C. TRANSPORTATION, CIRCULATION AND PARKING

This section describes the existing traffic and circulation, parking and transit conditions for the Measure DD Implementation Project component sites. This section also identifies potential impacts to the transportation network that may result from implementation of Measure DD and recommends mitigation measures to reduce potentially significant impacts, as appropriate.

The section is organized differently than other sections of the EIR due to the complexity of the traffic analysis; the setting, impacts and mitigation are organized by project group. The discussion of each group includes a brief description of the components as they relate to transportation; the methods used for analysis; the existing conditions and applicable regulations; and the potential impacts and mitigation measures. Three of the four groups (Groups 1 through 3) have some potential to cause impacts to transportation, circulation or parking. The fourth, the City-wide Creeks group, would not yield any impact to the transportation and circulation network and is not discussed further within this section.

1. Lake Merritt and Lake Merritt Channel (Group 1)

The Lake Merritt and Lake Merritt Channel group includes roadway improvements in three areas: Lakeshore Avenue, Lakeside Drive/Harrison Street, and 12th Street. The transportation and circulation analysis focuses on these areas.

The transportation and circulation improvements associated with Group 1 would contain the following elements:

- Reconfiguration of El Embarcadero between Grand Avenue and Lakeshore Avenue;
- Reconfiguration of 12th Street with improved pedestrian and bicycle access;
- Reconfiguration of the Snow Park/Lakeside-Harrison-20th Street intersection;
- Narrowing of Lakeside Drive at 13th Street to three lanes, then just north of 14th Street to two lanes with Class II bike lane;
- Narrowing of southbound Harrison Street from Grand Avenue to just north of its intersection with Lakeside Drive to three lanes with a Class II bike lane that would extend to Madison Street; and
- Narrowing of Lakeshore Avenue between E. 18th Street and just south of El Embarcadero to two travel lanes with left-turn lanes and installation of Class II bike lanes.

During the project design process, two project development scenarios were studied: the project as defined in the Project Description; and a "No El Embarcadero" scenario, where El Embarcadero would be closed entirely between Grand Avenue and Lakeshore Avenue. Because the preliminary traffic analysis for the No El Embarcadero scenario showed substantial impacts to the Lake Park and Lakeshore Avenue intersection and other nearby intersections, closure of El Embarcadero was dropped from further consideration. The results of the preliminary traffic analysis for the No El Embarcadero scenario are provided in Appendix E.

As part of the project, Lakeshore Avenue may be reconfigured in one of two different ways. Variant A assumes that left-turn pockets would be installed on Lakeshore Avenue. Variant B assumes that a two-way left-turn lane would be installed on Lakeshore Avenue. As Variants A and B would

essentially function in the same manner operationally, they were not analyzed separately but are discussed qualitatively and referred to collectively as the project in the discussion and analysis.

a. Setting (Group 1). This section discusses the methods used for analyzing transportation systems, the applicable regulations, and the existing site conditions for the Lake Merritt and Lake Merritt Channel group.

(1) Methods. Potential impacts that Group 1 components may have on transportation systems were evaluated with respect to roadways, transit, and bicycle and pedestrian facilities as described in the following paragraphs.

Roadways. Levels of service (LOS) at 55 intersections within the Lake Merritt and Lake Merritt Channel group were evaluated for weekday morning (AM) and evening (PM) peak hours. The intersections identified as having the greatest potential for traffic impacts were assessed under the following conditions:

- Existing Conditions
- Existing Conditions Plus Project (Variant A or B)
- Cumulative Conditions (2025)
- Cumulative Conditions (2025) Plus Project (Variant A or B)

The LOS at each study area intersection was analyzed for the AM and PM peak hours using methodologies described in the Highway Capacity Manual.[1] The LOS for signalized and unsignalized intersections is defined in terms of delay, which is a complex measure dependent upon a number of variables. The most basic of these is the number of vehicles in the traffic stream, but for signalized intersections, delay is also dependent on the quality of signal progression, the signal cycle length, and the "green" ratio for each approach or lane group. The LOS criteria for signalized intersections are presented in Table IV.C-1. For intersections with one or two stop signs, delay is dependent on the number of gaps available in the uncontrolled traffic stream. The LOS criteria for unsignalized intersections are presented in Table IV.C-2.

In addition, the intersection of Lake Park Avenue and Lakeshore Avenue was also analyzed for Saturday peak hour to evaluate the potential impacts of the project during the operation of Lake Merritt Farmer's Market.

Transit System. The Highway Capacity Manual arterial analysis method was used to evaluate potential impacts to primary bus routes during weekday morning and evening peak hours. The arterial analysis considers travel times, average speeds, parking movements, and arterial LOS. The transit corridors studied include:

- Eastbound 12th Street from Madison Street to 2nd Avenue along E. 15th Street
- Westbound 12th Street from 2nd Avenue along Foothill Boulevard to Madison Street
- Harrison Street from Grand Avenue to 20th Street in both directions.

[1] *Highway Capacity Manual, 2000.* Transportation Research Board.

Table IV.C-1: Level of Service Criteria – Signalized Intersections

Level of Service (LOS)	Average Delay (seconds/vehicle)	Description
A	$\leq$ 10	Very Low Delay: This level of service occurs when progression is extremely favorable and most vehicles arrive during a green phase. Most vehicles do not stop at all.
B	> 10 and < 20	Minimal Delays: This level of service generally occurs with good progression, short cycle lengths, or both. More vehicles stop than at LOS A, causing higher levels of average delay.
C	> 20 and < 35	Acceptable Delay: Delay increases due to only fair progression, longer cycle lengths, or both. Individual cycle failures (to service all waiting vehicles) may begin to appear at this level of service. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.
D	> 35 and < 55	Approaching Unstable Operation/Significant Delays: The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume/capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55 and < 80	Unstable Operation/Substantial Delays: These high delay values generally indicate poor progression, long cycle lengths, and high volume/capacity ratios. Individual cycle failures are frequent occurrences.
F	> 80	Excessive Delays: This level, considered unacceptable to most drivers, often occurs with over-saturation (that is, when arrival traffic volumes exceed the capacity of the intersection). It may also occur at nearly saturated conditions with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

Source: Transportation Research Board, *Highway Capacity Manual*, Washington, D.C., 2000, pages 10-16 and 16-2.

Table IV.C-2: Level of Service Criteria – Stop-Controlled Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

Source: Transportation Research Board, *Highway Capacity Manual*, Washington, D.C., 2000, pages 10-16 and 16-2.

Bicycle and Pedestrian Facilities. Potential impacts to bicycle and pedestrian facilities were assessed by evaluating whether the project group would substantially increase traffic hazards or conflict with adopted policies, plans, or programs supporting bicycle and pedestrian mobility.

(2) Existing Conditions. The existing transportation setting within the Group 1 area is described in this section. The local roadway network is described and current conditions at the study intersections are summarized. Transit system and bicycle and pedestrian facilities are also discussed.

Roadways. The Group 1 area roadway network is shown in Figure IV.C-1. The local street network that serves the Lake Merritt area is described below. The regional transportation system is not expected to be significantly impacted by Group 1 components of Measure DD because any effects, such as traffic diversions, would occur close to the project vicinity and impact primarily the local roadway network.

- Grand Avenue runs from I-80 west of the project area to beyond I-580 to the east. Along much of its length it has two lanes in each direction along with bike lanes. Grand Avenue generally forms the northern boundary of the project area around Lake Merritt.
- Santa Clara Avenue is a four-lane arterial that crosses Grand Avenue and provides access to and from I-580 west of Grand Avenue.
- Lake Park Avenue is a half-mile long street that links MacArthur Boulevard east of the project area to Grand Avenue where it becomes Santa Clara Avenue and provides access to I-580. It operates one-way westbound between MacArthur Boulevard and Lakeshore Avenue.
- MacArthur Boulevard runs parallel to and southwest of I-580 from Oakland Avenue to 14th Avenue and provides several access points to and from eastbound I-580. In the project area it is one-way eastbound with four lanes between Grand Avenue and Lakeshore Avenue.
- El Embarcadero is a four-lane divided roadway connection between Grand Avenue and Lakeshore Avenue with an approximately 100-foot-wide median separating the directions of travel.
- Lakeshore Avenue is a one-mile-long, four-lane road that runs along the eastern shore of Lake Merritt. Lakeshore Avenue forms most of the eastern boundary of the project area around Lake Merritt. At its southern end, Lakeshore Avenue connects directly to 12th Street.
- 1st Avenue is a four-lane road that provides a direct connection between Lakeshore Avenue and 12th Street along the southeast side of Lake Merritt. It has two eastbound lanes and one westbound lane between E. 14th and E. 15th Streets and three eastbound lanes and two westbound lanes north of E. 15th Street.
- 2nd Avenue is a two-lane two-way street that extends from 10th Street to E. 18th Street.
- 5th Avenue runs from the Oakland Inner Harbor north to Park Boulevard. In the project vicinity, it has two travel lanes.
- 12th Street is a 12-lane divided roadway that crosses the Lake Merritt Channel. Grade-separations and ramps connect 12th Street to 1st Street, E. 12th Street and Lakeshore Avenue on its east end and to 11th, 13th, 14th Streets and Lakeside Drive at the west side of the Lake Merritt Channel. As 12th Street approaches Oak Street, it becomes one-way westbound as part of the downtown grid street system.
- E. 18th Street operates from Lakeshore Avenue to 14th Avenue. In the project vicinity, it is a four-lane roadway with a median.
- Foothill Boulevard is an arterial roadway that runs from Lakeshore Avenue east and terminates at MacArthur Boulevard in East Oakland near Evergreen Cemetery. In the project vicinity, it is a two-lane street serving traffic one-way toward Lake Merritt. It forms a one-way couplet with E. 15th Street.
- E. 15th Street is a local road that extends from 1st Avenue to 14th Avenue as an eastbound one-way street. East of 14th Avenue, it continues as a two-way roadway to just east of 26th Avenue.

LSA

FIGURE IV.C-1

N

NOT TO SCALE

LEGEND

EXISTING INTERSECTION

NEW INTERSECTION

Oakland Measure DD
Study Intersections

SOURCE: DOWLING ASSOCIATES, INC., 2007.

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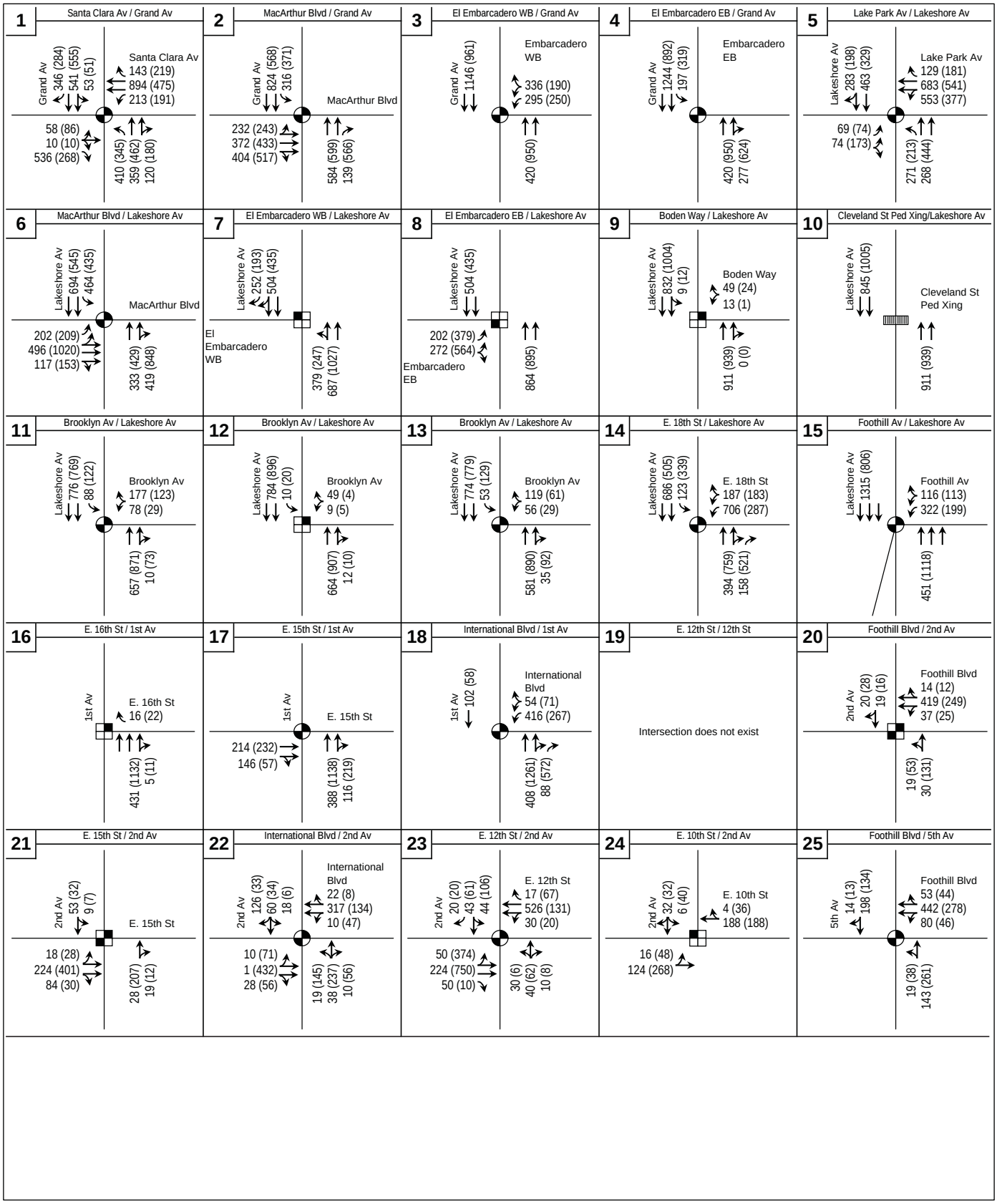
- International Boulevard (E. 14th Street) is a four-lane arterial generally having no left-turn lanes except at its intersection with 1st Avenue.
- E. 12th Street is a four-lane arterial roadway with no left-turn lanes and ramp-like connections to the east end of 12th Street and 1st Avenue.
- 14th Street is a four-lane two-way arterial roadway that connects to the west side of 12th Street at the west side of the Lake Merritt Channel.
- 11th and 13th Streets are four-lane eastbound one-way streets that connect to 12th Street via ramps at the west side of the Lake Merritt Channel.
- 10th Street is a four-lane one-way westbound street west of Madison Street. Between Madison and Oak Streets, 10th Street is a four-lane two-way street transitioning to two lanes east of Oak Street.
- 8th Street is a four-lane westbound street that forms a one-way couplet with the four-lane eastbound 7th Street west of Fallon Street. 8th Street terminates at Fallon Street.
- 7th Street is a two-way four-lane divided roadway east of Fallon Street. East of Lake Merritt Channel, it swings to the north and becomes E. 8th Street.
- Embarcadero is an east-west roadway that travels for about one mile along the Oakland Estuary from west of Market Street to Oak Street, where it continues as Embarcadero East. Railroad tracks that are actively being used by Amtrak and other commercial transportation companies are found along Embarcadero.
- Harrison Street has four southbound lanes and five northbound lanes between Thomas L. Berkley Way (20th Street) and Grand Avenue. There are three lanes in each direction between Grand Avenue and 27th Street, with two lanes each direction north of 27th Street and south of Thomas L. Berkley Way (20th Street).
- 20th Street is a four-lane east-west roadway that runs between Lake Merritt and Castro Street in the project vicinity.
- Madison Street operates one-way southbound from Lakeside Drive towards the Oakland Estuary, terminating at the railroad tracks just before Embarcadero. In the project area, Madison Street has three travel lanes with metered parking on both sides of the street to the north of 11th Street and a combination of unrestricted and 2 hour parking to the south of 11th Street.
- Oak Street is a two-way street from Embarcadero to 6th Street and one-way northbound from 6th Street to International Boulevard, where it becomes Lakeside Drive at 14th Street. Oak Street is a four-lane roadway in the project vicinity and provides access to and from I-880 at 5th and 6th Streets. Metered parallel parking is provided on the west side of the street.
- Lakeside Drive is a one-way northbound four-lane roadway from 14th Street to just south of 17th Street, where it is reduced to three lanes northbound to Madison Street. From Madison Street to Harrison Street/20th Street, Lakeside Drive is a four-lane two-way street. Lakeside Drive has parking along both sides from 14th Street to Jackson Street.

Existing Traffic Volumes. Existing weekday AM and PM peak-hour traffic turning movement counts were collected at all study intersections within the last three years. Three years is considered acceptable by the City as traffic volumes tend to be relatively stable over that length of time. New traffic counts were collected in the winter of 2006 for intersections where recent count data were not available. Saturday peak hour traffic counts were collected at the intersection of Lake Park Avenue and Lakeshore Avenue in Spring 2007 in order to evaluate the project's impacts within the context of the nearby Saturday farmer's market. Intersection turning volumes are shown in Figures IV.C-2a and IV.C-2b.



LSA

NOT TO SCALE

KEY

31 (27) = AM (PM) peak hour traffic volume

= Signalized intersection

= Intersection approach lane

= Intersection with one stop sign

= Intersection with two-way stop sign

= Intersection with three-way stop sign

FIGURE IV.C-2a

Oakland Measure DD

Existing Traffic Volumes, Lanes, and Traffic Controls

SOURCE: DOWLING ASSOCIATES, INC., 2007.

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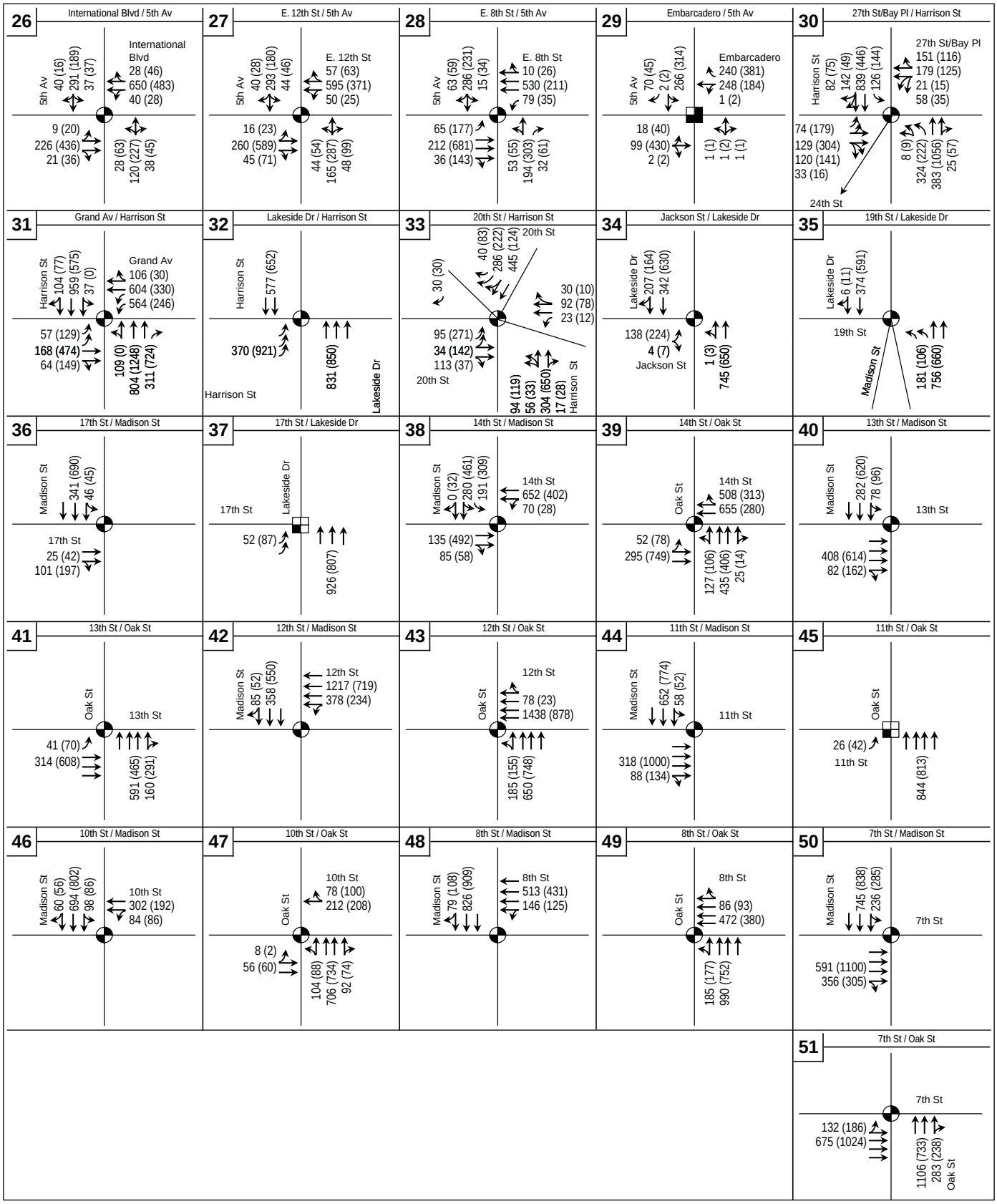

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NOT TO SCALE

KEY

31 (27) = AM (PM) peak hour traffic volume

= Signalized intersection

= Intersection approach lane

= Intersection with one stop sign

= Intersection with two-way stop sign

= Intersection with three-way stop sign

FIGURE IV.C-2b

Oakland Measure DD

Existing Traffic Volumes, Lanes, and Traffic Controls

SOURCE: DOWLING ASSOCIATES, INC., 2007.

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Existing Conditions. The existing LOS at the study intersections are summarized in Table IV.C-3. LOS calculation worksheets are included in Appendix E. Currently, seven study intersections operate below City of Oakland's LOS standards (at or below Level E):

- Santa Clara Avenue/Grand Avenue intersection operates at LOS E during the AM peak hour
- Lake Park Avenue/Lakeshore Avenue intersection operates at LOS E during the AM peak hour
- MacArthur Boulevard/Lakeshore Avenue intersection operates at LOS F during the PM peak hour
- El Embarcadero (EB)/Lakeshore Avenue intersection operates at LOS E and LOS F during the AM and PM peak hours, respectively
- E. 18th Street/Lakeshore Avenue intersection operates at LOS E during the PM peak hour
- Embarcadero/5th Avenue intersection operates at LOS E during the PM peak hour
- 27th Street/Bay Place/Harrison Street intersection operates at LOS F during the AM peak hour

The Lake Park Avenue/Lakeshore Avenue intersection is operating at LOS C during the Saturday peak hour with an average intersection delay of 25.1 seconds.

The existing travel times and speeds along 12th Street and Harrison Street are summarized in Table IV.C-4.

Transit System. The project area is served by a large number of AC Transit bus routes. The following routes have the greatest potential to be impacted by the Lake Merritt and Lake Merritt Channel group:

- Routes that link downtown to East Oakland via 12th Street or 14th Street may be affected by the 12th Street reconfiguration, and include Routes 1, 1R, 13, 14, 18, 40, 801, and 840.
- Routes 11, 805 and NL run on Harrison Street and Route 59 runs along a portion of Lakeside Drive. These routes may be affected by the proposed narrowing of Harrison Street and Lakeside Drive.

Currently, all arterials along primary bus routes operate within City LOS standards, which allow LOS E traffic conditions in the area west of Lake Merritt. AC Transit is proposing Bus Rapid Transit (BRT) improvements that would create bus lanes and BRT stations on arterial streets in the cities of Berkeley, Oakland, and San Leandro. The project would include specially designed passenger boarding platforms, shelters, NextBus signs and bus priority at traffic signals. The new service would operate primarily on Telegraph Avenue, International Boulevard and East 14th Street. The cumulative transportation analysis assumed that these improvements would be implemented.

Bicycle and Pedestrian Facilities. Bicycle facilities in the Lake Merritt area are limited and disconnected. Class II bike lanes are found along Grand Avenue from El Embarcadero west to Webster Street then continue as both Class II and Class III facilities to terminate at Market Street. A Class III bike route extends west along 20th Street from the lake. Another Class III facility connects 1st Avenue to 2nd Avenue via E. 15th Street then turns southward to Channel Park. Lastly, a Class I bike path runs along Channel Park to terminate near the intersection of 4th Street and Oak Street. These facilities are shown in Figure IV.C-3. Pedestrian facilities such as sidewalks and crosswalks are found throughout the project area. Figure IV.C-4 shows the existing pedestrian crosswalks in the area.

Table IV.C-3: Intersection Levels of Service – Existing Conditions

Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
		LOS[b]	Delay[c]	LOS[b]	Delay[c]
1. Santa Clara Ave/Grand Ave[a]	Signal	**E**	61.6	D	46.4
2. MacArthur Blvd/Grand Ave	Signal	C	26.0	C	29.2
3. El Embarcadero (WB)/Grand Ave	Signal	B	14.1	A	9.1
4. El Embarcadero (EB)/Grand Ave	Signal	A	4.7	C	21.7
5. Lake Park Ave/Lakeshore Ave	Signal	**E**	77.2	D	35.2
6. MacArthur Blvd/Lakeshore Ave	Signal	D	36.0	**F**	89.3
7. El Embarcadero (WB)/Lakeshore Ave [f]	Minor Stop	N/A	N/A	N/A	N/A
8. El Embarcadero (EB)/Lakeshore Ave	Minor Stop	**E**	38.2	**F**	180.2
9. Boden Way/Lakeshore Ave	Minor Stop	C	23.0	B	13.9
10. Cleveland St/Lakeshore Ave	Ped Xing	A	2.1	A	2.2
11. Brooklyn Ave/Lakeshore Ave	Signal	A	8.0	A	7.3
12. Wesley Ave/Lakeshore Ave	Minor Stop	C	15.1	C	24.5
13. Hanover Ave/Lakeshore Ave	Signal	B	13.5	B	19.1
14. E. 18th St/Lakeshore Ave	Signal	C	30.6	**E**	55.7
15. Foothill Blvd/Lakeshore Ave	Signal	B	14.3	C	27.7
16. E. 16th St/1st Ave	Minor Stop	B	10.6	B	13.5
17. E. 15th St/1st Ave	Signal	B	15.2	C	20.8
18. E. 14th St/1st Ave	Signal	B	15.7	C	27.1
19. E. 12th St/1st Ave		Future Intersection			
20. Foothill Blvd/2nd Ave	Minor Stop	C	15.7	C	15.5
21. E. 15th St/2nd Ave	Minor Stop	B	12.7	C	18.3
22. E. 14th St/2nd Ave	Signal	A	9.6	B	19.6
23. E. 12th St/2nd Ave	Signal	B	16.4	B	17.0
24. E. 10th St/2nd Ave	Minor Stop	B	11.6	C	16.1
25. Foothill Blvd/5th Ave	Signal	B	13.2	B	13.4
26. E. 14th St/5th Ave	Signal	B	13.7	B	13.2
27. E. 12th St/5th Ave	Signal	B	12.4	B	16.4
28. E. 8th St/5th Ave	Signal	B	11.5	B	13.3
29. Embarcadero /5th Ave	Minor Stop	B	12.5	**E**	39.0
30. 27th St/Bay Pl/Harrison St	Signal	**F**	146.3	C	31.8
31. Grand Ave/Harrison St [e]	Signal	D	39.4	C	34.8
32. Harrison St/Lakeside Dr [e]	Signal	A	9.1	B	13.0
33. 20th St/Harrison St [e]	Signal	D	35.5	C	34.6
34. Jackson St/Lakeside Dr [e]	Signal	A	7.2	A	8.9
35. Madison St/Lakeside Dr [e]	Signal	A	6.4	B	11.1
36. 17th St/Madison St [e]	Signal	B	12.9	B	13.6
37. 17th St/Lakeside Dr [e]	Minor Stop	B	11.8	B	11.6
38. 14th St/Madison St [e]	Signal	B	15.0	B	14.8
39. 14th St/Lakeside Dr [e]	Signal	B	13.6	B	10.9
40. 13th St/Madison St [e]	Signal	B	10.5	B	12.0
41. 13th St/Oak St [e]	Signal	B	17.7	B	16.5
42. 12th St/Madison St [e]	Signal	A	5.3	A	8.5
43. 12th St/Oak St [e]	Signal	B	13.7	B	13.5
44. 11th St/Madison St [e]	Signal	B	12.0	B	12.1
45. 11th St/Oak St [e]	Minor Stop	B	10.9	B	11.1
46. 10th St/Madison St [e]	Signal	A	5.3	A	4.5
47. 10th St/Oak St [e]	Signal	A	8.8	A	9.7
48. 8th St/Madison St [e]	Signal	A	9.2	A	8.5

Table IV.C-3 *Continued*

Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
		LOS[b]	Delay[c]	LOS[b]	Delay[c]
49. 8th St/Oak St [e]	Signal	B	17.1	B	16.1
50. 7th St/Madison St [e]	Signal	B	16.8	B	16.2
51. 7th St/Oak St [e]	Signal	B	13.5	B	13.3

Notes:
[a] Intersections that currently operate below the City of Oakland's LOS standards are shown in **bold**.
[b] LOS = Level of Service
[c] Average control delay in seconds per vehicle
[d] The worst approach control delays and LOS are reported for side street stop-controlled intersections.
[e] Defined as a downtown intersection
[f] LOS cannot be analyzed using HCM method under existing control configuration (stop control on southbound only)
Source: Dowling Associates, 2007.

Table IV.C-4: Travel Times and Speeds along 12th Street and Harrison Street – Existing Conditions

Roadway	Approach	Peak Hour	Travel Time (secs)	Average Speed (mph)
12th Street (Foothill Blvd to Madison Street)	EB	AM	84.9	12.4
		PM	114.9	9.2
	WB	AM	170.8	14.4
		PM	164.0	14.9
Harrison Street (Grand Avenue to 20th Street)	NB	AM	99.5	9.6
		PM	132.6	7.2
	SB	AM	133.6	7.5
		PM	136.1	7.4

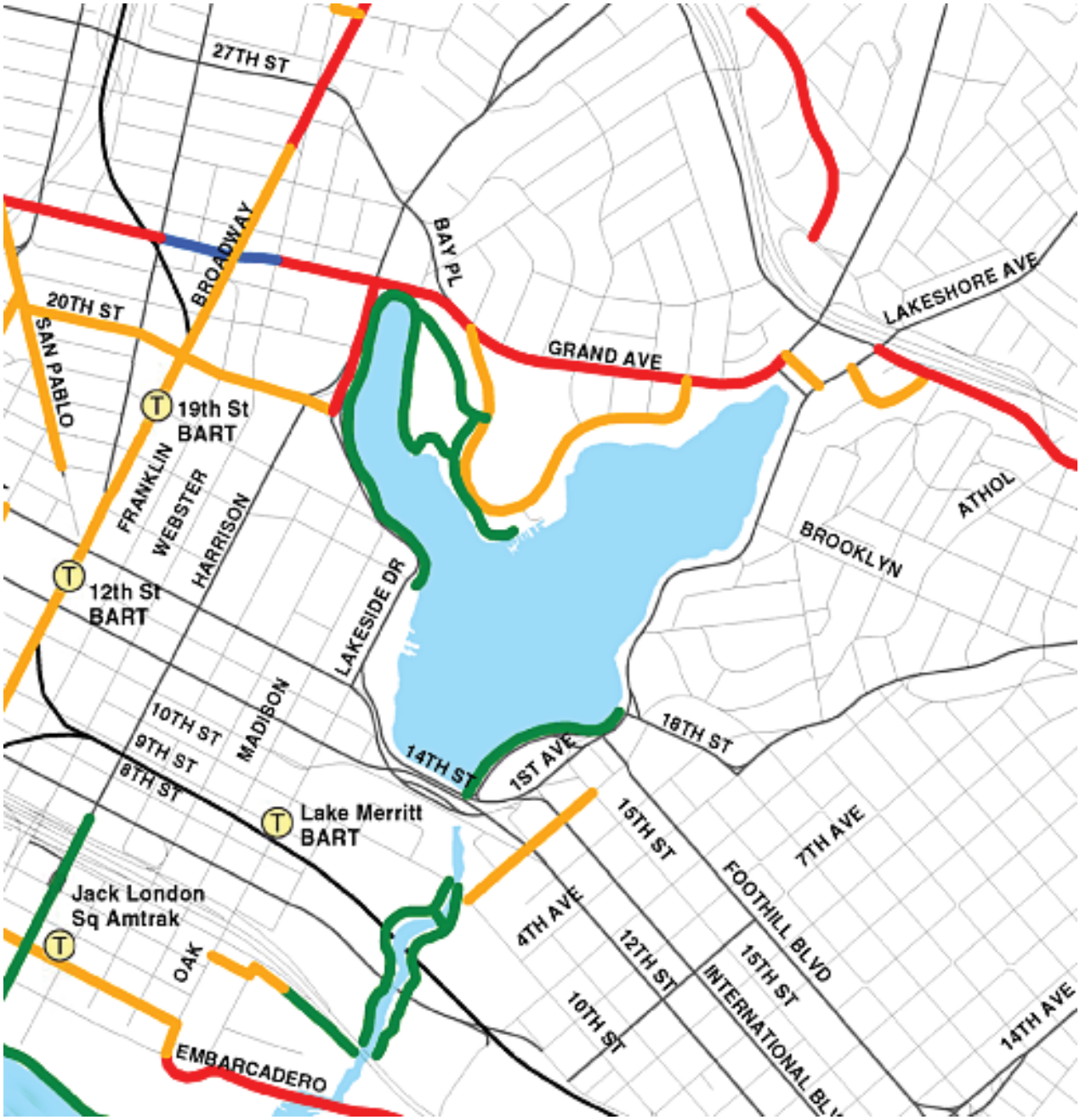
Source: Dowling Associates, 2007.

(3) Regulatory Context. Applicable laws and regulations pertaining to transportation and circulation are summarized below.

Federal. The Federal Highway Administration (FHWA) is the agency of the U.S. Department of Transportation (DOT) responsible for the federally funded roadway system, including the interstate highway network and portions of the primary state highway network. FHWA funding is provided through the Safe, Accountable, Flexible, Efficiency Transportation Equity Act: A Legacy for Users (SAFETEA-LU). This act's legislation can be used to fund local transportation improvement projects, such as projects to improve the efficiency of existing roadways, traffic signal coordination, bikeways, and transit system upgrades.

State. The California Department of Transportation (Caltrans) is responsible for planning, designing, constructing, and maintaining all state highways. Caltrans' jurisdictional interest extends to improvements to roadways at the interchange ramps serving area freeways. Any federally funded transportation improvements would be subject to review by Caltrans staff and the California Transportation Commission.

Metropolitan Transportation Commission (MTC). The MTC is the regional organization responsible for prioritizing transportation projects in a Regional Transportation Improvement Program (RTIP) for federal and state funding. The process is based on evaluating each project for need, feasibility, and adherence to SAFETEA-LU policies and the local Congestion Management Program (CMP). The CMP requires each jurisdiction to identify existing and future transportation



LSA

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NOT TO SCALE

LEGEND

- EXISTING BICYCLE PATH (CLASS 1)
- EXISTING BICYCLE PATH (CLASS 2)
- EXISTING BICYCLE PATH (CLASS 3)
- EXISTING ARTERIAL BIKE ROUTE (CLASS 3A)
- EXISTING BIKE BOULEVARD (CLASS 3B)
- BART/AMTRAK/FERRY STATIONS

FIGURE IV.C-3

Oakland Measure DD
Existing Bikeways

SOURCE: CITY OF OAKLAND BICYCLE MASTER PLAN UPDATE, PREPARED BY WILBUR SMITH ASSOCIATES, FEBRUARY 2007

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LSA

LEGEND

SIGNALIZED PEDESTRIAN CROSSWALKS

UNSIGNALIZED PEDESTRIAN CROSSWALKS

PEDESTRIAN TUNNELS

N

NOT TO SCALE

FIGURE IV.C-4

Oakland Measure DD
Existing Pedestrian Crosswalks

SOURCE: LAKE MERRITT PARK MASTER PLAN, CITY OF OAKLAND, JULY 2002.

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facilities that would operate below an acceptable service level and provide mitigation where future growth would degrade that service level.

The Alameda County Congestion Management Agency (CMA) is responsible for ensuring local government conformance with the CMP, a seven-year program aimed at reducing traffic congestion. The CMA has review responsibility for proposed development actions expected to generate 100 or more PM peak-hour trips than would otherwise occur. The CMA reviews the adequacy of CEQA transportation impact analyses and measures proposed to mitigate significant impacts. The CMA maintains a Countywide Transportation Model, and has approval authority for the use of any local or subarea transportation models.

The City of Oakland has responsibility for constructing and maintaining non-state or federal transportation facilities in the city.

City of Oakland General Plan. The Land Use and Transportation Element (LUTE) of the General Plan has numerous policies related to transportation issues. The primary LUTE policies relevant to transportation, circulation and parking include the following:

- Policy T2.4: Encourage transportation improvements that facilitate economic development.
- Policy T2.5: Link transportation facilities and infrastructure improvements to recreational uses, job centers, commercial nodes, and social services (i.e., hospitals, parks, or community centers).
- Policy T3.2: The City should promote and participate in both local and regional strategies to manage traffic supply and demand where unacceptable levels of service exist or are forecast to exist.
- Policy T3.3: For intersections within Downtown and for those that provide direct access to Downtown locations, the city should accept a lower level of service and a higher level of traffic congestion than is accepted in other parts of Oakland. The desired pedestrian-oriented nature of Downtown activity and the positive effect of traffic congestion in promoting the use of transit or other methods of travel should be recognized.
- Policy T3.5: The City should include bikeways and pedestrian walks in the planning of new, reconstructed, or realized streets, wherever possible.
- Policy T3.6: The City should encourage and promote use of public transit in Oakland by expediting the movement of and access to transit vehicles on designated "transit streets" as shown on the Transportation Plan. (Policies T3.6 and T3.7 are based on the City Council's passage of "Transit First" policy in October 1996.)
- Policy T3.7: The City, in constructing and maintaining its transportation infrastructure, should resolve any conflicts between public transit and single occupant vehicles in favor of transportation mode that has the potential to provide the greatest mobility and access for people, rather than vehicles, giving due consideration to the environmental, public safety, economic development, health and social equity impacts.
- Policy T4.1: The City will require new development, rebuilding, or retrofit to incorporate design features in their projects that encourage use of alternative modes of transportation such as transit, bicycling, and walking.
- Policy T4.6: Alternative modes of transportation should be accessible for all of Oakland's population including the elderly, disabled, and disadvantaged.
- Policy T4.10: Take advantage of existing transportation infrastructure and capacity that is underutilized. For example, where possible and desirable, convert underused travel lanes to bicycle or pedestrian paths or amenities.
- Policy T6.2: The City should make major efforts to improve the visual quality of streetscapes. Design of the streetscape, particularly in neighborhoods and commercial centers, should be pedestrian-oriented and include lighting, directional signs, trees, benches, and other support facilities.
- Policy T6.5: The City should protect and encourage enhancement of the distinctive character of scenic routes within the city, through prohibition of billboards, design review, and other means.

- Policy D13.1: A variety of transportation modes to and within all downtown districts should be coordinated to safety and efficiently move people and goods. Affordability and convenience are primary considerations.
- Policy D13.2: An adequate quantity of car, bicycle, and truck parking, which has been designed to enhance the pedestrian environment, should be provided to encourage housing development and the economic vitality of commercial, office, entertainment, and mixed use areas.

City of Oakland's Standard and Uniformly Applied Conditions of Approval. The City of Oakland's Standard and Uniformly Applied Conditions of Approval (Standard Conditions of Approval) that would apply to the proposed project are listed below.

Condition 23: Construction Traffic and Parking. *Prior to issuance of a demolition, grading, or building permit.* The project applicant and construction contractor shall meet with 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 appropriate City of Oakland agencies. 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. Planning and Zoning 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.

Major Project Cases:

f) Provision for parking management and spaces for all construction workers to ensure that construction workers do not park in on-street spaces.

b. Impacts and Mitigation Measures (Group 1). This section discusses potential impacts to transportation and circulation that could result from implementation of the Lake Merritt and Lake Merritt Channel group components. The section begins with the significance criteria, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts associated with Measure DD and identifies mitigation measures, as appropriate.

(1) Criteria of Significance. Implementation of the Lake Merritt and Lake Merritt Channel group would have a significant impact on transportation if it would:

1) Cause an increase in traffic which is substantial in relation to the 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), or change the condition of an existing street (i.e., street closures, changing direction of travel) in a manner that would substantially impact access or traffic load and capacity of the street system. Specifically,

a. at a study, signalized intersection which is located **outside the Downtown**[2] area, the project would cause the LOS[3] to degrade to worse than LOS D (i.e., LOS E);
b. at a study, signalized intersection which is located **within the Downtown** area, the project would cause the LOS to degrade to worse than LOS E (i.e., LOS F);
c. at a study, signalized intersection **outside the Downtown** area where the LOS is E, the project would cause the total intersection average vehicle delay to increase by four (4) or more seconds, or degrade to worse than LOS E (i.e., LOS F);
d. at a study, signalized intersection for **all areas** where the LOS is E, the project would cause an increase in the average delay for any of the critical movements of six (6) seconds or more, or degrade to worse than LOS E (i.e., LOS F);
e. at a study, signalized intersection for **all areas** where the LOS is F, the project would cause: (a) the total intersection average vehicle delay to increase by two (2) or more seconds; or (b) an increase in average delay for any of the critical movements of four (4) seconds or more; or (c) the volume-to-capacity ("V/C") ratio exceeds three (3) percent (but only if the delay values cannot be measured accurately);
f. at a study, unsignalized intersection for **all areas**, the project would add ten (10) or more vehicles and after project completion satisfy the Caltrans peak hour volume warrant;
g. Cause a roadway segment on the Metropolitan Transportation System to operate at LOS F or increase the V/C ratio by more than three (3) percent for a roadway segment that would operate at LOS F without the project;
h. A project's contribution to cumulative impacts is considered "considerable" when the project contributes five (5) percent or more of the cumulative traffic increase as measured by the difference between existing and future cumulative (with project) conditions;

2) 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;
3) Substantially 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 or incompatible uses (e.g., farm equipment);
4) Result in less than two emergency access routes for streets exceeding 600 feet in length;
5) Fundamentally conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle routes); or
6) Generate added transit ridership that would
   a. Increase the average ridership on AC Transit lines by three (3) percent at bus stops where the average load factor with the project in place would exceed 125% over a peak thirty minute period;
   b. Increase the peak hour average ridership on BART by three (3) 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 (3) percent where average waiting time at fare gates would exceed one minute.

[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] LOS and delay calculations for local intersections is based on the Highway Capacity Manual, Transportation Research Board, National Research Council, 2000 edition.

Criteria 2, 3 and 6 are not applicable to this analysis. Air traffic patterns and emergency access routes would not be affected by the component and transit ridership is not anticipated to change.

(2) Impacts and Mitigation Measures. The impacts and mitigation measures for the project with Variant A or B would be essentially the same for the operation of roadways, transit, and bicycle and pedestrian facilities. Variant B would differ from Variant A only by providing a two-way left-turn lane along the proposed two-lane section of Lakeshore Avenue. A two-way left-turn lane would function as a continuous southbound left-turn lane because there are no properties that would be served by northbound left-turning movements. The difference between Variants A and B is not measurable with the standard analytical methods used in this analysis but is discussed qualitatively.

Impacts to LOS. Intersection operations for Existing Conditions, and Existing plus Project, are summarized in Table IV.C-5. The difference between Variants A and B is not measurable with standard analytical methods; however, there are some driveways along Lakeshore Avenue that would be served by having the two-way left-turn lane provided by Variant B. The two-way left-turn lane would allow southbound vehicles turning into driveways to wait in the median for a gap in oncoming traffic without blocking southbound through traffic. The two-way left-turn lane would also provide a space for vehicles to bypass vehicles engaged in parallel parking maneuvers.

With the implementation of the project, the Lake Park Avenue/Lakeshore Avenue intersection would operate at LOS C during the Saturday peak hour with an average intersection delay 20.2 seconds.

Implementation of the Lake Merritt and Lake Merritt Channel project components would result in significant impacts at four intersections: Santa Clara Avenue/Grand Avenue; Lake Park Avenue/Lakeshore Avenue; MacArthur Boulevard/Lakeshore Avenue; and 27th Street/Bay Place/Harrison Street. Each intersection impacted by the Lake Merritt and Lake Merritt Channel project components is described below, along with recommended mitigation measures.

Impact TRANS-1 (Group 1): For Existing Conditions Plus the Project, the Santa Clara Avenue/Grand Avenue intersection would degrade to LOS E during the PM peak hour. (S)

Mitigation Measure TRANS-1: The City shall optimize the signal timing at the Santa Clara Avenue/Grand Avenue intersection to improve traffic operations during the PM peak hour. Signal optimization is expected to improve the intersection to LOS D. (LTS)

Impact TRANS-2 (Group 1): For Existing Conditions Plus the Project, the average vehicle delay at the Lake Park Avenue/Lakeshore Avenue intersection would increase by 38.6 seconds during the AM peak hour to a LOS F. (S)

Mitigation Measure TRANS-2: The City shall make the following modifications at the Lake Park Avenue/Lakeshore Avenue intersection to improve traffic operations:

1. Convert the center northbound lane on Lakeshore Avenue from a through movement to a left turning movement and provide split signal phasing for eastbound and westbound Lakeshore Avenue traffic movements; and
2. Optimize traffic signal timing.

Table IV.C-5: Intersection Levels of Service – Existing Conditions Plus Project

Intersection	Traffic Control (Existing)	Traffic Control (Future)	Peak Hour	Existing Conditions (No Project) LOS[a]	Existing Conditions (No Project) Delay[b]	Existing Conditions Plus Project LOS[a]	Existing Conditions Plus Project Delay[b]
1. Santa Clara Ave/Grand Ave	Signal	Signal	AM	E	61.6	D	45.1
			PM	D	46.4	E	66.0
2. MacArthur Blvd/Grand Ave	Signal	Signal	AM	C	26.0	C	24.5
			PM	C	29.2	C	32.7
3. El Embarcadero (WB)/ Grand Ave	Signal	Signal	AM	B	14.1	C	23.4
			PM	A	9.1	C	30.2
4. El Embarcadero (EB)/Grand Ave	Signal		AM	A	4.7	(Intersection Eliminated)	
			PM	C	21.7		
5. Lake Park Ave/Lakeshore Ave	Signal	Signal	AM	E	77.2	F	115.8
			PM	D	35.2	C	31.9
6. MacArthur Blvd/Lakeshore Ave	Signal	Signal	AM	D	36.0	C	34.0
			PM	F	89.3	F	103.1
7. El Embarcadero (WB)/Lakeshore Ave	Minor Stop	Signal	AM	N/A [c]		B	13.6
			PM			B	14.7
8. El Embarcadero (EB)/Lakeshore Ave	Minor Stop		AM	E	38.2	(Intersection Eliminated)	
			PM	F	180.2		
9. Boden Way/Lakeshore Ave	Minor Stop	Minor Stop	AM	C	23.0	C	19.5
			PM	B	13.9	C	15.7
10. Cleveland St/Lakeshore Ave	Ped Xing	Ped Xing	AM	A	2.1	A	2.5
			PM	A	2.2	A	2.7
11. Brooklyn Ave/Lakeshore Ave	Signal	Signal	AM	A	8.0	B	10.9
			PM	A	7.3	B	10.0
12. Wesley Ave/Lakeshore Ave	Minor Stop	Minor Stop	AM	C	15.1	C	18.9
			PM	C	24.5	C	21.3
13. Hanover Ave/Lakeshore Ave	Signal	Signal	AM	B	13.5	C	21.6
			PM	B	19.1	C	26.7
14. E. 18th St/Lakeshore Ave	Signal	Signal	AM	C	30.6	B	19.0
			PM	E	55.7	B	15.4
15. Foothill Blvd/Lakeshore Ave	Signal	Signal	AM	B	14.3	B	10.7
			PM	C	27.7	A	8.2
16. E. 16th St/1st Ave	Minor Stop	Minor Stop	AM	B	10.6	B	11.3
			PM	B	13.5	B	13.8
17. E. 15th St/1st Ave	Signal	Signal	AM	B	15.2	A	9.8
			PM	C	20.8	A	7.6
18. Int'l Blvd/1st Ave	Signal	Signal	AM	B	15.7	B	14.6
			PM	C	27.1	A	8.0
19. E. 12th St/1st Ave		Signal	AM	(Future Intersection)		B	15.3
			PM			B	11.7
20. Foothill Blvd/2nd Ave	Minor Stop	Minor Stop	AM	C	15.7	C	15.7
			PM	C	15.5	C	15.5
21. E. 15th St/2nd Ave	Minor Stop	Minor Stop	AM	B	12.7	B	12.7
			PM	C	18.3	C	18.3
22. Int'l Blvd/2nd Ave	Signal	Signal	AM	A	9.6	A	9.6
			PM	B	19.6	B	19.7
23. E. 12th St/2nd Ave	Signal	Signal	AM	B	16.4	A	9.1
			PM	B	17.0	B	16.9
24. E. 10th St/2nd Ave	Minor Stop	Minor Stop	AM	B	11.6	B	11.6
			PM	C	16.1	C	16.1
25. Foothill Blvd/5th Ave	Signal	Signal	AM	B	13.2	B	13.2
			PM	B	13.4	B	13.4

Table IV.C-5 *Continued*

Intersection	Traffic Control (Existing)	Traffic Control (Future)	Peak Hour	Existing Conditions (No Project) LOS[a]	Existing Conditions (No Project) Delay[b]	Existing Conditions Plus Project LOS[a]	Existing Conditions Plus Project Delay[b]
26. Int'l Blvd/5th Ave	Signal	Signal	AM	B	13.7	B	13.7
			PM	B	13.2	B	13.3
27. E. 12th St/5th Ave	Signal	Signal	AM	B	12.4	B	12.8
			PM	B	16.4	B	14.7
28. E. 8th St/5th Ave	Signal	Signal	AM	B	11.5	B	11.4
			PM	B	13.3	B	13.3
29. Embarcadero /5th Ave	Minor Stop	Minor Stop	AM	B	12.5	B	12.5
			PM	E	39.0	E	39.0
30. 27th St/Bay Pl/Harrison St	Signal	Signal	AM	F	146.3	F	150.9
			PM	C	31.8	C	31.8
31. Grand Ave/Harrison St [d]	Signal	Signal	AM	D	39.4	C	33.8
			PM	C	34.8	C	34.8
32. Harrison St/Lakeside Dr [d]	Signal	Signal	AM	A	9.1	B	19.1
			PM	B	13.0	C	22.4
33. 20th St/Harrison St [d]	Signal	Signal	AM	D	35.5	C	21.4
			PM	C	34.6	B	17.5
34. Jackson St/Lakeside Dr [d]	Signal	Signal	AM	A	7.2	B	11.3
			PM	A	8.9	B	18.2
35. Madison St/Lakeside Dr [d]	Signal	Signal	AM	A	6.4	A	6.9
			PM	B	11.1	B	10.6
36. 17th St/Madison St [d]	Signal	Signal	AM	B	12.9	A	7.3
			PM	B	13.6	A	7.7
37. 17th St/Lakeside Dr [d]	Minor Stop	Minor Stop	AM	B	11.8	B	12.8
			PM	B	11.6	B	13.3
38. 14th St/Madison St [d]	Signal	Signal	AM	B	15.0	B	12.5
			PM	B	14.8	B	14.3
39. 14th St/Lakeside Dr [d]	Signal	Signal	AM	B	13.6	B	12.2
			PM	B	10.9	B	10.5
40. 13th St/Madison St [d]	Signal	Signal	AM	B	10.5	B	10.3
			PM	B	12.0	B	11.8
41. 13th St/Oak St [d]	Signal	Signal	AM	B	17.7	B	16.9
			PM	B	16.5	B	15.3
42. 12th St/Madison St [d]	Signal	Signal	AM	A	5.3	A	5.4
			PM	A	8.5	A	8.4
43. 12th St/Oak St [d]	Signal	Signal	AM	B	13.7	B	16.2
			PM	B	13.5	B	14.0
44. 11th St/Madison St [d]	Signal	Signal	AM	B	12.0	B	12.1
			PM	B	12.1	B	12.4
45. 11th St/Oak St [d]	Minor Stop	Minor Stop	AM	B	10.9	B	10.9
			PM	B	11.1	B	11.1
46. 10th St/Madison St [d]	Signal	Signal	AM	A	5.3	A	5.3
			PM	A	4.5	A	4.5
47. 10th St/Oak St [d]	Signal	Signal	AM	A	8.8	A	8.8
			PM	A	9.7	A	9.7
48. 8th St/Madison St [d]	Signal	Signal	AM	A	9.2	A	9.3
			PM	A	8.5	A	8.6
49. 8th St/Oak St [d]	Signal	Signal	AM	B	17.1	B	17.1
			PM	B	16.1	B	16.1
50. 7th St/Madison St [d]	Signal	Signal	AM	B	16.8	B	16.8
			PM	B	16.2	B	16.2

Table IV.C-5 *Continued*

Intersection	Traffic Control (Existing)	Traffic Control (Future)	Peak Hour	Existing Conditions (No Project) LOS[a]	Existing Conditions (No Project) Delay[b]	Existing Conditions Plus Project LOS[a]	Existing Conditions Plus Project Delay[b]
51. 7th St/Oak St [d]	Signal	Signal	AM	B	13.5	B	13.5
			PM	B	13.3	B	13.3
52. Lakeshore Ave/1st Ave		Signal	AM	(Future Intersections)		A	1.6
			PM			A	1.4
53. 12th St/Convention Ctr [d]		Signal	AM			A	1.8
			PM			A	2.5
54. 11th-12th St/14th St [d]		Signal	AM			A	9.2
			PM			B	11.6
55. 13th St/14th St [d]		Signal	AM			A	9.2
			PM			B	11.5

Notes: Shaded values indicate a potential significant impact.
[a] LOS = Level of Service
[b] Average control delay in seconds per vehicle
[c] HCM LOS is not applicable for the stop-controlled approaches of this intersection.
[d] Defined as a downtown intersection
[e] The worst approach control delays and LOS are reported for side street stop-controlled intersections.
Source: Dowling Associates, 2007.

This mitigation measure would reduce the total intersection average vehicle delay by 51.6 seconds during the AM peak hour, although the intersection would remain at LOS E, as it is under the existing condition. After project mitigation, the intersection would operate at a total average vehicle delay that would be 13 seconds lower than the delay with no project and no mitigation. (LTS)

Impact TRANS-3 (Group 1): For Existing Conditions Plus the Project, the average vehicle delay at the MacArthur Boulevard/Lakeshore Avenue intersection would increase by 13.8 seconds during the PM peak hour where the LOS is rated F without the project. (S)

Mitigation Measure TRANS-3: The City shall make the following modifications at the MacArthur Boulevard/Lakeshore Avenue intersection to improve traffic operations:

1. Convert the combination left-through lane on eastbound MacArthur Boulevard to a through-only lane, resulting in one left-turn lane, two through lanes and one combination through-right turn lane;
2. Convert the center southbound lane on Lakeshore Avenue from a through movement to a combined through-left turning movement and provide split signal phasing for Lakeshore Avenue traffic movements; and
3. Optimize traffic signal timing.

This mitigation measure would reduce the total intersection average vehicle delay by 39.3 seconds during the PM peak hour, and the intersection would operate at LOS E. After project mitigation, the intersection would operate at a total average vehicle delay that would be 25.5 seconds lower than the delay with no project and no mitigation. (LTS)

Impact TRANS-4 (Group 1): For Existing Conditions Plus the Project, the average vehicle delay at the 27th Street/Bay Place/Harrison Street intersection would increase by 4.6 seconds during the AM peak hour where the LOS is rated F without the project. (S)

Mitigation Measure TRANS-4: The City shall optimize the signal timing at the 27th Street/Bay Place/Harrison Street intersection to reduce the total intersection average vehicle delay by 49.9 seconds during the AM peak hour. Although with mitigation the intersection would remain at LOS F, it would operate at a total average vehicle delay that would be 45.3 seconds lower than the delay with no project and no mitigation. (LTS)

Traffic Hazards. Implementation of the Lake Merritt and Lake Merritt Channel project components would reduce traffic hazards. One goal of this project group is to improve bicycle and pedestrian safety and circulation. Various elements of the project would improve safety for motor vehicles, pedestrians and bicycles. Some of the safety improvement elements are summarized below.

Lakeshore Avenue

1. The abandoned southeast portion of El Embarcadero would be converted into a multi-use path and promenade.
2. The sidewalk along the lake side of Lakeshore Avenue would be widened to include a 10-foot multi-use path.
3. 5-foot Class II bike lanes would be installed along both sides of the street.
4. Pedestrian crossings would be improved at:
    a. El Embarcadero – signals and marked crossings would be installed on all legs at Grand Avenue and Lakeshore Avenue.
    b. Boden Way – marked crossings would be installed on all legs and a pedestrian refuge island would be installed on the south leg.
    c. Cleveland Cascade – bulb-outs would be installed, crossing markings would be improved, and pedestrian refuge islands would be provided on the north and south legs.
    d. Brooklyn Avenue – a pedestrian refuge island would be installed on the south leg with in-line accessible ramps.
    e. Wesley Avenue – in-line accessible ramps would be installed.
    f. Hanover Avenue – in-line accessible ramps would be installed.

12th Street

1. 10-foot sidewalks and 6-foot bike lanes would be provided where practicable.
2. Signalized pedestrian crossings with refuge islands would be provided at numerous locations.

Lakeside Drive/Harrison Street/Oak Street

Class II bike lanes would be installed along Lakeside Drive and Harrison Street to/from Grand Avenue.

The narrower street widths and bulb-outs would shorten the crossing distance for pedestrians and create a narrowing effect that tends to slow vehicular traffic. Pedestrian refuge islands would provide safe shelters for pedestrians and allow them to take advantage of directional gaps in traffic. Signals

and marked crosswalks channel pedestrians to less hazardous crossing locations and increase motorists' awareness. In-line accessible ramps alert the visually-impaired of the correct direction to cross streets. Dedicated bike lanes reduce potential conflicts between vehicles and bicycles as well as between "commuter" bicyclists and "recreational" bicyclists who tend to use the multi-use path. These provisions would improve the safety of road users and would not increase traffic hazards. Therefore, the project impact is less-than-significant.

The bicycle and pedestrian connections along the Lake Merritt Channel between 7th Street and the Oakland Estuary have not been defined by the project. The current trail ends just south of the 7th Street Bridge. Bicycle and pedestrian access to the estuary is served by 7th Street and 5th Avenue. Although it would be desirable to improve bike and pedestrian accessibility along the channel, the alternative route provides wide outside lanes that adequately serve bicyclists and sidewalks to serve pedestrians. Therefore, the failure to improve the connections would not fundamentally conflict with adopted policies, plans, or programs supporting bicycle and pedestrian transportation.

The City has an interest in providing trail access along the Lake Merritt Channel south of 7th Street. To accomplish that goal, the City must cross the I-880 freeway right-of-way and Union Pacific mainline rail tracks. Caltrans is currently developing plans to replace the I-880 freeway elevated structure that crosses the channel. The City is working with Caltrans to determine the feasibility of providing a trail connection under the new freeway.

A grade separated crossing of the Union Pacific rail tracks may provide the most direct trail connection between Lake Merritt and the Oakland Estuary; however, there are several issues that must be resolved before such a crossing would become possible. The cost of constructing a grade separation would likely be high, and the close proximity of the I-880 freeway, which the trail would have to pass under, may require a circuitous passage over the Union Pacific tracks in order to satisfy the requirements of the Americans with Disabilities Act. A grade separated rail crossing may not be justified because its height and potentially circuitous route may deter pedestrians from using it and make its potential for use too low to justify the high cost. Other alternatives would include providing a connection to 5th Avenue, where bicyclists and pedestrians currently cross the tracks, or providing a new at-grade rail crossing along the channel. A new at-grade crossing would require the agreement of Union Pacific Railroad (UPRR) and the California Public Utilities Commission. The resolution of improving trail connectivity is not intended to be resolved in this study.

Travel Times. The City studied the 12th Street and Harrison Street corridors to understand how the project would affect traffic travel times in these areas, although the City does not have CEQA significance criteria for roadway delays because it believes that intersection analyses more accurately predict traffic impacts. Because traffic patterns change in response to traffic delays, the City believes that traffic impacts are better modeled by an intersection analysis for determining significance under CEQA. The travel time analysis was nevertheless performed to help understand how automobile, bus and other traffic along these streets would be affected by the Lake Merritt and Lake Merritt Channel project components.

The reconstruction of 12th Street would increase the travel time and decrease the speed of vehicles that use 12th Street, including existing AC Transit lines and future BRT vehicles. The reconstruction of 20th and Harrison Street would increase the travel time and decrease the speed of vehicles that use Harrison Street. Twelfth Street is designated as a local transit street and Harrison Street has no transit

street designation in the LUTE. Travel times and speeds along 12th Street and Harrison Street in areas that accommodate primary bus routes are summarized in Table IV.C-6 for Existing Conditions and Existing Conditions Plus Project. Detailed calculations are included in Appendix E.

Table IV.C-6: Travel Times and Speeds along 12th Street and Harrison Street – Existing Conditions Plus Project

Roadway	Approach	Peak Hour	Existing Conditions		Existing Conditions Plus Project	
			Travel Time (secs)	Average Speed (mph)	Travel Time (secs)	Average Speed (mph)
12th Street (Foothill Blvd to Madison)	EB	AM	84.9	12.4	157.5	6.6
		PM	114.9	9.2	199.0	5.2
	WB	AM	170.8	14.4	291.7	8.4
		PM	164.0	14.9	265.4	9.2
Harrison Street (Grand Avenue to 20th Street)	NB	AM	99.5	9.6	144.7	6.7
		PM	132.6	7.2	164.4	5.9
	SB	AM	133.6	7.5	130.2	7.7
		PM	136.1	7.4	134.0	7.5

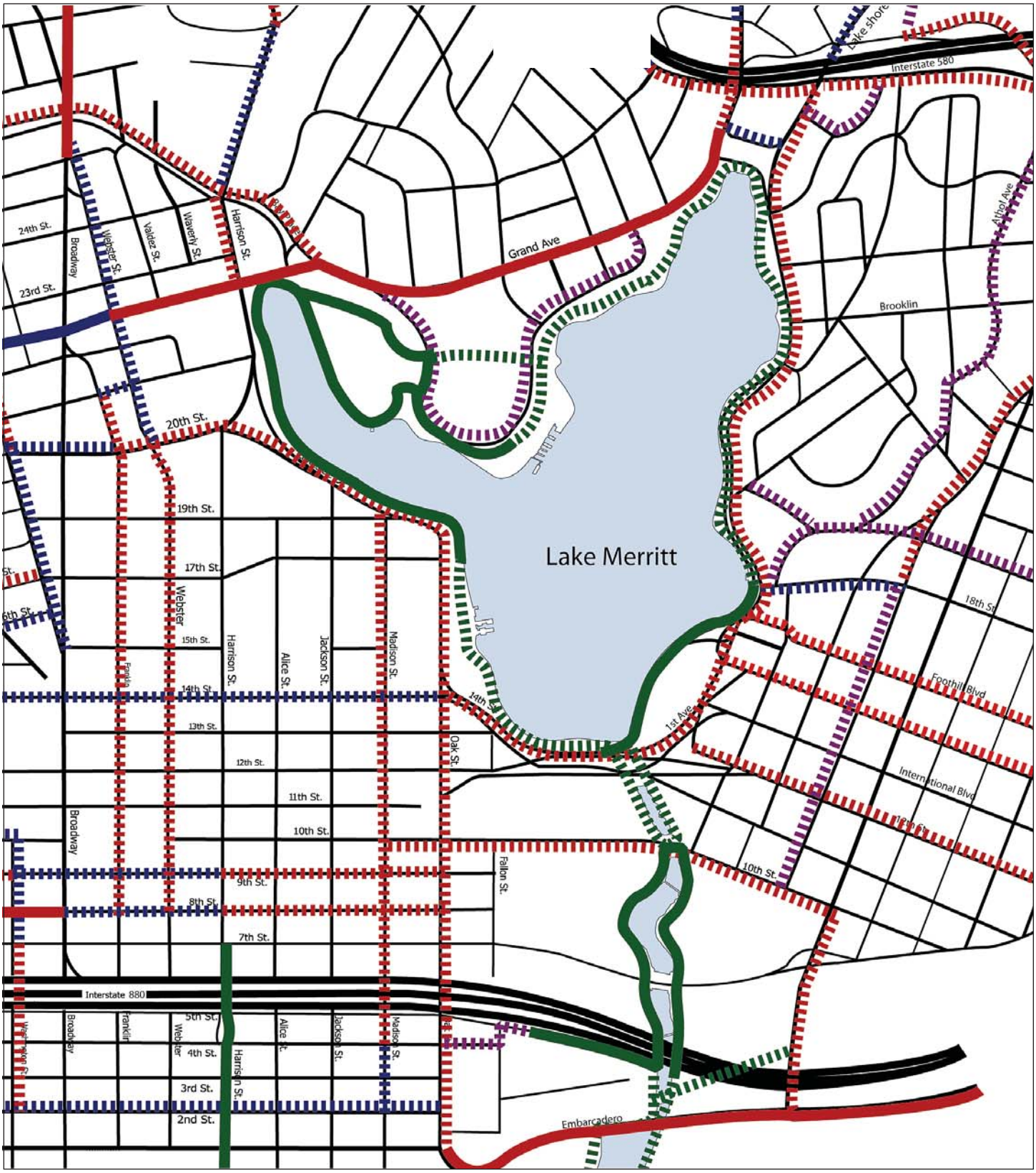
Source: Dowling Associates, 2007.

For Existing Conditions Plus the Project, eastbound travel times along 12th Street between Foothill Boulevard and Madison Avenue would increase by approximately 1.2 minutes during the AM peak hour and 1.4 minutes during the PM peak hour, and westbound travel times along 12th Street would increase by approximately 2.0 minutes during the AM peak hour and 1.7 minutes during the PM peak hour.

For Existing Conditions Plus the Project, northbound travel times along Harrison Street between Grand Avenue and 20th Street would increase by approximately 45 seconds during the AM peak hour and approximately 32 seconds during the PM peak hour.

Alternative Transportation (Pedestrian and Bicycle Transportation). The Lake Merritt and Lake Merritt Channel group would not conflict with adopted policies, plans and programs supporting pedestrian and bicycle transportation. The project is consistent with the adopted Oakland Bicycle Master Plan (see Figure IV.C-5 for the most recent update) and Pedestrian Master Plan. It would improve bikeway connectivity and pedestrian access around Lake Merritt and along the Lake Merritt Channel and would complete linkages along the Oakland waterfront.

Alternative Transportation (Transit Operations). The Lake Merritt and Lake Merritt Channel group would not fundamentally conflict with adopted policies, plans, or programs supporting transit use. The Measure DD Implementation Project may improve use of BART and AC Transit due to the improved pedestrian linkages in the area served by these transit operators. Although transit travel times would increase as a result of the project, as noted above, travel times for other motor vehicles would increase by a similar amount, and travelers would not be discouraged from using transit as a result of the project. Thus, the project would not fundamentally conflict with adopted policies, plans, or programs supporting transit use because bus traffic is affected no differently than automobiles or other street traffic. Therefore the project's impacts would not be considered significant under CEQA. Nevertheless, the City recognizes that there would be operational impacts on



LSA

LEGEND

EXISTING	PROPOSED	
		BIKE PATH (CLASS 1)
		BIKE LANE (CLASS 2)
		BIKE ROUTE (CLASS 3)
		ARTERIAL BIKE ROUTE (CLASS 3A)
		BIKE BOULEVARD (CLASS 3B)

N

NOT TO SCALE

FIGURE IV.C-5

Oakland Measure DD
Proposed Bikeway Network

SOURCE: CITY OF OAKLAND BICYCLE MASTER PLAN UPDATE, WILBUR-SMITH ASSOCIATES, FEBRUARY 2007.

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AC Transit and would seek to find mutually agreeable solutions including implementation of the following recommendation to improve transit circulation.

Transit Recommendation:

- The City should provide transit signal priority to reduce travel times along 12th Street and Harrison Street. This action would reduce delays for AC Transit but not completely eliminate increases in travel time along 12th Street and Harrison Street.

Further steps that would be needed to eliminate travel time increases would likely require providing a bus-only lane in each direction along 12th Street and potentially queue jump lanes at intersections. Additional measures such as the elimination of pedestrian crosswalks might also be required.

Adding a bus-only lane in each direction along 12th Street would increase the street width from seven or eight lanes at various intersections to nine or ten lanes if acceptable levels of traffic operations are to be maintained. Conversion of general purpose lanes to transit only lanes would cause traffic operations to fall below acceptable levels.

Providing queue jump lanes would similarly require adding one or more lanes at intersections and may require longer pedestrian crossing distances. Eliminating one or more pedestrian crosswalks would run counter to achieving the objectives of the project, which include improvement of pedestrian and bicycle safety and circulation around Lake Merritt. The addition of lanes would also reduce the amount of new parkland created by the project.

While adding bus-only lanes or queue jump lanes, or eliminating pedestrian crosswalks are feasible, they are not recommended because they would have substantial impacts on traffic operations or pedestrian mobility, and in most cases have additional costs.

Cumulative (2025) Impacts and Mitigation Measures. The same methods of analysis as described above for the assessment of project-specific impacts were used for the analysis of transportation impacts of the project in combination with past, other current and probable near term projects scheduled to complete by Year 2025, including the BRT improvements. The applicable mitigation measures proposed by the following approved projects were also assumed to be in place by Year 2025:

- Oakland Whole Foods Market
- Jack London Square Redevelopment
- Oak to Ninth Avenue Project

Traffic forecasts were based on the 2006 version of the Alameda Countywide Model as required by the Alameda County CMA. The model provides forecasts of travel demand for 2010 and 2025 based on ABAG Projection 2002 socioeconomic forecasts. Two levels of analysis were performed for the analysis of cumulative traffic impacts using the Alameda Countywide Model. A CMP analysis was performed using the model with the ABAG land uses for 2010 and 2025. A summary of the CMP analysis is provided in Appendix E.

A more detailed analysis was conducted for the purposes of assessing cumulative environmental impacts to the transportation system and the extent to which the project would contribute to cumulative impacts. In the environmental analysis, a cumulative growth approach was developed for the City, using a forecast-based approach which is based on regional forecasts of economic activity and demographic trends. The updated cumulative growth scenario for the City considered recent and

anticipated future development projects in Oakland, as well as other changes in employment and population. Development projects and other changes in Oakland were identified based on input from City of Oakland and Port of Oakland staffs, and analysis of economic and real estate market data and trends. Future development projects were identified to include approved, proposed, and potential development projects expected by the year 2020, including buildout of the Oakland Army Base (OARB) redevelopment project area.

The 2020 employment and population data developed by the method described above were compared against 2025 employment and population in the ABAG land use dataset, and the former exceeded the latter within the City. The ABAG land use data for the City of Oakland were replaced in the ABAG 2025 land use data set and used as the basis for the analysis of cumulative conditions, because this scenario was deemed to be a worst case scenario under CEQA.

The Alameda Countywide Model was used with the land use data developed for the City to determine the traffic volumes that would be presented with the project in combination with past, other current, and probable future projects.

This environmental impact analysis yielded more conservative results than the CMP analysis, which is an assessment of greater cumulative impacts.

Roadways. Intersection operations for Cumulative Conditions under Existing and Cumulative plus Project Conditions are summarized in Table IV.C-7. The differences between the project with either Variants A or B are not measurable with standard analytical methods; however, as noted previously, there are some driveways along Lakeshore Avenue that would be served by having the continuous left-turn lane provided by Variant B. The continuous left-turn lane would allow southbound vehicles turning into driveways to wait in the median for a gap in oncoming traffic without blocking southbound through traffic. The continuous left-turn lane would also provide a space for vehicles to bypass vehicles engaged in parking maneuvers.

With the implementation of the project, the Lake Park Avenue/Lakeshore Avenue intersection would operate at LOS D during the Saturday peak hour with an average delay of 47.8 seconds.

Some intersections degrade under cumulative conditions due primarily to other projects that would be constructed in the future. If the Measure DD Implementation Project contributes less than 5 percent of the cumulative traffic increase at an intersection as measured by the difference between existing and future cumulative (with project conditions) the impact is considered less than significant. The impacts at the following four intersections were found to be less than significant for this reason:

- MacArthur Boulevard/Lakeshore Avenue
- Embarcadero/5th Avenue
- 27th Street/Bay Place/Harrison Street
- Grand Avenue/Harrison Street

Implementation of the Lake Merritt and Lake Merritt Channel group components, in combination with past, other current, and probable future projects, would result in significant impacts at five intersections, of which, the project would have a significant and unavoidable impact at three intersections. Each of the intersections impacted in 2025 by the Lake Merritt and Lake Merritt Channel group is described below, along with the recommend mitigation measures.

Table IV.C-7: Intersection Levels of Service – Cumulative (2025) Conditions

Intersection	Traffic Control		Peak Hour	Existing		Cumulative Plus Project	
	(Existing)	(Future)		LOS[a]	Delay[b]	LOS[a]	Delay[b]
1. Santa Clara Ave/Grand Ave	Signal	Signal	AM	E	61.6	E	63.3
			PM	D	46.4	F	80.0
2. MacArthur Blvd/Grand Ave	Signal	Signal	AM	C	26.0	C	27.4
			PM	C	29.2	F	120.2
3. El Embarcadero (WB)/Grand Ave	Signal	Signal	AM	B	14.1	C	25.3
			PM	A	9.1	D	47.0
4. El Embarcadero (EB)/Grand Ave	Signal		AM	A	4.7	(Intersection Eliminated)	
			PM	C	21.7		
5. Lake Park Ave/Lakeshore Ave	Signal	Signal	AM	E	77.2	F	180.2
			PM	D	35.2	D	50.4
6. MacArthur Blvd/Lakeshore Ave [f]	Signal	Signal	AM	D	36.0	E	68.7
			PM	F	89.3	F	225.7
7. El Embarcadero (WB)/Lakeshore Ave	Minor Stop	Signal	AM	N/A [c]		B	16.6
			PM			B	15.1
8. El Embarcadero (EB)/Lakeshore Ave	Minor Stop		AM	E	38.2	(Intersection Eliminated)	
			PM	F	180.2		
9. Boden Way/Lakeshore Ave	Minor Stop	Minor Stop	AM	C	23.0	C	18.9
			PM	B	13.9	C	15.3
10. Cleveland St/Lakeshore Ave	Ped Xing	Ped Xing	AM	A	2.1	A	2.8
			PM	A	2.2	A	2.8
11. Brooklyn Ave/Lakeshore Ave	Signal	Signal	AM	A	8.0	B	10.4
			PM	A	7.3	B	10.6
12. Wesley Ave/Lakeshore Ave	Minor Stop	Minor Stop	AM	C	15.1	C	17.4
			PM	C	24.5	C	20.7
13. Hanover Ave/Lakeshore Ave	Signal	Signal	AM	B	13.5	C	23.5
			PM	B	19.1	C	28.1
14. E. 18th St/Lakeshore Ave	Signal	Signal	AM	C	30.6	C	23.3
			PM	E	55.7	B	15.1
15. Foothill Blvd/Lakeshore Ave	Signal	Signal	AM	B	14.3	B	18.1
			PM	C	27.7	A	5.7
16. E. 16th St/1st Ave	Minor Stop	Minor Stop	AM	B	10.6	B	11.5
			PM	B	13.5	B	13.2
17. E. 15th St/1st Ave	Signal	Signal	AM	B	15.2	B	10.5
			PM	C	20.8	A	8.5
18. Int'l Blvd/1st Ave	Signal	Signal	AM	B	15.7	C	21.3
			PM	C	27.1	A	9.6
19. E. 12th St/1st Ave		Signal	AM	(Future Intersection)		D	42.6
			PM			B	18.2
20. Foothill Blvd/2nd Ave	Minor Stop	Minor Stop	AM	C	15.7	C	18.0
			PM	C	15.5	C	15.6
21. E. 15th St/2nd Ave	Minor Stop	Minor Stop	AM	B	12.7	B	12.9
			PM	C	18.3	D	34.3
22. Int'l Blvd/2nd Ave	Signal	Signal	AM	A	9.6	A	8.5
			PM	B	19.6	C	26.2
23. E. 12th St/2nd Ave	Signal	Signal	AM	B	16.4	B	12.3
			PM	B	17.0	B	18.0
24. E. 10th St/2nd Ave	Minor Stop	Minor Stop	AM	B	11.6	C	17.5
			PM	C	16.1	C	22.5
25. Foothill Blvd/5th Ave	Signal	Signal	AM	B	13.2	B	17.5
			PM	B	13.4	B	15.1

Table IV.C-7 *Continued*

Intersection	Traffic Control		Peak Hour	Existing		Cumulative Plus Project	
	(Existing)	(Future)		LOS[a]	Delay[b]	LOS[a]	Delay[b]
26. Int'l Blvd/5th Ave	Signal	Signal	AM	B	13.7	B	16.3
			PM	B	13.2	B	16.3
27. E. 12th St/5th Ave	Signal	Signal	AM	B	12.4	D	42.2
			PM	B	16.4	D	37.2
28. E. 8th St/5th Ave	Signal	Signal	AM	B	11.5	B	17.0
			PM	B	13.3	C	22.7
29. Embarcadero /5th Ave [f]	Minor Stop	Minor Stop	AM	B	12.5	C	30.7
			PM	E	39.0	F	214.7
30. 27th St/Bay Pl/Harrison St [f]	Signal	Signal	AM	F	146.3	F	117.1
			PM	C	31.8	F	155.7
31. Grand Ave/Harrison St [d, f]	Signal	Signal	AM	D	39.4	D	54.4
			PM	C	34.8	E	64.5
32. Harrison St/Lakeside Dr [d]	Signal	Signal	AM	A	9.1	C	23.3
			PM	B	13.0	C	25.3
33. 20th St/Harrison St [d]	Signal	Signal	AM	D	35.5	C	25.2
			PM	C	34.6	C	22.5
34. Jackson St/Lakeside Dr [d]	Signal	Signal	AM	A	7.2	B	19.3
			PM	A	8.9	B	18.8
35. Madison St/Lakeside Dr [d]	Signal	Signal	AM	A	6.4	A	9.0
			PM	B	11.1	D	42.6
36. 17th St/Madison St [d]	Signal	Signal	AM	B	12.9	B	13.8
			PM	B	13.6	B	15.3
37. 17th St/Lakeside Dr [d]	Minor Stop	Minor Stop	AM	B	11.8	C	15.7
			PM	B	11.6	B	13.9
38. 14th St/Madison St [d]	Signal	Signal	AM	B	15.0	B	19.8
			PM	B	14.8	B	19.0
39. 14th St/Lakeside Dr [d]	Signal	Signal	AM	B	13.6	B	17.0
			PM	B	10.9	B	12.8
40. 13th St/Madison St [d]	Signal	Signal	AM	B	10.5	B	10.5
			PM	B	12.0	B	11.4
41. 13th St/Oak St [d]	Signal	Signal	AM	B	17.7	B	18.2
			PM	B	16.5	B	15.9
42. 12th St/Madison St [d]	Signal	Signal	AM	A	5.3	A	6.8
			PM	A	8.5	A	9.6
43. 12th St/Oak St [d]	Signal	Signal	AM	B	13.7	D	40.7
			PM	B	13.5	B	15.1
44. 11th St/Madison St [d]	Signal	Signal	AM	B	12.0	B	12.8
			PM	B	12.1	B	15.0
45. 11th St/Oak St [d]	Minor Stop	Minor Stop	AM	B	10.9	B	10.9
			PM	B	11.1	B	11.1
46. 10th St/Madison St [d]	Signal	Signal	AM	A	5.3	A	8.1
			PM	A	4.5	A	5.7
47. 10th St/Oak St [d]	Signal	Signal	AM	A	8.8	F	138.4
			PM	A	9.7	B	16.6
48. 8th St/Madison St [d]	Signal	Signal	AM	A	9.2	B	13.5
			PM	A	8.5	A	9.5
49. 8th St/Oak St [d]	Signal	Signal	AM	B	17.1	B	15.9
			PM	B	16.1	B	15.3
50. 7th St/Madison St [d]	Signal	Signal	AM	B	16.8	C	32.8
			PM	B	16.2	B	18.5
51. 7th St/Oak St [d]	Signal	Signal	AM	B	13.5	B	16.0
			PM	B	13.3	F	100.9

Table IV.C-7 *Continued*

Intersection	Traffic Control (Existing)	Traffic Control (Future)	Peak Hour	Existing LOS[a]	Existing Delay[b]	Cumulative Plus Project LOS[a]	Cumulative Plus Project Delay[b]
52. Lakeshore Ave/1st Ave		Signal	AM	(Future Intersections)		A	2.3
			PM			A	1.9
53. 12th St/Convention Ctr [d]		Signal	AM			A	3.0
			PM			A	4.5
54. 11th-12th St/14th St [d]		Signal	AM			B	10.6
			PM			C	28.2
55. 13th St/14th St [d]		Signal	AM			A	8.8
			PM			B	17.1

Notes:
Shaded values indicate a potential significant impact.
[a] LOS = Level of Service
[b] Average control delay in seconds per vehicle
[c] HCM LOS is not applicable for the stop-controlled approaches of this intersection.
[d] Defined as a downtown intersection
[e] The worst approach control delays and LOS are reported for side street stop-controlled intersections.
[f] Although the LOS deteriorates in the cumulative condition, the project contributes less than 5 percent of the cumulative traffic increases and this the impact is less than significant.
Source: Dowling and Associates, 2007.

Impact TRANS-5 (Group 1): Under Cumulative Plus Project Conditions, the Santa Clara Avenue/Grand Avenue intersection would degrade to LOS F during the PM peak hour. (S)

Mitigation Measure TRANS-5: Implementation of Mitigation Measure TRANS-1 would optimize the signal timing at the Santa Clara Avenue/Grand Avenue intersection and improve traffic operations to LOS E (73.9 seconds average delay) during the PM peak hour for the project under cumulative conditions. No other feasible mitigation measures were identified at this intersection as further improvements would entail widening of the roadway and require acquisition of right of way. Widening would also have adverse impact on the pedestrian environment at this heavily used intersection. After mitigation, the cumulative impact would remain significant and unavoidable. (SU)

Impact TRANS-6 (Group 1): Under the Cumulative Plus Project Conditions, the MacArthur Boulevard/Grand Avenue intersection would degrade to LOS F during the PM peak hour. (S)

Mitigation Measure TRANS-6: The City shall make the following modifications at the MacArthur Boulevard/Grand Avenue to improve traffic operations:

1. Convert the center southbound lane on Grand Avenue from a through movement to a combined through-left turning movement and provide split phasing for northbound and southbound Grand Avenue traffic movements; and
2. Optimize traffic signal timing for both AM and PM peak periods.

The modifications at the MacArthur Boulevard/Grand Avenue intersection described above would reduce the delay from 120.2 seconds to 81.7 seconds under the Cumulative Plus Project Conditions, but the intersection would remain at LOS F during the PM peak hour. No other feasible mitigation measures were identified at this intersection as further improvements

would entail widening of the roadway and require acquisition of right of way. Widening would also have adverse consequence for pedestrians. After mitigation, the cumulative impact of would remain significant and unavoidable. (SU)

Impact TRANS-7 (Group 1): Under the Cumulative Plus Project Conditions, the Lake Park Avenue/Lakeshore Avenue intersection would degrade to LOS F during the AM peak hour. (S)

Mitigation Measure TRANS-7: The City shall implement Mitigation Measure TRANS-2 and make the following modifications at the Lake Park Avenue/Lakeshore Avenue intersection to improve traffic operations:

1. Add a left-turn lane from the freeway off-ramp on the westbound Lake Park Avenue approach to the intersection; and
2. Optimize traffic signal timing.

The modification at the Lake Park Avenue/Lakeshore Avenue intersection described above would reduce the total intersection average vehicle delay by 115.3 seconds during the AM peak hour, although the intersection would operate at LOS E. After the project mitigation, the intersection would operate at a total average vehicle delay that would be 12.3 seconds lower than the delay under existing conditions with no project and no mitigation. Implementation of this mitigation measure would reduce the impact to a less-than-significant level. However, the City's ability to add the left-turn lane from the freeway ramp depends upon acquisition of right-of-way and an encroachment permit from Caltrans. Because the City cannot guarantee Caltrans' approval, the City is taking the conservative approach of considering this impact significant and unavoidable until sufficient right-of-way can be acquired and Caltrans approves an encroachment permit. (SU)

Impact TRANS-8 (Group 1): Under the Cumulative Plus Project Conditions, the 10th Street/Oak Street intersection would degrade to LOS F during the AM peak hour. (S)

Mitigation Measure TRANS-8: The City shall optimize the signal timing (modify the phase splits) at the 10th Street/Oak Street intersection to improve traffic operations. Implementation of the recommended mitigation would improve the intersection to LOS D during the AM peak hour. (LTS)

Impact TRANS-9 (Group 1): Under the Cumulative Plus Project Conditions, the 7th Street/Oak Street intersection would degrade to LOS F during the PM peak hour (S)

Mitigation Measure TRANS-9: The City shall optimize the signal timing (modify the phase splits) at the 7th Street/Oak Street intersection to improve traffic operations. Implementation of the recommended mitigation would improve the intersection to LOS D during the PM peak hour. (LTS)

Travel Time. As noted previously, the City studied the 12th Street and Harrison Street corridors to understand how the project would affect traffic travel times in these areas, although the City does not have CEQA significance criteria for roadway delays. Travel times and speeds along 12th Street and Harrison Street in 2025 are summarized in Table IV.C-8 for Cumulative and Cumulative plus Project Conditions. Detailed calculations are included Appendix E.

Table IV.C-8: Travel Times and Speeds along 12th Street and Harrison Street – Cumulative (2025) Conditions

Roadway	Approach	Peak Hour	Existing No Project		Cumulative Plus Project Conditions	
			Travel Time (secs)	Average Speed (mph)	Travel Time (secs)	Average Speed (mph)
12th Street(Foothill Blvd to Madison)	EB	AM	84.9	12.4	161.2	6.5
		PM	114.9	9.2	270	3.9
	WB	AM	170.8	14.4	364.4	6.7
		PM	164.0	14.9	273.1	9.0
Harrison Street (Grand Avenue to 20th Street)	NB	AM	99.5	9.6	157.5	6.2
		PM	132.6	7.2	218.6	4.4
	SB	AM	133.6	7.5	164.7	6.1
		PM	136.1	7.4	140.1	7.2

Source: Dowling Associates, 2007.

Under the Cumulative Plus Project Conditions, eastbound travel times would increase along 12th Street by approximately 1.3 minutes during the AM peak hour and 2.6 minutes during the PM peak hour, and westbound travel times would increase along 12th Street by approximately 3.2 minutes during the AM peak hour and 1.8 minutes during the PM peak hour.

Under the Cumulative Plus Project Conditions, northbound travel times would increase along Harrison Street by approximately 1 minute during the AM peak hour and approximately 1.4 minutes during the PM peak hour.

Alternative Transportation (Pedestrian and Bicycle Transportation). The Lake Merritt and Lake Merritt Channel group would not conflict with adopted policies, plans and programs supporting pedestrian and bicycle transportation and would not have a significant impact under the 2025 scenario. The project is consistent with the adopted Oakland Bicycle Master Plan (see Figure IV.C-5 for the most recent update) and Pedestrian Master Plan. It would improve bikeway connectivity and pedestrian access around Lake Merritt and along the Lake Merritt Channel and would complete linkages along the Oakland waterfront.

Alternative Transportation (Transit Operations). The Lake Merritt and Lake Merritt Channel group would not fundamentally conflict with adopted policies, plans, or programs supporting transit use. Although transit travel times would increase as a result of the project under the 2025 scenario, as noted above, travel times for other motor vehicles would increase by a similar amount, and travelers would not be discouraged from using transit as a result of the project. Nevertheless, the City recognizes that there would be operational impacts on AC Transit and would seek to find mutually agreeable solutions including implementation of the following recommendation to improve transit circulation:

Recommendations

- Implementation of transit signal priority as described in the previous recommendations for transit service would reduce delays for AC Transit. Nevertheless, the implementation of transit signal priority is not expected to completely eliminate increases in travel time along the 12th Street and

Harrison Street. While adding bus-only lanes or queue jump lanes, or eliminating pedestrian crosswalks are feasible, they are not recommended because they would have substantial impacts on traffic operations or pedestrian mobility, and in most cases have additional costs.

2. Oakland Waterfront Trail and Access (Group 2)

The Oakland Waterfront Trail component aims to close gaps along the San Francisco Bay Trail between Jack London Square and 66th Avenue in East Oakland. These components are not expected to change automobile travel demand but would require the assessment of potential impacts to transportation systems where the trail may cross existing streets. Bridge crossings beneath the existing bridges are proposed to continue the trail along the Oakland Estuary. Such bridge crossings would not conflict with the existing transportation network.

a. Setting (Group 2). This section discusses the methods used for analyzing transportation systems, applicable regulations, and the existing site conditions for the Oakland Waterfront Trail improvements of the Measure DD Implementation Project.

(1) Methods. To determine the potential impacts of the Oakland Waterfront Trail group may have on trail users and vehicle safety, the vehicular traffic volumes and design features at three specified locations were evaluated.

(2) Existing Conditions. The existing facilities including bicycle and pedestrian access at the three locations are presented in this section.

Park Street Bridge (29th Avenue). Park Street Triangle is a triangular-shaped block located at the Oakland side of the Park Street Bridge, which links the City of Oakland with the City of Alameda. The triangle is bounded by a two-lane one-way westbound portion of Ford Street to the north, a three-lane one-way southbound portion of 23rd Avenue to the west and a two-lane one-way northbound portion of 29th Avenue to the east. A railroad track cuts through the triangle just north of the Park Street Bridge. The at-grade railroad crossing is uncontrolled and un-gated but has warning signs and pavement markings.

The existing street network is confusing to motorists and the 23rd Avenue alignment has a sharp bend on its approach to the Park Street Bridge that causes motorists to drift into an adjacent lane. While sidewalks in the area are prevalent, there are no marked crosswalks at the triangle. Bike lanes from the Embarcadero extend to 23rd Avenue and terminate at the southern tip of the triangle where bicyclists are instructed to dismount before crossing the Park Street Bridge.

The Park Street Triangle area is the subject of the *Park Street Triangle Traffic Study* prepared for the City of Oakland under MTC's Traffic Engineering Technical Assistance Program (TETAP) by Dowling Associates (August 2006). The existing conditions and safety concerns are discussed in detail in that report.

Fruitvale Avenue. The Waterfront Trail crosses Fruitvale Avenue at its intersection with Alameda Avenue. This T-intersection is signal-controlled with marked crosswalks on the north and east legs. Fruitvale Avenue and Alameda Avenue are both four-lane streets. The Fruitvale Avenue Bridge, located just south of the intersection, offers vehicular connection to Alameda. Consequently, left turning movements are permitted from both westbound lanes in order to facilitate traffic

movements onto the bridge. A parallel rail bridge is located west of the automobile bridge. Class II bike lanes extend from E. 12th Street to the Estuary along Fruitvale Avenue.

High Street. About half way between Fruitvale Avenue and High Street, a 540-foot eastwardly trail extends to High Street. Unlike Fruitvale Avenue, no direct crossing exists at High Street. Tidewater Avenue, an unsignalized intersection, is located about 150 feet to the north and provides a marked crossing on the south leg. High Street is a four-lane roadway that also provides connection to the City of Alameda via the High Street Bridge. Class III bike route runs along High Street from near Jenson Street south to Tidewater Avenue.

(3) Regulatory Context. Applicable laws and regulations pertaining transportation and circulation are the same as previously described for the Lake Merritt and Lake Merritt Channel group with the following additional policies in the LUTE of the General Plan that are specific to the Oakland waterfront:

- Policy T6.3: The waterfront should be made accessible to pedestrians and bicyclists throughout Oakland.
- Policy W2.3: Public access improvements to the waterfront and along the water's edge should be implemented as projects are developed. The access improvement should conform to the requirements of the Bay Conservation and Development Commission (BCDC).
- Policy W2.6: Safe access to areas for viewing maritime and aviation activities without interfering with seaport and airport activities should be encouraged.
- Policy W2.9: Parking should be developed at key points generally set back from the waterfront to minimize the impact of private automobile use in high-activity areas. Parking structures that incorporate ground floor uses, are available for day and night activities, and allow for shared use, are preferred.
- Policy W2.7: Public transportation to the waterfront should be encouraged, coordinated, and strategically located. Waterfront transportation should be marketed to enhance ease of access both locally and regionally.

b. Impacts and Mitigation Measures (Group 2). This section discusses potential impacts to transportation and circulation that could result from implementation of the Waterfront Trail project components. The section begins with the significance criteria, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts and identifies mitigation measures, as appropriate.

(1) Criteria of Significance. Two Criteria of Significance are applicable to the Waterfront Trail group. Implementation of this group of project components would have a significant impact on transportation if it would**:**

1. Substantially 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 or incompatible uses (e.g., farm equipment); or
2. Fundamentally conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle routes).

(2) Impacts and Mitigation Measures. Impacts associated with the Waterfront Trail components are described below.

Traffic Hazards. Implementation of the proposed project would result in the Bay Trail passing under the bridges. Therefore, the project would not result in any significant impacts related to traffic hazards as the trail would not conflict with vehicular circulation.

Alternative Transportation. Implementation of the Waterfront Trail components would not conflict with adopted policies, plans and programs supporting alternative transportation. Implementation of the project component would enhance connectivity of bikeways and improve pedestrian facilities, thereby supporting alternative transportation.

3. Recreational Facilities (Group 3)

The Recreational Facilities group encompasses two elements, renovation of Studio One in North Oakland and construction of an East Oakland Sports Complex. Renovation of the North Oakland facility is already underway and is expected to have minimal transportation impact. This analysis focuses on the potential impacts resulting from the East Oakland Sports Complex.

a. Setting (Group 3). This setting discusses the methods used for analyzing transportation systems, applicable regulations and the existing site conditions for the Recreational Facilities group of the project.

(1) Methods. To determine the potential impacts of the East Oakland Sports Complex component, the LOS on roadways that would most likely be impacted by the development were evaluated at a program level for the environmental assessment. The traffic generated by the East Oakland Sports Complex was evaluated using the procedures required for compliance with the Alameda County CMP. This CMP analysis focuses on roadway links on the Metropolitan Transportation System and CMP street and highway segments and transit corridors, and does not extend to intersections.

The CMP analysis is accomplished by estimating the number of daily vehicle trips that would be generated by the complex, distributing the trips, and forecasting future volumes. The trip estimation was based on information in *Trip Generation*, 7th edition (Institute of Transportation Engineers, 2003). Traffic forecasts were based on the 2006 version of the Alameda Countywide Model as required by the Alameda County CMA. The model provides forecasts of travel demand for Year 2025 cumulative conditions based on ABAG Projection 2002 socioeconomic forecasts. Trips were distributed in accordance to distributing patterns from the model.

(2) Existing Conditions. Edes Avenue is the northern boundary of Ira Jenkins Park, where the East Oakland Sports Complex is located. It spans between Bergedo Drive in a residential neighborhood and Hegenberger Road, where it continues as Coliseum Way. Near Hegenberger Road, it provides access to and from northbound I-880. Edes Avenue has two travel lanes with parking on both sides of the street. Sidewalks are found around the perimeter of the park and marked crosswalks are available at the Edes Avenue and Jones Avenue intersection at the northeast corner of the park. No bicycle facility is provided in the immediate vicinity.

(3) Regulatory Context. Applicable laws and regulations pertaining transportation and circulation are the same as previously described for the Lake Merritt and Lake Merritt Channel group.

b. Impacts and Mitigation Measures (Group 3). This section discusses potential impacts to transportation and circulation that could result from implementation of the East Oakland Sports Complex component. The section begins with the significance criteria, which establish the thresholds used to determine whether an impact is significant. The latter part of this section presents the impacts and identifies mitigation measures, as appropriate.

(1) Criteria of Significance. Implementation of the Measure DD Implementation Project would have a significant impact on transportation if it would:

1. Cause a roadway segment on the Metropolitan Transportation System to operate at LOS F or increase the V/C ratio by more than three (3) percent for a roadway segment that would operate at LOS F without the project;

(2) Trip Generation. Trip generation for the East Oakland Sports Complex is based upon information in *Trip Generation, 7th Edition* (Institute of Transportation Engineers 2003). Trip generations for this component are shown in Table IV.C-9.

(3) Impacts and Mitigation Measures. The analysis of impacts was performed at a program level using the methods appropriate for a CMP analysis. The CMP analysis is provided in Appendix E. The findings of this analysis are that the East Oakland Sports Complex would not cause significant impacts to roadway or transit operations in 2010 or 2025. I-880 would be congested in both years, operating at LOS F during the peak hour; however, the East Oakland Sports Complex would add less than 3 percent of the traffic to those facilities. Other roadways, where the East Oakland Sports Complex would add significant traffic, would have the capacity to accommodate the additional traffic and still operate at LOS D or better. Transit ridership on BART and AC Transit would increase by 3 percent or less and would not result in significant impacts to transit service or require any frequency changes in service. The impacts of the East Oakland Sports Complex would be less than significant.

Table IV.C-9: Trip Generation for East Oakland Recreation Facility

Land Use	Source	Amount		Trips Generated								
				AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
				In	Out	Total	In	Out	Total	In	Out	Total
Proposed Project												
Recreational Community Center	ITE (459)	150	KSF	148	95	243	71	175	246	94	98	192

Source: Dowling Associates, 2007.
Notes: Average trip generation rates are from *Trip Generation, 7th Edition,* Institute of Transportation Engineers, 2003.