. Note that staff questions the validity of these numbers, given the limited amount of developable land in the Oakland Hills. However, established practice uses these numbers to evaluate projects. Given existing traffic volumes and a projected increase of 33% to 80%, it is likely that removing an uphill (northbound) travel lane would create congestion on Park Blvd.

Forecasted Traffic Volumes (AM 1 Hour)

Park Blvd Segment	*2005 NB*	*2035 NB*	*% Change NB*	*2005 SB*	*2035 SB*	*% Change SB*
Below Leimert Blvd	289	398	38%	704	1265	80%
Leimert Blvd to Estates Dr	404	703	74%	761	1441	89%
Above Estates Dr	389	562	44%	828	1645	99%
Below Monterey Ave	532	708	33%	902	1672	85%

Forecasted Traffic Volumes (PM 1 Hour)

Park Blvd Segment	*2005 NB*	*2035 NB*	*% Change NB*	*2005 SB*	*2035 SB*	*% Change SB*
Below Leimert Blvd	951	1596	68%	562	706	26%
Leimert Blvd to Estates Dr	987	1570	59%	762	866	14%
Above Estates Dr	1050	1893	80%	763	864	13%
Below Monterey Ave	1139	1868	64%	887	995	12%

Next Steps

Project stakeholders need to decide which alternative to pursue and then seek funding for project development and ultimately for construction. The preferred alternative should be selected based on community input from the City's Bicycle and Pedestrian Advisory Committee (BPAC), community members in Oakmore and Montclair, and the District 4 City Council office. Staff presented the alternatives to the BPAC in May 2010 and while there was significant interest in the overall project, the committee did not take a position on specific alternatives. The District 4 Council office hosted a community meeting in January 2007 to discuss the preliminary concept. Another such community meeting would provide an important forum for soliciting input on the preferred alternative.

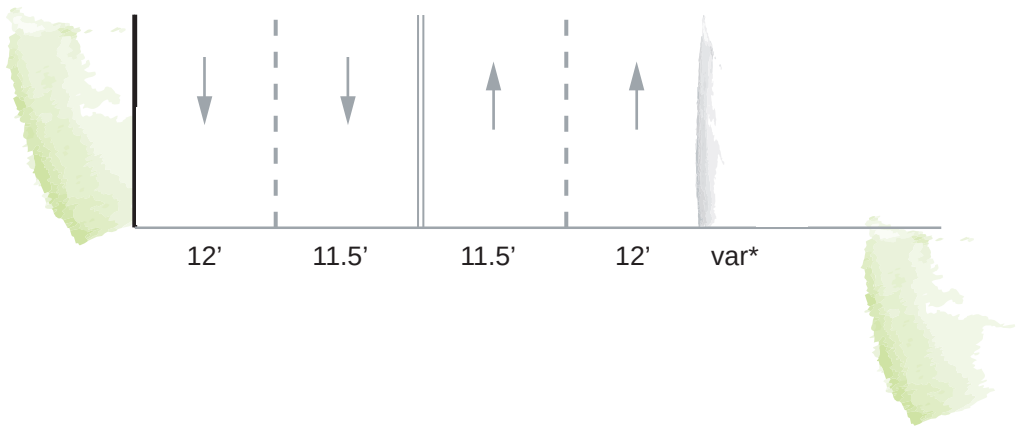
The project is included in the Alameda Countywide Bicycle Plan (2012) and thus it is eligible for competitive grants from Measure B. However, if costs exceed $1 million the project will likely require more than one source of grant funds. Other likely sources of funds are comparatively modest, and would likely be used to augment one large grant proposal to assemble a complete funding package.

Attachments

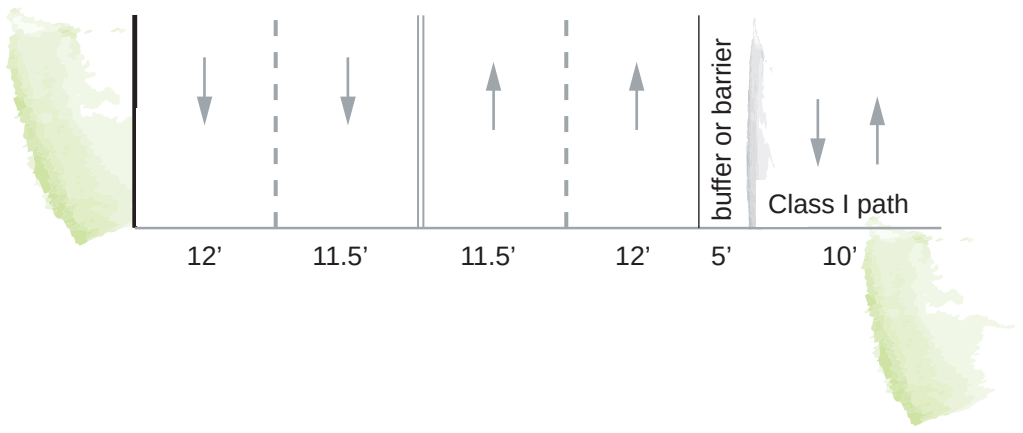
A. Alternatives Cross-sections
B. Conceptual Cost Estimates

Park Blvd Path, Existing and Alternative Cross Sections

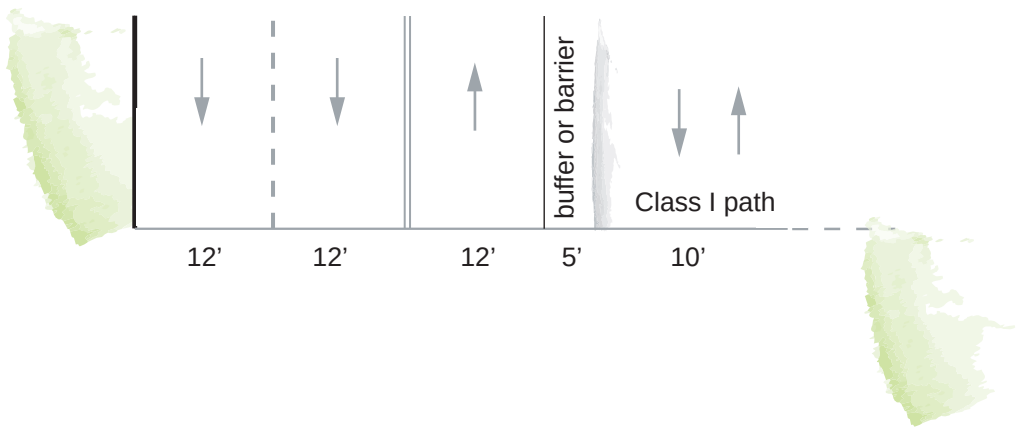
Existing
Total roadway width (from aerials): 47'-48'
plus 10' sidewalk on bridges



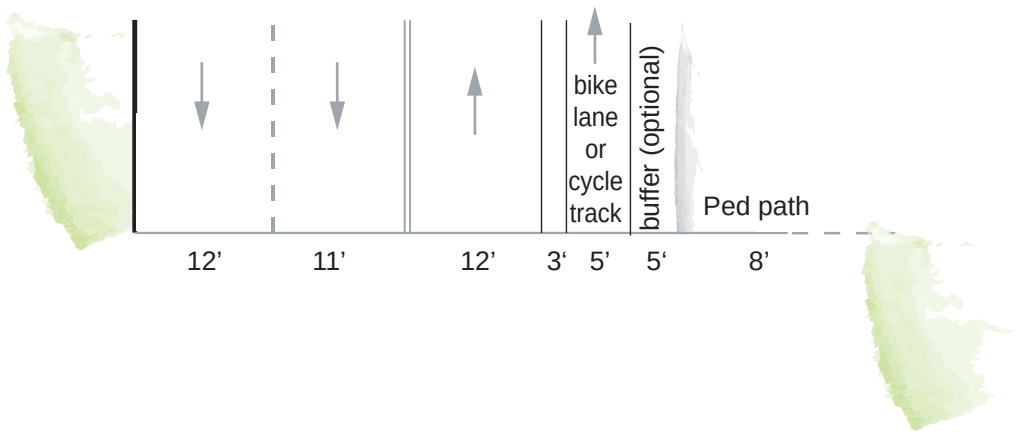
Alternative #1
Total cross-section width: 62'
- no change in roadway width
- buffer may be replaced with vertical barrier



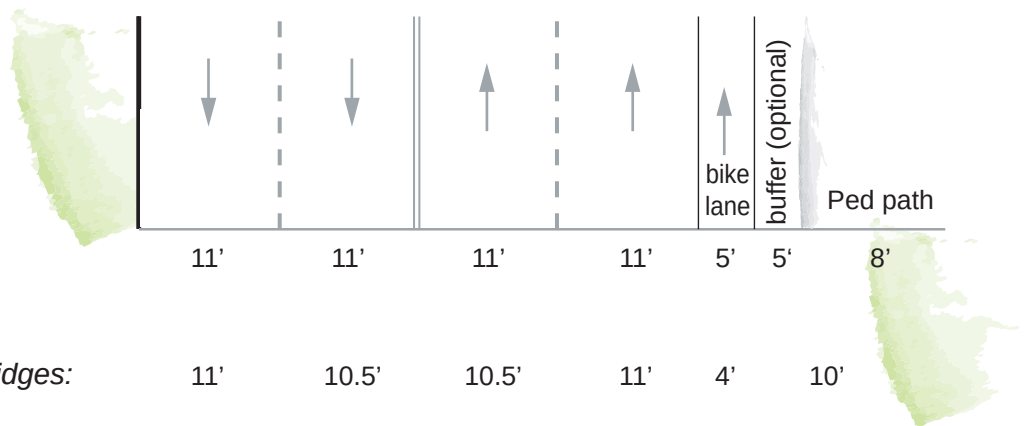
Alternative #2
Total cross-section width: 51'
- decreases roadway width by 11'



Alternative #3
Total cross-section width: 51'
- decreases roadway width by 4'
- decreases path width by 2'
- 5' buffer is optional



Alternative #4
Total cross-section width: 57'
- increases roadway width by 2'
- decreases path width by 2'
- 5' buffer is optional



On bridges: 11' 10.5' 10.5' 11' 4' 10'

draft, JS, 4/27/10

DRAFT CONCEPTUAL
ENGINEER'S CONSTRUCTION COST ESTIMATE
PARK BOULEVARD - ALTERNATIVE 1
CITY OF OAKLAND, CALIFORNIA

DATE: 03-11-2013

DESCRIPTION	QUANTITY	UNIT	UNIT COST	EXTENSION
PREPARATION PHASE / MISC				
MOBILIZATION / DEMOBILIZATION	1	LS	$100,000.00	$100,000
EROSION CONTROL MEASURES	1	LS	$30,000.00	$30,000
RESEEDING	1	LS	$10,000.00	$10,000
TRAFFIC CONTROL	1	LS	$15,000.00	$15,000
CLEAR AND GRUB	2	AC.	$5,000.00	$8,379
REMOVE GUARDRAIL	613	L.F.	$15.00	$9,195
SUBTOTAL				**$172,600**

SITEWORK				
SOLDIER PILE AND LAGGING RETAINING WALL (9 FT MAX)	675	L.F.	$2,365.00	$1,596,375
EARTHWORK (FILL)	1,688	C.Y.	$15.00	$25,313
CLASS I BIKE/PEDESTRIAN PATH	28,400	S.F.	$4.00	$113,600
ASPHALT CURB	675	L.F.	$21.00	$14,175
BARRIER	2,173	L.F.	$15.00	$32,595
GUARDRAIL (AT RETAINING WALL)	675	LF	$110.00	$74,250
CONCRETE CURB AND GUTTER	1,010	LF	$35.00	$35,350
SHARROWS	24	EA.	$200.00	$4,867
SIGNAGE	20	EA.	$500.00	$10,000
~~RELOCATE UTILITIES INLETS & OTHER~~	~~10~~	~~EA.~~	~~$2,500.00~~	-
BUS STOP (ADA RAMP, BENCHES, SIGNAGE)	1	EA.	$7,000.00	$7,000
SUBTOTAL				**$1,913,600**

LEIMERT BLVD/ PARK AVE INTERSECTION				
REMOVE CURB & GUTTER	420	L.F.	$9.00	$3,780
REMOVE AC PAVEMENT	2,860	S.F.	$2.00	$5,720
RELOCATE SIGNAGE	2	EA.	$500.00	$1,000
REMOVE CONCRETE SIDEWALK	6,000	S.F.	$3.50	$21,000
RELOCATE TRAFFIC SIGNAL	1	EA.	$2,400.00	$2,400
RELOCATE UTILITY BOX	1	EA.	$8,000.00	$8,000
CURB & GUTTER	200	L.F.	$32.00	$6,400
AC PAVEMENT	40	S.F.	$4.00	$160
CROSS WALK STRIPING	2	EA.	$500.00	$1,000
ADA CURB RAMP	2	EA.	$2,500.00	$5,000
CONCRETE SIDEWALK	1,325	S.F.	$10.00	$13,250
LANDSCAPING	7,535	S.F.	$1.00	$7,535
BUS STOP (BENCHES, SIGNAGE)	1	EA.	$4,500.00	$4,500
SUBTOTAL				**$79,800**

MONTEREY BLVD/ PARK AVE INTERSECTION				
REMOVE CURB & GUTTER	260	L.F.	$9.00	$2,340
REMOVE AC PAVEMENT	2,000	S.F.	$2.00	$4,000
RELOCATE SIGNAGE	1	EA.	$500.00	$500
REMOVE CONCRETE SIDEWALK	600	S.F.	$3.50	$2,100
RELOCATE TRAFFIC SIGNAL	1	EA.	$1,200.00	$1,200
RELOCATE LIGHT POLE	1	EA.	$2,400.00	$2,400
CURB & GUTTER	200	L.F.	$32.00	$6,400
AC PAVEMENT	40	S.F.	$4.00	$160
CROSS WALK STRIPING	2	EA.	$500.00	$1,000
ADA CURB RAMP	2	EA.	$2,500.00	$5,000
CONCRETE SIDEWALK	1,000	S.F.	$10.00	$10,000
LANDSCAPING	1,600	S.F.	$1.00	$1,600
SUBTOTAL				**$36,700**

SUBTOTAL	**$2,203,000**
PROJECTED 2015 SUBTOTAL	**$2,337,163**
ENGINEER'S ESTIMATE CONTINGENCY (15%)	**$351,000**
GRAND TOTAL CONSTRUCTION	**$2,689,000**

NOTES:

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DRAFT CONCEPTUAL
ENGINEER'S CONSTRUCTION COST ESTIMATE
PARK BOULEVARD - ALTERNATIVE 2
CITY OF OAKLAND, CALIFORNIA

DATE: 03-11-2013

DESCRIPTION	QUANTITY	UNIT	UNIT COST	EXTENSION
PREPARATION PHASE / MISC				
MOBILIZATION / DEMOBILIZATION	1	LS	$50,000.00	$50,000
EROSION CONTROL MEASURES	1	LS	$15,000.00	$15,000
RESEEDING	1	LS	$5,000.00	$5,000
TRAFFIC CONTROL	1	LS	$15,000.00	$15,000
~~CLEAR AND GRUB~~	~~0~~	~~AC.~~	~~$2,000.00~~	~~$0~~
REMOVE PAVEMENT	31,683	S.F.	$2.00	$63,365
REMOVE CONC CURB & GUTTER	806	L.F.	$9.00	$7,254
REMOVE AC CURB	991	L.F.	$5.00	$4,955
REMOVE GRAVEL TRAIL	22,040	S.F.	$3.00	$66,120
~~REMOVE GUARDRAIL~~	~~0~~	~~L.F.~~	~~$15.00~~	~~$0~~
SUBTOTAL				**$226,700**

SITEWORK				
~~SOLDIER PILE & LAGGING RETAINING WALL~~	~~0~~	~~L.F.~~	~~$2,250.00~~	~~$0~~
~~EARTHWORK (FILL)~~	~~0~~	~~C.Y.~~	~~$15.00~~	~~$0~~
CLASS I BIKE/PEDESTRIAN PATH	27,550	S.F.	$4.00	$110,200
~~ASPHALT CURB~~	~~0~~	~~L.F.~~	~~$21.00~~	~~$0~~
~~BARRIER~~	~~0~~	~~L.F.~~	~~$15.00~~	~~$0~~
~~GUARDRAIL (AT RETAINING WALL)~~	~~0~~	~~LF~~	~~$110.00~~	~~$0~~
CONCRETE CURB AND GUTTER	2,755	LF	$35.00	$96,425
LANDSCAPE BUFFER	13,775	S.F.	$1.00	$13,775
SHARROWS	24	EA.	$200.00	$4,867
SIGNAGE	20	EA.	$500.00	$10,000
RELOCATE UTILITIES INLETS & OTHER	10	EA.	$6,000.00	$60,000
BUS STOP (ADA RAMP, BENCHES, SIGNAGE)	1	EA.	$7,000.00	$7,000
SUBTOTAL				**$302,300**

LEIMERT BLVD/ PARK AVE INTERSECTION				
REMOVE CURB & GUTTER	420	L.F.	$9.00	$3,780
REMOVE AC PAVEMENT	2,860	S.F.	$2.00	$5,720
RELOCATE SIGNAGE	2	EA.	$500.00	$1,000
REMOVE CONCRETE SIDEWALK	6,000	S.F.	$3.50	$21,000
RELOCATE TRAFFIC SIGNAL	1	EA.	$2,400.00	$2,400
RELOCATE UTILITY BOX	1	EA.	$8,000.00	$8,000
CURB & GUTTER	200	L.F.	$32.00	$6,400
AC PAVEMENT	40	S.F.	$4.00	$160
CROSS WALK STRIPING	2	EA.	$500.00	$1,000
ADA CURB RAMP	2	EA.	$2,500.00	$5,000
CONCRETE SIDEWALK	1,325	S.F.	$10.00	$13,250
LANDSCAPING	7,535	S.F.	$1.00	$7,535
BUS STOP (BENCHES, SIGNAGE)	1	EA.	$4,500.00	$4,500
SUBTOTAL				**$79,800**

MONTEREY BLVD/ PARK AVE INTERSECTION				
REMOVE CURB & GUTTER	260	L.F.	$9.00	$2,340
REMOVE AC PAVEMENT	2,000	S.F.	$2.00	$4,000
RELOCATE SIGNAGE	1	EA.	$500.00	$500
REMOVE CONCRETE SIDEWALK	600	S.F.	$3.50	$2,100
RELOCATE TRAFFIC SIGNAL	1	EA.	$1,200.00	$1,200
RELOCATE LIGHT POLE	1	EA.	$2,400.00	$2,400
CURB & GUTTER	200	L.F.	$32.00	$6,400
AC PAVEMENT	40	S.F.	$4.00	$160
CROSS WALK STRIPING	2	EA.	$500.00	$1,000
ADA CURB RAMP	2	EA.	$2,500.00	$5,000
CONCRETE SIDEWALK	1,000	S.F.	$10.00	$10,000
LANDSCAPING	1,600	S.F.	$1.00	$1,600
SUBTOTAL				**$36,700**

SUBTOTAL	**$646,000**
PROJECTED 2015 SUBTOTAL	**$685,341**
ENGINEER'S ESTIMATE CONTINGENCY (15%)	**$103,000**
GRAND TOTAL CONSTRUCTION	**$789,000**

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