C. Transportation and Circulation

C.1 Introduction

This section describes the current transportation network and regulatory setting and summarizes the effects on the future circulation system that would result from the implementation of the Alameda Point project.

C.2 Environmental Setting

Regional Setting

The City of Alameda consists of Alameda Island and Bay Farm Island that are connected by Doolittle Drive / Otis Drive (State Route 61) across the San Leandro Channel. The proposed project is located on Alameda Island, which is separated from the city of Oakland by the Oakland Estuary. Access to and from the island across the Oakland Estuary is provided by a one-way couplet of underwater tunnels at Webster and Harrison Streets (Webster and Posey Tubes) (State Route 260), and three draw bridges at Park Street / 29th Avenue, Tilden Way / Fruitvale Avenue, and High Street. Access between the project site and downtown Oakland is via the Webster and Posey Tubes and the one-way couplet of Seventh Street (eastbound) and Eighth Street (westbound). All of these streets run through Oakland's Chinatown neighborhood.

Regional vehicular access to the site is provided primarily by the freeway system that serves the Bay Area region. Specifically, Interstate 880 (I-880), located approximately 2.5 miles from the project site, connects the study area with the remainder of the interstate freeway network. Other key freeways in the study area include Interstate 980 (I-980), Interstate 580 (I-580), and State Route 24 (SR 24).

I-880 is a north-south eight-lane freeway (though oriented east-west in the study area) that runs from Oakland to San Jose through East Bay cities such as San Leandro, Hayward, Union City, Newark, Fremont and Milpitas. Besides providing access to the Bay Bridge, I-880 also provides linkage to the Peninsula to the west via the San Mateo Bridge (State Route 92) and the Dumbarton Bridge (State Route 84). Access to and from the project site is available on I-880 via the Webster and Posey Tubes, which connect to freeway ramps on Fifth Street and Sixth Street ramps. Travel via each of these ramps except the southbound I-880 off-ramp also requires motorists to travel through the southern or southeastern portion of Oakland Chinatown, along Sixth and Seventh Streets. Additional access to and from I-880 is available from points farther east in Alameda via the Park Street Bridge, Fruitvale Avenue Bridge, and High Street Bridge.

I-980 connects I-880 and I-580 in the study area and becomes SR 24 north of I-580. SR 24 connects Oakland with Contra Costa County via the Caldecott Tunnel. I-980 can be reached from Alameda through the Webster and Posey Tubes via the I-980/I-880 junction or on local Oakland streets.

State Route (SR) 61 bisects the City of Alameda, running along Encinal Avenue, Park Street, and Otis Drive before crossing the Bay Farm Island Bridge to continue renamed as Doolittle Drive past the Oakland International Airport and into San Leandro.

Local Setting

The proposed project is located in the west end of Alameda. Key roadways that provide access to the project site are described below, and shown in **Figure 4.C-1**.

Main Street is a regional arterial that runs from its western terminus just west of Navy Way and Pacific Avenue. Main Street forms the eastern boundary of the project site. South of Pacific Avenue, it continues south, then eastward where it becomes Central Avenue. The four-lane, designated truck route serves as the project's western boundary and intersects with Stargell Avenue/W. Midway Avenue, Atlantic Avenue / Ralph Appezzato Memorial Parkway, and Pacific Avenue that provide the main east-west connections to/from the project site.

Stargell Avenue / W. Midway Avenue is an east-west road that runs between Monarch Street / First Street on the project site and Webster Street. West of Main Street, within the project site, it is called W. Midway Avenue and designated as an island collector. East of Main Street, it is named Stargell Avenue and is classified as an island arterial. Between Fifth Street and Webster Street there are two lanes in each direction. West of Fifth Street there is one travel lane in each direction with primarily residential land use found along the Stargell Avenue portion of the roadway.

Atlantic Avenue / Ralph Appezzato Memorial Parkway, a designated truck route, extends from Ferry Point on the project to the east side of the Alameda Beltline, at Marina Village. South of the Beltline, it continues as Sherman Street. The segment between Main Street and Webster Street is called Ralph Appezzato Memorial Parkway and continues as W. Atlantic Avenue to the west, within the project site, and Atlantic Avenue to the east of Webster Street. W. Atlantic Avenue is classified as an island arterial. The remainder of Atlantic Avenue, outside Alameda Point, is a regional arterial. In the project vicinity, the arterial has four travel lanes divided by a striped or raised median. The road narrows to two travel lanes with left-turn lanes just west of Constitution Way.

Pacific Avenue operates between Viking Street on the project site and Park Street. It has three distinct segments. West of Main Street, within Alameda Point, it is an island arterial called W. Pacific Avenue and has two travel lanes. The island arterial designation continues eastward on a four-lane segment until its junction with Marshall Way, where it becomes a two-lane local street and Marshall Way/Lincoln Avenue continues as a four-lane island arterial.

Central Avenue runs the length of Alameda Island between Main Street/Pacific Avenue on the west and Eastshore Drive on the east. It operates as an island arterial west of Webster Street and a regional arterial to the east. The segment of Central Avenue west of the Encinal Avenue fork has four travel lanes and is a designated truck route; while it continues as a two-lane island collector east of the fork. The segment from Encinal Avenue to Webster Street is a state highway.

SOURCE: Kittelson & Associates, Inc.

Alameda Point Project . 130025

Figure 4.C-1
Project Vicinity Map

Webster Street is a four-lane road that operates between Crolls Garden Court just south of Central Avenue and the Webster-Posey Tubes. This regional arterial road is a designated truck route. The segment north of Appezzato Parkway/Atlantic Avenue is a state route.

Park Street runs from Shoreline Drive and Park Street Bridge. It has four travel lanes with the exception of the segment between San Jose Avenue and Otis Drive where there are only two lanes. The entire roadway is classified as a regional arterial road and the segment north of Encinal Avenue is a designated truck route.

Otis Drive is an east-west roadway that extends between Eighth Street near Washington Park and Bay Farm Island Bridge. It operates as State Route 61 east of Broadway and serves as a truck route. Otis Drive is classified as an island arterial west of Park Street and a regional arterial east of Park Street.

Pedestrian / Bicycle / Transit Travel Modes

Pedestrian Travel

Alameda is a very walkable city with flat topography, compact development patterns, varied architecture, moderate block sizes, sidewalks, and street trees. Sidewalks are provided along both sides of most residential streets. In former industrial areas such as the North Waterfront area, sidewalks were not provided, but as portions of these areas have been recently developed, new sidewalks have been constructed.

Due to the nature of existing land uses and past federal ownership, sidewalks are not consistently provided on the project site. Sidewalks are generally found on streets where residential uses are located but are less common away from the residential clusters. The City's Pedestrian Plan has identified Main Street, Second Street, W. Atlantic Avenue and W. Pacific Avenue as "primary pedestrian streets" where key origins and destinations are located and where pedestrian demands are highest. However, there is currently no sidewalk along W. Pacific Avenue, and sidewalks are discontinuous along the portion of Main Street west of the Alameda Main Street Ferry Terminal due to a drainage channel and wetlands.

Two off-street trails are provided on Main Street, both of which serve as shared paths for pedestrians and bicyclists. An older trail is provided on the west side of Main Street between the Ferry Terminal and Pacific Avenue and a newer trail, part of the Bay Trail system, runs on the east side of Main Street between Singleton Avenue and Atlantic Avenue. The two trails then join together and continue to Pacific Avenue on the west side of Main Street, with the Bay Trail extending further to Lincoln Avenue and Encinal High School. The Pedestrian Plan has identified high priority sidewalk projects on Main Street between the Ferry Terminal and Singleton Avenue and between Atlantic Avenue and W. Oriskany Avenue.

Bicycle Travel

Because of the flat terrain of Alameda, the bicycle and pedestrian travel modes are particularly feasible for able-bodied travelers. The Park Street Bridge and Miller-Sweeney (Fruitvale Avenue)

Bridge provide good connections for cyclists traveling to Oakland and/or to the Fruitvale BART station. Bicycle facilities are defined as the following three classes according to Chapter 1000 of the Caltrans *Highway Design Manual*:

- **Class I** – Provides a completely separated facility designed for the exclusive use of bicyclists and pedestrians with crossing points minimized.
- **Class II** – Provides a restricted right-of-way designated lane for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrians prohibited, but with vehicle parking and cross-flows by pedestrians and motorists permitted.
- **Class III** – Provides a right-of-way designated by signs or permanent markings and shared with pedestrians and motorists.

Existing facilities include paths along the shoreline and around Bay Farm Island and bike lanes on portions of Atlantic Avenue, Grand Street, Santa Clara Avenue, Central Avenue, and Fernside Boulevard. The City of Alameda Bike Master Plan identifies existing and proposed bicycle facilities. Proposed bikeways in the project vicinity include Class I along the estuary filling in gaps in the current trail as well as Class I along Ralph Appezzato Memorial Parkway, and Class II along Willie Stargell Avenue, Fifth Street north of Willie Stargell Avenue to the estuary, and Mitchell-Mosley extension.

Bicycle and pedestrian access from the west end of the island to Oakland's downtown and transit stations is provided by a narrow shared raised walkway on the east side of the Posey Tube. Bicyclists and pedestrian can also take an AC Transit bus across the estuary via the tube. Access across the estuary in eastern Alameda is allowed on the bridge sidewalks.

Transit Services

Public transit services in the project vicinity are provided by the Alameda-Contra Costa Transit District (AC Transit), the San Francisco Bay Ferry, the Bay Area Rapid Transit District (BART), and Amtrak.

AC Transit provides fixed route bus service to 13 cities and unincorporated areas in Alameda and Contra Costa counties from Richmond/Pinole in the north, to Fremont in the south, to Castro Valley in the east, and west into and from San Francisco. The project site is currently served by Route 31, which operates between Alameda Point and the MacArthur BART station via downtown Oakland on weekdays and between Alameda Point and downtown Oakland on weekends. Both weekday and weekend services operates in 30-minute intervals and provide connection to BART and Amtrak services, as well as to other bus routes along Webster Street and other transfer points.

The San Francisco Bay Ferry provides services to nine terminal locations around the bay. The Alameda Main Street Terminal is located at the northeast corner of the project site, where Main Street makes a curve and becomes oriented east-west. From the terminal, daily ferry service is provided to/from San Francisco (Ferry Building and Pier 41), weekday commuter peak only service to South San Francisco, seasonal service to Angel Island, and baseball game day service to AT&T Park. Other cities served by the ferry service are Oakland and Vallejo.

BART provides heavy rail service to San Francisco as well as Contra Costa, Alameda, and San Mateo counties. BART operates in 15- to 20-minute intervals between 4:00 a.m. and midnight Monday through Friday; 6:00 a.m. to midnight on Saturdays; and 8:00 a.m. to midnight on Sundays and major holidays. The closest stations from the project site are Lake Merritt station and 12th Street Oakland City Center station in Oakland. The latter is served by Route 31 of the AC Transit.

The Oakland Jack London Square Amtrak station, located just across the Oakland Estuary, is the connecting point for two Amtrak routes. The Capitol Corridor, which serves Sacramento and Auburn to the east and Fremont and San Jose to the south, operates 15 eastbound and 15 westbound trains on weekdays and 11 trains per direction on weekends. The Amtrak San Joaquin, which serves the Central Valley corridor of Stockton, Fresno and Bakersfield, operates six trains per direction through the Jack London Square station on a daily basis.

Oakland Chinatown

As noted above, the vehicular access route between the project site and downtown Oakland and between the project site and I-880, through the Webster and Posey Tubes, passes through Oakland's Chinatown neighborhood. Chinatown is located in proximity to the Webster and Posey Tubes and the Broadway and Jackson on and off-ramps to I-880. As a result, Chinatown experiences a large volume of through traffic that passes through the neighborhood from downtown Oakland, Alameda, and Jack London Square to the Webster/Posey Tubes or the Broadway-Jackson on-ramp to I-880. The existing high volume of traffic in Chinatown, combined with high pedestrian volumes and a vibrant commercial district, has resulted in concerns in the community about pedestrian safety.

The Chinatown Commercial District is where local residents walk to shop, eat out at restaurants, take children to schools, and attend many cultural facilities. Chinatown has a high percentage of elderly residents, many of whom speak little or no English. Because of its proximity to downtown Oakland and other commercial areas, many residents walk to work. The Hong Lok Senior Center is located on Seventh Street between Harrison and Alice Streets.

Generally, the street grid creates pedestrian-scale city blocks (280-foot north-south and 380-foot east-west) with continuous sidewalks on both sides of the street. A network of primarily one-way streets (Seventh Street, Eighth Street, Ninth Street, 10th Street, Webster Street, Franklin Street, and Harrison Street) that are three and four lanes wide creates an environment that carries high volumes of traffic and is not necessarily conducive to walking.

Crosswalks are striped where crossings are allowed, and signals include separate "countdown" pedestrian signal indicators on most approaches; several new pedestrian signal heads have been installed in recent years where they previously did not exist. Pedestrian scramble signals, which provide an exclusive all-red phase for pedestrians to cross, including diagonally across the intersection, are located at the intersections of Eighth/Webster, Eighth/Franklin, Ninth/Webster, and Ninth/Franklin Streets. Additional scramble signals are planned. Bulb-outs have been added to these four scramble intersections to widen the sidewalks and decrease the distance pedestrians must travel, and the time that it takes, to cross the street. These four intersections also have

decorative crosswalks, including the diagonal crosswalks, to enhance the visibility of pedestrian crossings. In addition, lighted "No Left Turn" and "No Right Turn" signs have been installed at these four intersections to prohibit turns on red lights.

Sidewalks are generally in good condition and mostly 12 feet wide throughout the Chinatown Commercial area.[1] Sidewalks in proximity to the I-880 freeway are generally narrower and shared with streetscape features (e.g., street lamps, utility boxes, trash receptacles) that create four-foot wide chokepoints; some are in poor condition. Furthermore, many sidewalks within the Chinatown neighborhood are difficult to negotiate because merchant displays encroach onto the pedestrian right-of-way. These displays minimize sidewalk width and inhibit pedestrian access, mainly for the disabled and elderly population.

Most intersections in the Chinatown Commercial area are equipped with updated curb ramps complete with detectable (dimpled) warning strips, have marked sidewalks, and allow crossings at all legs. One exception is the 10th/Webster Street intersection, where pedestrians are prohibited from crossing the south leg due to the heavy volumes of westbound left-turning traffic (10th Street meets Webster Street at a "T" intersection and does not extend between Webster and Franklin Streets). Each of the intersections of Seventh/Harrison, Seventh/Jackson, and Sixth/Jackson streets has a separate right-turn channel for traffic bound from the Posey Tube to the I-880 northbound on-ramp; although each channel has a marked crosswalk, only the two-lane channel at Seventh/Harrison streets has a signal light.

Collision data for the greater Chinatown area, bounded by Sixth, 14th, and Oak Streets and Broadway, was reviewed for the approximately three-and-one-half year period between January 2009 and August 2012. There were a total of 83 pedestrian-related collisions in this area, of which 22 occurred in the core Chinatown area studied in the *Revive Chinatown* report in 2004 (Seventh to 11th Streets and Harrison to Franklin Streets, extending to Broadway between Eighth and Ninth Streets). Of the 83, all but five involved pedestrian injuries (all 22 in the core area involved injuries). Two of these collisions resulted in a fatality—one each at the intersection of Eighth/Harrison Streets (inside the core) and at Ninth/Madison (outside the core). The 22 injury collisions in the Chinatown core area over three and a half years (6.3 per year) occurred at a lesser frequency than the 38 injury collisions (7.6 per year) and 50 overall collisions (10 per year) in the same area over a five-year period reported in the *Revive Chinatown* report. Most of the change is attributable to the installation of a traffic signal at Seventh/Franklin Streets, where collisions declined from 11 to zero, The pedestrian scramble signals and related improvements (bulb-outs, decorative crosswalks, electronic signage) also appear to have had a positive effect, with the number of collisions at the four scramble intersections dropping from 16 in five years to five in three and a half years. The greatest number of accidents in the Chinatown core between 2009 and 2012 was three each at Seventh/Webster Streets and at 11th/Harrison Streets. In the larger study area, there were four accidents each at the Ninth/Jackson Streets and 10th/Jackson Streets intersections; of east-west streets, Eighth Street experienced 13 accidents between

[1] CHS Consulting Group; Freedman, Tung & Bottomley; and T.Y. Lin International/CCS Planning & Engineering, *Revive Chinatown Community Transportation Plan: Final Report*, City of Oakland, September 2004. Prepared for the Oakland Community and Economic Development Agency; Figure 2.

Broadway and Oak Street. Of north-south streets, Broadway had 15 accidents between Sixth and 14th Streets.

Over the past 15 years, the City of Alameda has worked with the Alameda County Transportation Commission (ACTC) on developing a solution to improve access to I-880 and reduce the amount of Alameda traffic passing through Chinatown. The Broadway-Jackson Project Study Report, which evaluated and refined a number of options and was approved by Caltrans in March 2011. The ACTC is working with the City of Oakland, the City of Alameda, and Caltrans to determine the next steps in moving the Broadway-Jackson project forward. The most recent ACTC Project Fact Sheet (June 2013) depicts a proposed roadway improvement that shows a connection from Harrison Street to Sixth Street with a connection from Sixth Street at Martin Luther King, Jr. Way to I-880. The ACTC is working with the community in preparation for transition into the Preliminary Engineering / Environmental phase for this project.

Vehicular Operations

Traffic conditions in urban areas are affected more by the operations of intersections than by the capacities of local streets because traffic control devices (signals and stop signs) at intersections control the capacity of the street segments. The operations are measured in terms of a grading system called Level of Service (LOS), which is based on "control delay" experienced at the intersections. That delay is a function of the signal timing, intersection lane configuration, hourly traffic volumes, pedestrian volumes, and parking and bus conflicts among other factors.

Analysis of peak-hour traffic conditions was conducted at the 32 existing intersections in Alameda (Intersection #1 to #32) and 24 intersections in Oakland (Intersection #33 to #56) shown in **Figure 4.C-2**. They were selected because they represent locations along major traffic routes to and from the project site as well as locations that could affect operations of other traffic modes or may be affected by traffic diverting and seeking alternative routes to the Webster and Posey Tubes.

Level of Service Analysis Methodologies

The operation of a local roadway network is commonly measured and described using an LOS grading system, which qualitatively characterizes traffic conditions associated with varying levels of vehicle traffic, ranging from LOS A (indicating free-flow traffic conditions with little or no delay experienced by motorists) to LOS F (indicating congested conditions where traffic flows exceed design capacity and result in long queues and delays). This LOS grading system applies to both signalized and unsignalized intersections (see **Table 4.C-1**).

Signalized Intersections. For the signalized study intersections, traffic conditions were evaluated applying the 2000 *Highway Capacity Manual* (HCM) operations methodology, using Synchro computer software program (TRB, 2000). The operation analysis uses various intersection characteristics (e.g., traffic volumes, lane geometry, and signal phasing/timing) to estimate the average control delay experienced by motorists traveling through an intersection.

SOURCE: Kittelson & Associates, Inc.

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Figure 4.C-2
Study Intersections

TABLE 4.C-1
DEFINITIONS FOR INTERSECTION LEVEL OF SERVICE

Unsignalized Intersections		Level of Service Grade	Signalized Intersections	
Description	Average Total Vehicle Delay (Seconds)		Average Control Vehicle Delay (Seconds)	Description
No delay for stop-controlled approaches.	≤10.0	A	≤10.0	Free Flow or Insignificant Delays: Operations with very low delay, when signal progression is extremely favorable and most vehicles arrive during the green light phase. Most vehicles do not stop at all.
Operations with minor delay.	>10.0 and ≤15.0	B	>10.0 and ≤20.0	Stable Operation or Minimal Delays: Generally occurs with good signal progression and/or short cycle lengths. More vehicles stop than with LOS A, causing higher levels of average delay. An occasional approach phase is fully utilized.
Operations with moderate delays.	>15.0 and ≤25.0	C	>20.0 and ≤35.0	
Operations with increasingly unacceptable delays.	>25.0 and ≤35.0	D	>35.0 and ≤55.0	Approaching Unstable or Tolerable Delays: Influence of congestion becomes more noticeable. Longer delays result from unfavorable signal progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop. Drivers may have to wait through more than one red light. Queues may develop, but dissipate rapidly, without excessive delays.
Operations with high delays, and long queues.	>35.0 and ≤50.0	E	>55.0 and ≤80.0	Unstable Operation or Significant Delays: Considered to be the limit of acceptable delay. High delays indicate poor signal progression, long cycle lengths and high volume to capacity ratios. Individual cycle failures are frequent occurrences. Vehicles may wait through several signal cycles. Long queues form upstream from intersection.
Operations with extreme congestion, and with very high delays and long queues unacceptable to most drivers.	>50.0	F	>80.0	Forced Flow or Excessive Delays: Occurs with oversaturation when flows exceed the intersection capacity. Represents jammed conditions. Many cycle failures. Queues may block upstream intersections.

SOURCE: Transportation Research Board, Special Report 209, *Highway Capacity Manual*, 2000.

Unsignalized Intersections. For the unsignalized (all-way stop-controlled and side-street stop-controlled) study intersections, traffic conditions were evaluated applying the 2000 HCM operations methodology, using the Synchro computer software program. With this methodology, the LOS is related to the total delay per vehicle for the intersection as a whole (for all-way stop-controlled intersections), and for each stop-controlled movement or approach (for side-street stop-controlled intersections). Total delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs the stop line. This time includes the time required for a vehicle to travel from the last-in-queue position to the first-in-queue position.

Table 4.C-2 shows the existing intersection level of service at the 56 study intersections. LOS calculation reports and figures showing lane geometry and a.m. and p.m. peak-hour volumes at the 56 existing intersections are provided in **Appendix G**.

TABLE 4.C-2
EXISTING INTERSECTION LEVEL OF SERVICE

Study Intersection Name		Control	AM Peak Hour		PM Peak Hour	
			Delay[a]	LOS	Delay[a]	LOS
Alameda Intersections						
1	Main St. & Navy Way	One-Way Stop[b]	8.7	A	9.3	A
2	Main St. & Ferry Terminal Way	Signal	3.3	A	8.2	A
3	Main St. & Singleton Ave.	Signal	5.2	A	4.4	A
4	Main St. & W. Midway Ave.	Signal	10.6	B	10.8	B
5	Main St. & Atlantic Ave.	Signal	10.1	B	10.3	B
6	Main St. & Pacific Ave.	Signal	16.5	B	13.3	B
7	Webster St. & Atlantic Ave.	Signal	33.5	C	31.5	C
8	Constitution Way & Lincoln Ave.	Signal	21.6	C	25.7	C
9	Eighth St. & Central Ave.	Signal	34.2	C	32.8	C
10	Oak St. & Lincoln Ave.	Signal	11.5	B	13.0	B
11	Oak St. & Santa Clara Ave.	Signal	9.9	A	11.4	B
12	Park St. & Clement Ave.	Signal	26.2	C	19.7	B
13	Park St. & Central Ave.	Signal	12.1	B	11.3	B
14	Park St. & Encinal Ave.	Signal	22.6	C	25.3	C
15	Park St. & Otis Dr.	Signal	22.3	C	31.0	C
16	Broadway & Tilden Way	Signal	22.6	C	20.5	C
17	Broadway & Encinal Ave.	Signal	22.9	C	10.8	B
18	Broadway & Otis Dr.	Signal	38.2	D	37.8	D
19	Tilden Way & Blanding Ave.	Signal	13.6	B	17.3	B
20	High St. & Fernside Blvd.	Signal	33.3	C	20.9	C
21	High St. & Otis Dr.	Signal	21.5	C	20.8	C
22	Island Dr. & Otis Dr.	Signal	33.3	C	16.5	B
23	Constitution Way & Marina Village Pkwy.	Signal	10.8	B	22.1	C
24	Constitution Way & Atlantic Ave.	Signal	25.5	C	27.7	C
25	**Fernside Blvd. & Otis Dr.**	Signal	**67.6**	**E**	**58.8**	**E**
26	**Park St. & Blanding Ave.**	Signal	**65.5**	**E**	36.2	D
27	Challenger Dr. & Atlantic Ave.	Signal	8.9	A	13.3	B
28	Challenger Dr. & Marina Village Pkwy.	Signal	20.3	C	21.3	C
29	Webster St. & Willie Stargell Ave.	Signal	10.4	B	12.3	B
30	Fifth St. & Willie Stargell Ave.	One-Way Stop[b]	11.0	B	10.9	B
31	Constitution Way & Mariner Square Dr.	Signal	12.0	B	15.8	B
32	Park St. & Lincoln Ave.	Signal	15.0	B	16.8	B

TABLE 4.C-2 (Continued)
EXISTING INTERSECTION LEVEL OF SERVICE

	Study Intersection Name	Control	AM Peak Hour		PM Peak Hour	
			Delay[a]	LOS	Delay[a]	LOS
Oakland Intersections						
33	Jackson Street & Seventh Street	Signalized	12.7	B	10.5	B
34	Jackson Street & Sixth Street	Signalized	38.2	D	77.0	E
35	Jackson Street & Fifth Street	Signalized	20.6	C	14.6	B
36	Harrison Street & 14th Street	Signalized	13.6	B	13.6	B
37	Harrison Street & Eighth Street	Signalized	5.4	A	18.6	B
38	Harrison Street & Seventh Street	Signalized	36.7	D	21.6	C
39	Webster Street & Eighth Street	Signalized	25.8	C	27.6	C
40	Webster Street & Seventh Street	Signalized	11.6	B	16.2	B
41	Broadway & Seventh Street	Signalized	11.2	B	14.0	B
42	Broadway & Sixth Street	Signalized	21.3	C	22.4	C
43	Broadway & Fifth Street	Signalized	28.1	C	36.9	D
44	Brush Street & 12th Street	Signalized	31.3	C	23.1	C
45	High Street & Oakport Street	Signalized	28.9	C	29.0	C
46	High Street & Coliseum Way	Signalized	29.6	C	33.9	C
47	Fruitvale Ave & Ninth Street	Signalized	31.2	C	30.6	C
48	Fruitvale Ave & Eighth Street	Signalized	13.9	B	20.8	C
49	23rd Avenue & E 11th Street / I-880 NB on-ramp	Signalized	20.7	C	44.3	D
50	23rd Avenue & Ford Street	Signalized	13.2	B	11.4	B
51	29th Avenue & Ford Street	One-Way Stop[c]	29.2	D	13.5	B
52	**29th Avenue & I-880 NB off ramp / E. Eighth / E. Ninth Street**	**All-Way Stop**	93.4	**F**	49.9	**E**
53	Harrison Street & 12th Street	Signalized	10.9	B	9.5	A
54	Harrison Street & 11th Street	Signalized	15.7	B	12.2	B
55	**Brush Street & 11th Street**	**Signalized**	80.4	**F**	14.5	B
56	**23rd Avenue & Seventh Street**	**Signalized**	>120 v/c = 0.93	**F**	38.7	D

NOTES:

[a] The LOS/Delay for Side-Street Stop-Control (SSSC) intersections represents the worst movement or approach; for Signalized intersections, the LOS/Delay represents the overall intersection. For signalized intersections with delay in excess of 120 seconds, volume-to-capacity ratio is provided, as delay calculation may not be accurate.

[b] T-intersection.

[c] Ford Street is one-way westbound west of 29th Street; only westbound Ford Street is stop-controlled.

Bold indicates locations with unacceptable level of service.

SOURCE: Kittelson & Associates, Inc., 2013.

C.3 Regulatory Framework

State

The California Department of Transportation (Caltrans) is responsible for operations and maintenance of the state highway system, and serves as a reviewing agency for Environmental Impact Reports (EIRs) to ensure that impacts of proposed projects would be analyzed and significant impacts on state highway facilities would be disclosed.

Regional

The ACTC, through its Congestion Management Program (CMP), oversees how roads of regional significance function, and requires local jurisdictions to evaluate the impact of proposed land use changes (i.e., General Plan amendments, and developments with trip-generating potential of more than 100 new peak-hour vehicle trips) on the regional transportation systems.

Local

The City of Alameda General Plan Transportation Element sets forth goals, objectives and policies that provide guidance for residents, businesses, policymakers and elected officials in making choices that shape the City's environment. The following are relevant to the proposed project and this analysis. Street or intersection improvements that would be inconsistent with these policies would require a General Plan Amendment prior to being approved.

Objective 4.1.1 Provide for the safe and efficient movement of people, goods, and services.

Policy 4.1.1.i Design transportation facilities to accommodate current and anticipated transportation use.

Policy 4.1.1.j Maintain the historic street grid and maximize connectivity of new developments to the grid, as well as within any new developments.

Objective 4.1.2 Protect and enhance the service level of the transportation system.

Policy 4.1.2.b Monitor the multimodal level of service at major intersections to identify priorities for improvement.

Policy 4.1.2.c Promote methods to increase vehicle occupancy levels.

Policy 4.1.2.d Support and monitor the City's Traffic Capacity Management Procedure (TCMP), which was developed to meet the City's development and transportation goals west of Grand Street.

Objective 4.1.6 Increase the efficiency of the existing transportation system by emphasizing Transportation System Management (TSM) strategies and Transportation Demand Management (TDM) techniques.

Policy 4.1.6.a Identify, develop, and implement travel demand management strategies to reduce demand on the existing transportation system.

1. Establish peak hour trip reduction goals for all new developments as follows
    - 10 percent peak hour trip reduction for new residential developments
    - 30 percent peak hour trip reduction for new commercial developments

Policy 4.1.6.d Minimize the cross-island portion of regional vehicular trips by providing alternative connections to Oakland, such as Water Taxis, shuttles, and a Bicycle Pedestrian Bridge and by encouraging Transportation Systems Management (TSM) and Transportation Demand Management (TDM) techniques.

Policy 4.1.6.e Support and maintain an up-to-date Transportation System Management (TSM) and Transportation Demand Management (TDM) plan consistent with state law to provide adequate traffic flow to maintain established LOS.

1. Develop a TDM plan which would include specific requirements for new developments to implement measures to mitigate their traffic impacts based on an applicable nexus.
2. Develop one or more sub-area TDM plans to help address the unique conditions of different areas within Alameda.

Policy 4.1.6.f Require monitoring programs to ensure that TSM and TDM measures mitigate impacts.

1. Develop thresholds of significance for ongoing monitoring and evaluation of TSM/TDM measures

Objective 4.2.4 Develop a Transportation plan based on existing and projected land uses and plans. Encourage land use decisions that facilitate implementation of this transportation system.

Policy 4.2.4.a Encourage development patterns and land uses that promote the use of alternate modes and reduce the rate of growth in region-wide vehicle miles traveled.

Policy 4.2.4.b Integrate planning for Environmentally Friendly Modes, including transit, bicycling and walking, into the City's development review process.

Policy 4.2.4.c Encourage mixed use development that utilizes non-single occupancy vehicle transportation modes.

Objective 4.3.1 Develop programs and infrastructure to encourage the use of high occupancy vehicles (HOVs), such as buses, ferries, vans and carpools.

Policy 4.3.1.a Update and implement the recommendations of the Alameda Long Range Transit Plan.

Policy 4.3.1.h Encourage the creation of transit-oriented development and mixed-use development.

Policy 4.3.1.j Implement queue jump lanes and other strategies for improving transit operations.

Objective 4.3.4 Manage demand placed on the street system through a TDM program to be developed with available funding in accordance with state law.

Policy 4.3.4.a Work with major employers to accommodate and promote alternative transportation modes, flexible work hours, and other travel demand management techniques and require that appropriate mitigation be funded through new development if a nexus exists.

Objective 4.3.5 Assess the impacts on all transportation modes (including auto, transit, bike and pedestrian) when considering mobility and transportation improvements.

Objective 4.3.6 Coordinate and integrate the planning and development of transportation system facilities to meet the needs of users of all transportation modes.

Policy 4.3.6.a Review and update multimodal design standards for lane widths, parking, planting area, sidewalks, and bicycle lanes to guide construction, maintenance, and redevelopment of transportation facilities consistent with the street classification system.

Policy 4.3.6.b Identify areas of conflict and of compatibility between modes (e.g. walking, bicycling, transit, automobiles, and people with disabilities). Pursue strategies to reduce or eliminate conflicts, increase accessibility, and foster multimodal compatibility.

Objective 4.4.2 Ensure that new developments implement[s] approved transportation plans, including the goals, objectives, and policies of the Transportation Element of the General Plan and provides the transportation improvements needed to accommodate that development and cumulative development. Street or intersection improvements that would be inconsistent with these policies would require a General Plan Amendment prior to being approved.

Policy 4.4.2.a Roadways will not be widened to create additional automobile travel lanes to accommodate additional automobile traffic volume, with the exception of increasing transit exclusive lanes or non-motorized vehicle lanes.

Policy 4.4.2.b Intersections will not be widened beyond the width of the approaching roadway with the exception of a single exclusive left turn lane when necessary, with the exception of increasing transit exclusive lanes or non-motorized vehicle lanes.

Policy 4.4.2.c Speed limits on Alameda's new roads should be consistent with existing roadways and be designed and implemented as 25 mph roadways.

Policy 4.4.2.d All EIRs must include analysis of the effects of the project on the city's transit, pedestrian and bicycling environment, including adjacent neighborhoods and the overall City network.

Policy 4.4.2.e EIRs will not propose mitigations that significantly degrade the bicycle and pedestrian environment, which are bellwethers for quality of life issues, and staff should identify "Levels of Service" or other such measurements to ensure that the pedestrian and bicycling environment will not be significantly degraded as development takes place.

Policy 4.4.2.f Transportation-related mitigations for future development should first implement TDM measures with appropriate regular monitoring; transit, bicycle and pedestrian capital projects; and more efficient use of existing infrastructure such as traffic signal re-timing in order to reduce the negative environmental effects of development, rather than attempting to accommodate them. Should appropriate regular monitoring indicate that these mitigations are unable to provide the predicted peak-hour vehicle trip reductions, additional TDM measures, development specific traffic caps, or mitigations through physical improvements of streets and intersections, consistent with policy 4.4.2.a and policy 4.4.2.b, may be implemented.

Policy 4.4.2.g After the implementation of quantifiable/verifiable TDM measures (verified through appropriate regular monitoring), and mitigation measures consistent with 4.4.2.f and identification of how multimodal infrastructure relates to congestion concerns, some congestion may be identified in an EIR process as not possible to mitigate. This unmitigated congestion should be evaluated and disclosed (including intersection delay length of time) during the EIR process, and acknowledged as a by-product of the development and accepted with the on-going funding of TDM measures.

Objective 4.4.6 Work with area employers and other stakeholders to develop one or more TMAs to implement TDM programs.

Policy 4.4.6.1 For new development projects, require residential, business associations, property owners, and lessees to be dues-paying members in the TMA, as allowed by law.

Policy 4.4.6.2 Encourage existing and previously approved developments to join a TMA, through which they would contribute toward, and benefit from, TDM programs.

Objective 4.4.7 Require developers to contribute toward the implementation of appropriate TSM/TDM measures to mitigate the impacts of their projects on the bridges, tubes, specific intersections, and corridors.

Policy 4.4.7.a Develop standardized method for calculating the appropriate financial contribution for TSM/TDM fees.

Policy 4.4.7.b Develop TSM/TDM fee collection mechanism.

C.4 Impacts and Mitigation Measures

Significance Criteria

According to Appendix G of the CEQA *Guidelines*, a project would have a significant impact on the environment if it would:

a. Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation, including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

b. Conflict with an applicable congestion management program, including but not limited to level of service standards and travel demand measures, or other standards established by the congestion management agency for designated roads or highways.

c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.

d. Substantially increase hazards due to a design feature. (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

e. Result in inadequate emergency access.

f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Alameda: Multimodal Analysis

For the purpose of this EIR[2], the project would have a significant transportation impact if it has one or more of the following effects:

- **Pedestrian:** Causes the Pedestrian LOS to degrade below LOS B at a signalized intersection. If the intersection were already below LOS B, an impact would be considered significant if the delay for a crosswalk increases by 10 percent. (Pedestrian LOS would be determined using the 2000 *Highway Capacity Manual* methodology for determining the average delay for pedestrians at a signalized intersection.)

- **Bicycle:** Causes the Bicycle segment LOS to degrade below LOS B. If a street segment were already below LOS B, an impact would be considered significant if the LOS score increases by 10 percent or more in value. If a segment has an existing adjacent Class I facility and has not been recommended for a future bicycle lane, the degradation of the Bicycle LOS to E would not be considered a significant impact. (Florida Department of Transportation methodology for street segments will be used for the LOS analysis).

- **Transit:** Causes travel speed to degrade by 10 percent or more along a street segment. A segment would be defined as the impacted bus stop location plus the two previous stops

[2] The significance criteria used for this analysis are the transportation threshold of significance recommended by the City of Alameda Transportation Commission on April 22, 2009 to implement General Plan Policy 4.4.2d. This methodology has also been accepted by the City of Alameda Planning Board.

and the two subsequent stops. A segment that crosses a City boundary shall also include five bus stops, but the last stop shall be the first bus stop outside the City of Alameda. (Transit LOS for an arterial segment would be calculated using the 2000 *Highway Capacity Manual*'s methodology for Urban Street (arterial) Level of Service).

- **Automobile:** Causes an intersection to degrade below LOS D. If an intersection were already at LOS E or worse, an impact would be considered significant if there is a 3 percent or greater increase in the traffic volume. (Automobile LOS at intersections would be calculated using the 2000 *Highway Capacity Manual*'s methodology for determining the average vehicle delay at an intersection.)

Procedures for Ranking Modes at Locations Where the Transportation Element Designates Multiple Modal Priorities

If an acceptable level of service cannot be achieved for all modes, then the modes shall be prioritized based upon the General Plan street functional classification system. Priority shall be given to maintaining acceptable level of service for the higher priority mode. Mitigations should be adopted to improve the level of service for the lower priority mode, but those mitigations shall be designed to ensure that they do not impact the level of service for a higher priority mode.

The street functional classification system adopted as part of the City's Transportation Element includes a street type layer, a modal layer, and a land use layer. The modal hierarchy is based primarily on the street type layer, as follows:

Regional and Island Arterials	**Collectors**	**Local**
• Exclusive Right of Way Transit	• Bicycle	• Pedestrian
• Primary Transit	• Pedestrian	• Bicycle
• Secondary Transit	• Transit	• Transit
• Pedestrian	• Automobile	• Automobile
• Bicycle		
• Automobile		

For all street types, if the LOS thresholds are not being achieved, the LOS for automobiles is reduced first. To determine which mode would be impacted next, the modal overlay is used to modify the hierarchy. Note that there are no pedestrian priorities designated in the modal layer, so the Commercial/Main and School/Recreation designations in the land use layer are used to identify the pedestrian priority areas.

Here is an illustration of how this method would apply. For a regional arterial, transit would be the highest priority and the last mode to be impacted. In the absence of any priority designations for bicycles or pedestrians (or if both modes are designated priorities), the pedestrian mode would be given a higher priority than the bicycle mode. If a street segment were identified as a bicycle priority, but not as a pedestrian priority, then the bicycle mode would be given a higher priority than the pedestrian mode.

Below is a list of the types of potential conflicts that were identified and how they would be resolved using the method described above.

a. On Regional Arterials with Commercial/Main or School/Recreation land use designation, modal preference would be in the following order: transit, pedestrian, bicycles, automobiles. Since transit is the highest preference, if necessary, a queue jump lane may share space with a Class II bicycle facility.

b. On Regional Arterials with land use designations other than Commercial/Main or School/Recreation, modal preference would be in the following order: transit, bicycle, pedestrian, automobiles. Since transit is the highest preference, if necessary, a queue jump lane may share space with a Class II bicycle facility.

c. On Island Arterials with Primary Transit or Exclusive Transit Right of Way, modal preference will be prioritized in the following order: transit, pedestrians, bicycles, automobiles.

d. On Island Arterials with Primary Transit or Exclusive Transit Right of Way and bicycle preference, modal preference will be in the following order: transit, bicycles, pedestrians, automobiles.

e. On Island Arterials with Primary Transit or Exclusive Transit Right of Way, and bicycle preference, and a Commercial/Main or School/Recreational Zone, modal preference will be in the following order: transit, pedestrians, bicycles, automobiles.

f. On Island Arterials with bicycle preference and Commercial/Main or School/Recreational Zone, modal preference will be in the following order: bicycles, pedestrians, transit, and automobiles.

g. On Island Arterials with Primary Transit or Transit Exclusive Right-of-Way and Commercial/Main or School/Recreation Zone, modal preference will be in the following order: transit, pedestrians, bicycles, automobiles.

h. On Island Collectors, modal preference will be in the following order: bicycles, pedestrians, transit, and automobiles.

i. On Local Streets, modal preference will be in the following order: pedestrians, bicycles, transit, and automobiles.

Oakland Intersections

For intersections in Oakland, the impacts were assessed according to the City of Oakland CEQA thresholds of significance guidelines, which state that the project would have a significant impact on the environment if it would[3]:

> Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit, specifically:

[3] City of Oakland Transportation Impact Study Guidelines, The City of Oakland – Transportation Planning and Funding Division, April 4, 2013.

Traffic Load and Capacity Thresholds

a. At a signalized intersection which is located outside the Downtown area[4] and that does not provide direct access to Downtown, the project would cause the motor vehicle level of service (LOS) to degrade to worse than LOS D (i.e., LOS E or F) and cause the total intersection average vehicle delay to increase by four (4) or more seconds;

b. At a signalized intersection which is located within the Downtown area or that provides direct access to Downtown, the project would cause the motor vehicle LOS to degrade to worse than LOS E (i.e., LOS F) and cause the total intersection average vehicle delay to increase by four (4) or more seconds;

c. At a signalized intersection outside the Downtown area and that does not provide direct access to Downtown where the motor vehicle level of service is LOS E, the project would cause the total intersection average vehicle delay to increase by four (4) or more seconds;

d. At a signalized intersection outside the Downtown area and that does not provide direct access to Downtown where the motor vehicle level of service is LOS E, the project would cause an increase in the average delay for any of the critical movements of six (6) seconds or more;

e. At a signalized intersection for all areas where the level of service is LOS F, the project would cause (a) the overall volume-to-capacity ("V/C") ratio to increase 0.03 or more or (b) the critical movement V/C ratio to increase 0.05 or more;

f. At a unsignalized intersection the project would add ten (10) or more vehicles to the critical movement and after project completion satisfy the California Manual on Uniform Traffic Control Devices (MUTCD) peak hour volume traffic signal warrant;

Freeway and Ramps

Caltrans Measures of Effectiveness

Caltrans bases its LOS for operating State highway facilities upon certain measures of effectiveness (MOEs). For basic freeway segments and ramps operating at a free-flow speed of 65 mph, the MOE is density, measured in passenger cars per mile per lane. LOS C or better is desirable on State highway facilities; however, Caltrans acknowledges that LOS C may not be feasible in some cases. The Caltrans traffic impact study guidelines state that "if an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE should be maintained."

Alameda County Transportation Commission CMP LOS Standards for Monitoring

The ACTC Congestion Management Program (CMP) establishes LOS E as the standard for facilities under LOS monitoring in the CMP network.

[4] The Downtown area is defined in the Land Use and Transportation Element of the General Plan (page 67) as the area generally bounded by the 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. Intersections that provide direct access to downtown are generally defined as principal arterials within two (2) miles of Downtown and minor arterials within one (1) mile of Downtown, provided that the street connects directly to Downtown.

Grandfathered Segments. Certain segments are identified in the CMP as "grandfathered segments," which were operating at LOS F during the p.m. peak in 1991 when existing LOSs were established for the CMP network. The following segments are included in the CMP Table 6 – LOS F Freeways for Alameda County CMP-Designated Roadway System:

- Southbound I-580 during p.m. peak between I-80/580 and I-980/SR 24: This encompasses the one I-580 analysis segment for the southbound direction during the p.m. peak.

- Southbound I-880 during p.m. peak between Washington Street and Hegenberger Road: This encompasses all but one of the I-880 analysis segments for the southbound direction during the p.m. peak. The I-880 segment west of Adeline Street is not within the grandfathered segment.

- Eastbound I-980 during the p.m. peak between I-880 and I-580: This encompasses the one I-980 analysis segment for the eastbound direction during the p.m. peak.

In addition to the freeway segments, CMP Table 7 – LOS F Arterial Segments, Alameda County CMP-Designated Roadway System, identifies southbound SR 260 (the Webster Tube) from Seventh and Webster Streets in Oakland to Atlantic Avenue in Alameda as such a "grandfathered" roadway segment.

The CMP also identifies a Deficiency Plan (a plan for prioritizing street or freeway improvements) as currently being implemented for the freeway connection between eastbound (northbound) SR 260 (the Posey Tube) and I-880 northbound, in Oakland. This I-880 Broadway/Jackson Interchange, ramp and circulation Improvements Study involves the ACTC, Caltrans, cities of Alameda and Oakland, BART, and AC Transit, and is evaluating multi-modal solutions to movement through and around Oakland's Chinatown, including travel to and from the west end of Alameda.

Local Agency Thresholds

Because the CMP does not define the threshold of significance for locations that already exceed the LOS standard, local agencies can define the applicable significance criteria. The City of Alameda has defined significance criteria for local roads and intersections, but not for freeway facilities. The freeway facilities under analysis are located within Oakland, and the City of Oakland has analyzed traffic impacts on those facilities for several recent EIRs. The City of Oakland's CEQA Thresholds of Significance Guidelines was applied for analyzing the freeway mainline segments and ramp merge/diverge areas identified for the Alameda Point EIR analysis. The relevant criterion is:

> For a roadway segment of the Congestion Management Program (CMP) Network, the project would cause (a) the LOS to degrade from LOS E or better to LOS F or (b) the V/C ratio to increase 0.03 or more for a roadway segment that would operate at LOS F without the project.

The roadway impacts of the project would be considered significant if the addition of project-related traffic would result in a service level worse than LOS E, except where the roadway link was already at LOS F under existing without project conditions. For those locations where this existing

without project condition is LOS F, the impacts of the project were considered significant if the contribution of project-related traffic represents three percent or more of the total traffic. This criterion has been included to address impacts along roadway segments currently operating under unacceptable levels and was developed based on professional judgment using a "reasonableness test" of daily fluctuations of traffic. Also a change of volume-to-capacity (V/C) ratio of 0.03 has been found to be the threshold for which a perceived change in congestion is observed. The V/C ratio is calculated by comparing the peak-hour link volume to the peak-hour capacity of the road link. That change is equivalent to about one-half of the change from one level of service to the next.

Impact Analysis

The travel demand model was used to analyze the effects of the proposed project on traffic operations in the study area. This approach captures not only the increased traffic associated with the proposed land uses, but also the diversion of existing and future background traffic due to the project traffic. For the purpose of this analysis, the model was used to evaluate the impact of Alameda Point redevelopment compared to both existing conditions and to future "cumulative" conditions (2035) without the proposed project.

Travel Demand Modeling Approach

For consistency with recent model forecasts for other studies in Alameda, the recently updated Alameda Countywide travel demand model, which is based on ABAG *Projections '09* and includes network changes and regional improvements outside the City of Alameda, was used. The zonal detail, street network and land use from the City of Alameda travel model developed as part of the Transportation Element were merged into the Alameda Countywide travel model. The updated 2035 street network includes improvements such as the improvements at the 23rd Avenue/29th Avenue interchanges on I-880.

The land use in the City of Alameda was updated to 2012 conditions by including the developments that were approved and built between 2007 and 2012. The 2035 No Project land use was derived from the City of Alameda travel demand model developed as part of the Transportation Element. Adjustments were made to the residential land use for consistency with the City's Land Use Element and 2012 Housing Element. The rest of the model area outside Alameda used the 2005 land use from *Projections '09*. This updated model was used for the traffic forecasts for all study scenarios:

- **Existing + Project:** The Base Year model was run with and without the Alameda Point project. The incremental change in volume between the model runs was added to the existing volumes to develop turning movement volume forecasts using procedures outlined in NCHRP 255[5].

- **2035 No Project:** The full increment between the Base Year model and 2035 No Project forecasts was added to the existing volumes. Where the future network included improvements, manual adjustments were necessary to estimate existing volumes and project increments.

[5] Highway Traffic Data for Urbanized Area Project Planning and Design, Transportation Research Board, 1992.

- **2035 + Project:** Similarly, for the 2035 Plus Project volumes, the full increment between the Base Year and 2035 Plus Project forecasts was added to the existing volumes.

The net changes in land use from the proposed Alameda Point project were added to the Existing No Project and 2035 No Project land use data sets to create the Existing plus Project and 2035 plus Project land use input files. The proposed project land uses were obtained from the City of Alameda. The residential uses were converted from dwelling units to total households, household population, and employed residents, while the commercial square footages were converted to employment by sector for each of the 35 traffic analysis zones (TAZs) in Alameda Point.

The transportation modeling assumes that the share of trips made using transit will be consistent with existing transit ridership patterns in Alameda, and does not assume reduction in automobile trip generation rates to account for the potential future benefits of Transportation Demand Management (TDM) programs at the project site. The framework for the TDM program is set forth in Chapter 3, Project Description.

Project Vehicle Trip Generation

The project vehicle trip generation was derived from the travel demand model, which was used to assess the impacts of the project traffic on the local roadways, and is shown in **Table 4.C-3**.

TABLE 4.C-3
PROJECT VEHICLE TRIP GENERATION

Trip Type	Daily	AM	PM
Total Trips	33,429	2,928	3,294

Analysis Methodologies

The transportation analysis was conducted for typical weekday a.m. and p.m. peak commute hour conditions at local intersections, on the state highways, and on regional facilities.

Multimodal Analysis

The discussion of potential impacts generally follows the travel mode preferences set forth in the City's Transportation Element policies and Street Classifications. Those impacts are described first for the direct project impacts, second for any secondary impacts to other modes. Procedures for prioritizing improvements to different (potentially competing) modes of travel are consistent with recommendations by the City's Transportation Commission in April 2009 and acceptance by the Planning Board. Travel modes were given different rankings for different road classifications (i.e., Regional Arterials, Island Arterials, Island Collectors, and Local Streets), with variations in the ranking based on subheadings of the road classifications (i.e., a modal layer and a land use layer). The recommended procedures apply to situations when acceptable levels of service cannot be achieved for all travel modes, and when a mitigation measure for an impact to a travel mode would cause an impact to a different travel mode, making it necessary to determine which mode receives priority.

Pedestrian Travel. The 2000 *Highway Capacity Manual* method was used to compute pedestrian delay and level of service at all of the signalized study intersections (TRB, 2000). Pedestrian LOS is based on the average delay, in seconds per person that pedestrians will encounter as they wait to cross a signalized intersection. Delay (tied to a LOS letter grade, as shown in **Table 4.C-4**) is computed using the following two data requirements:

1. Effective green time for pedestrians for each crossing "leg"; and
2. The actuated cycle length of the signal.

TABLE 4.C-4
LEVEL OF SERVICE (LOS) CRITERIA FOR PEDESTRIANS AT SIGNALIZED INTERSECTIONS

LOS	Pedestrian Delay (seconds)
A	< 10
B	≥ 10 and ≤ 20
C	> 20 and ≤ 30
D	> 30 and ≤ 40
E	> 40 and ≤60
F	> 60

SOURCE: Transportation Research Board, 2000 Highway Capacity Manual, 2000

Bicycle Travel. The Florida Department of Transportation (DOT) method for computing bicycle levels of service was used to calculate the LOS for the following street segments (FDOT, 2009)

- Webster Street between Buena Vista Avenue and Atlantic Avenue
- Park Street between Alameda Avenue and Central Avenue
- Otis Drive between Broadway and High Street
- Willie Stargell Avenue between Main Street and Webster Street
- Main Street between Ralph Appezzato Memorial Parkway and Pacific Street
- Central Avenue between Main Street and Fourth Street
- Pacific Avenue between Main Street and Third Street
- Ralph Appezzato Memorial Parkway between West Campus Drive and Webster Street
- Clement Avenue between Park Street and Broadway
- Oak Street between Santa Clara Avenue and Central Avenue
- Constitution Way between Marina Village Parkway and Atlantic Avenue/Appezzato Pkwy.

The Florida DOT method for bicycle LOS is based on bicyclists' perceptions of their level of comfort along a roadway segment (not at intersections). A numerical score (tied to a LOS letter grade, as shown in **Table 4.C-5**), is computed using the following five variables:

1. Average effective width of the outside through lane (and presence of a bike lane),
2. Motorized vehicle volumes,
3. Motorized vehicle speeds,
4. Heavy vehicle (truck) volumes, and
5. Pavement condition.

TABLE 4.C-5
LEVEL OF SERVICE (LOS) CRITERIA FOR BICYCLES ON ROADWAY SEGMENTS

LOS	Bicycle LOS Score
A	< 1.5
B	> 1.5 and ≤ 2.5
C	> 2.5 and ≤ 3.5
D	> 3.5 and ≤ 4.5
E	> 4.5 and ≤5.5
F	> 5.5

SOURCE: Florida Department of Transportation, 2009 Quality/Level of Service Handbook, 2009

Transit Travel. The 2000 *Highway Capacity Manual* arterial level-of-service analysis method (based on the average speed for the segment under consideration, computed from the running times on the street segment and the control delay of through movements at signalized intersections) was used to calculate the level of service along the following transit corridors (TRB, 2000).

- Main Street at Willie Stargell Avenue to Pacific Avenue at Webster Street
- Webster Street between the Webster Tubes and Central Avenue
- Park Street between Blanding Avenue and Otis Drive
- Ralph Appezzato Memorial Parkway between Main Street and Webster Street (future)
- Lincoln Avenue between Webster Street and Park Street (future)
- Otis Street between Willow Drive and Robert Davey, Jr. Drive

Transit LOS is analyzed based on the average speed (calculated using the 2000 Highway Capacity Manual urban streets methodology) along a transit corridor spanning at least five bus stops. Under existing conditions, the addition of project-related traffic would not cause any significant impacts to transit LOS along the study corridors.

Freeway Operations. Several freeway segments and ramp merge/diverge areas[6] that would potentially be affected by the changes in traffic due to the Alameda Point project were analyzed. Six freeway mainline locations and 10 freeway ramps were studied based on the proximity to the project, and the list was then refined based on a review of volume difference plots from the travel demand model for the impact analysis. All 10 ramps were analyzed; however, for the freeway mainline, project traffic was found to result in a meaningful increase (i.e., increase over existing volumes of more than 2.5 percent) only on the segment of I-980 south of I-580. (Smaller increases in volume at other locations were not considered significant, as they would be within the normal daily fluctuations in volumes.) Accordingly, only this segment of I-980 and the segment of I-580 west of I-980 were carried forward for analysis in the EIR.

6 Merge/diverge areas are those locations where on-ramps merge with the main flow of freeway traffic and where off-ramps diverge from the freeway, respectively.

Freeway Mainline Segments. The 2000 *Highway Capacity Manual* (HCM) procedures, as applied by Highway Capacity Software (HCS+), were used to calculate average peak hour capacities for each freeway mainline segment. The LOS was determined using "density," which is measured as passenger cars per mile per lane (pc/mi/ln) given an estimated free-flow speed. The estimated free-flow speed of 70 MPH was used for those freeway segments with posted speed limits of 65 MPH. Seventy miles per hour (70 MPH) is the base free-flow speed for urban areas from the HCM. An estimated free-flow speed of 60 MPH was used for two segments of I-880 (segment west of Adeline and segment west of 23rd Street) where the posted speed limit is 55 MPH. **Table 4.C-6** contains the density thresholds for both free-flow conditions.

TABLE 4.C-6
LOS AND DENSITY FOR FREE-FLOW SPEED @ 60 MPH AND 70 MPH

Level of Service	Maximum Density (pc/mi/ln)[a]
A	11
B	18
C	26
D	35
E	45

NOTE:
[a] Passenger cars per mile per lane

SOURCE: Transportation Research Board, *Highway Capacity Manual,* 2000; 23-4.

Ramp Merge/Diverge Areas. Highway Capacity Software (HCS+) was used to analyze the ramp merge/diverge areas. Freeway ramp area operating conditions are dependent upon traffic volumes and the ramp characteristics. These characteristics include the length and type of acceleration/deceleration lanes, free-flow speed of the ramps, number of freeway and acceleration/deceleration lanes, grade along the facility, and types of facilities a ramp connects. **Table 4.C-7**contains the density thresholds from A to F for ramp merge/diverge areas.

TABLE 4.C-7
LOS AND DENSITY FOR FREEWAY RAMP MERGE/DIVERGE AREAS

Level of Service	Maximum Density (pc/mi/ln)[a]
A	10
B	20
C	28
D	35
E	>35
F	Demand Exceeds Capacity

NOTE:
[a] Passenger cars per mile per lane

SOURCE: Transportation Research Board, *Highway Capacity Manual,*2000; 23-4.

The 2000 *Highway Capacity Manual* requires that several criteria be considered in addition to density so that LOS F is automatically attained for a ramp if:

At an on-ramp, volume exceeds capacity (V>C) in:

- The segment of a freeway downstream, or
- The merge-area defined by the on-ramp and the two adjacent freeway lanes,

Or at an off-ramp volume exceeds capacity (V>C) in:

- The segment of a freeway upstream OR downstream,
- The off-ramp itself, or
- The diverge-area defined by the two adjacent freeway lanes approaching the ramp.

The HCM 2000 methodology has certain limitations. It does not apply when the traffic along a segment is influenced by downstream blockages or queuing, nor does it apply when free-flow speeds are below 55 miles per hour (mph). The ACTC CMP originally identified most of the study segments as deficient (LOS F) in certain directions during the p.m. peak and grandfathered those segments into the CMP as deficient in 1991. The 2012 CMP Report identified I-580 west of I-980 as LOS F (average speeds less than 20 mph) during the p.m. peak for both directions of travel as well as during the a.m. peak for the northbound direction. For some study segments, the traffic counts used in the analysis of those segments may represent saturated flows resulting from downstream queuing and not reflect the demand during the study periods. Collectively, these limitations need to be considered when reviewing the results of the HCS+ analysis.

Project Impacts Compared to Existing Conditions

The following analysis evaluates the transportation impacts of the proposed development at Alameda Point on the existing transportation network.

Automobile LOS

Tables 4.C-8 and **4.C-9** present the intersection level of service under Existing conditions for the a.m. and p.m. peak hours, respectively. The impact analysis assumed no change in the signal timings to accommodate the addition of project traffic.

Pedestrian LOS

Table 4.C-10 compares the pedestrian LOS for existing with existing plus project conditions for those locations where a significant impact was identified. The pedestrian impacts identified below are caused by existing automated “actuated” traffic signals, which automatically adjust the signal timing to accommodate the additional traffic volume generated the project. The automatic adjustments result in longer delay for pedestrians crossing the street. The longer pedestrian delays at the following intersections are considered significant pedestrian impacts under the City of Alameda pedestrian thresholds. The full table showing the pedestrian LOS results for all signalized intersections in Alameda can be found in Appendix G.

TABLE 4.C-8
EXISTING PLUS PROJECT AM PEAK HOUR INTERSECTION LEVEL OF SERVICE

Study Intersection Name		Control	Existing		Existing + Project	
			Delay[a]	LOS	Delay[a]	LOS
Alameda Intersections						
1	Main St. & Navy Way	One-Way Stop[b]	8.7	A	9.1	A
2	Main St. & Ferry Terminal Way	Signal	3.3	A	2.2	A
3	Main St. & Singleton Ave.	Signal	5.2	A	3.9	A
4	Main St. & W. Midway Ave.	Signal	10.6	B	39.5	D
5	Main St. & Atlantic Ave.	Signal	10.1	B	14.1	B
6	Main St. & Pacific Ave.	Signal	16.5	B	24.9	C
7	Webster St. & Atlantic Ave.	Signal	33.5	C	37.9	D
8	Constitution Way & Lincoln Ave.	Signal	21.6	C	22.6	C
9	Eighth St. & Central Ave.	Signal	34.2	C	48.7	D
10	Oak St. & Lincoln Ave.	Signal	11.5	B	12.6	B
11	Oak St. & Santa Clara Ave.	Signal	9.9	A	10.6	B
12	Park St. & Clement Ave.	Signal	26.2	C	30.5	C
13	Park St. & Central Ave.	Signal	12.1	B	15.1	B
14	Park St. & Encinal Ave.	Signal	22.6	C	24.5	C
15	Park St. & Otis Dr.	Signal	22.3	C	22.9	C
16	Broadway & Tilden Way	Signal	22.6	C	28.0	C
17	Broadway & Encinal Ave.	Signal	22.9	C	23.0	C
18	Broadway & Otis Dr.	Signal	38.2	D	35.3	D
19	Tilden Way & Blanding Ave.	Signal	13.6	B	15.4	B
20	High St. & Fernside Blvd.	Signal	33.3	C	34.9	C
21	High St. & Otis Dr.	Signal	21.5	C	25.3	C
22	Island Dr. & Otis Dr.	Signal	33.3	C	33.6	C
23	Constitution Way & Marina Village Pkwy.	Signal	10.8	B	11.1	B
24	Constitution Way & Atlantic Ave.	Signal	25.5	C	28.2	C
25	**Fernside Blvd. & Otis Dr.**	Signal	**67.6**	**E**	**89.4**	**F**
26	Park St. & Blanding Ave.	Signal	65.5	E	47.8	D[e]
27	Challenger Dr. & Atlantic Ave.	Signal	8.9	A	9.1	A
28	Challenger Dr. & Marina Village Pkwy.	Signal	20.3	C	20.4	C
29	Webster St. & Willie Stargell Ave.	Signal	10.4	B	10.6	B
30	Fifth St. & Willie Stargell Ave.	One-Way Stop[b]	11.0	B	12.9	B
31	Constitution Way & Mariner Square Dr.	Signal	12.0	B	11.5	B
32	Park St. & Lincoln Ave.	Signal	15.0	B	15.4	B
Oakland Intersections						
33	Jackson Street & Seventh Street	Signal	12.7	B	13.1	B
34	Jackson Street & Sixth Street	Signal	38.2	D	35.8	D

TABLE 4.C-8 (Continued)
EXISTING PLUS PROJECT AM PEAK HOUR INTERSECTION LEVEL OF SERVICE

Study Intersection Name		Control	Existing		Existing + Project	
			Delay[a]	LOS	Delay[a]	LOS
Oakland Intersections (cont.)						
35	Jackson Street & Fifth Street	Signal	20.6	C	22.4	C
36	Harrison Street & 14th Street	Signal	13.6	B	13.4	B
37	Harrison Street & Eighth Street	Signal	5.4	A	7.3	A
38	Harrison Street & Seventh Street	Signal	36.7	D	31.1	C
39	Webster Street & Eighth Street	Signal	25.8	C	26.1	C
40	Webster Street & Seventh Street	Signal	11.6	B	12.5	B
41	Broadway & Seventh Street	Signal	11.2	B	14.1	B
42	Broadway & Sixth Street	Signal	21.3	C	20.8	C
43	Broadway & Fifth Street	Signal	28.1	C	39.8	D
44	Brush Street & 12th Street	Signal	31.3	C	70.5	E
45	High Street & Oakport Street	Signal	28.9	C	30.3	C
46	High Street & Coliseum Way	Signal	29.6	C	30.8	C
47	Fruitvale Ave & Ninth Street	Signal	31.2	C	39.6	D
48	Fruitvale Ave & Eighth Street	Signal	13.9	B	22.1	C
49	23rd Avenue & E 11th Street / I-880 NB on-ramp	Signal	20.7	C	22.4	C
50	23rd Avenue & Ford Street	Signal	13.2	B	33.9	C
51	29th Avenue & Ford Street	One-Way Stop[c]	29.2	D	36.3	E
52	**29th Avenue & I-880 NB off ramp / E. Eighth / E. Ninth Street** d	**All-Way Stop**	**93.4**	**F**	**>120**	**F**
53	Harrison Street & 12th Street	Signal	10.9	B	12.7	B
54	Harrison Street & 11th Street	Signal	15.7	B	15.5	B
55	**Brush Street & 11th Street**	**Signal**	**80.4 v/c = 0.58**	**F**	**>120 v/c = 0.63**	**F**
56	**23rd Avenue & Seventh Street**	**Signal**	**>120** v/c = **0.93**	**F**	**>120** v/c = **1.04**	**F**

NOTES:

[a] The LOS/Delay for Side-Street Stop-Control (SSSC) intersections represents the worst movement or approach; for Signalized intersections, the LOS/Delay represents the overall intersection. For signalized intersections in Oakland with delay in excess of 120 seconds, volume-to-capacity ratio is provided, as delay calculation may not be accurate.

[b] T-intersection.

[c] Ford Street is one-way westbound west of 29th Street; only westbound Ford Street is stop-controlled.

[d] The 29th Ave./I-880 NB off-ramp intersection will be reconstructed beginning in late 2013. With completion scheduled for 2017, before the project would add substantial traffic, this new intersection will avoid the project's otherwise significant impact; therefore, no significant impact is identified in this EIR.

[e] The total intersection AM peak hour volumes increase at this intersection with the proposed project, but the increase is to the movements (NB thru and SB thru on Park St) that are operating at LOS C and B, respectively, so that the average HCM intersection control delay decreases from 65.5 to 47.8 seconds, which changes the LOS from E to D.

Bold indicates locations with unacceptable level of service.

SOURCE: Kittelson & Associates, Inc., 2013.

TABLE 4.C-9
EXISTING PLUS PROJECT PM PEAK HOUR INTERSECTION LEVEL OF SERVICE

Study Intersection Name		Control	Existing		Existing + Project	
			Delay[a]	LOS	Delay[a]	LOS
Alameda Intersections						
1	Main St. & Navy Way	One-Way Stop[b]	9.3	A	10.9	B
2	Main St. & Ferry Terminal Way	Signal	8.2	A	5.2	A
3	Main St. & Singleton Ave.	Signal	4.4	A	3.5	A
4	Main St. & W. Midway Ave.	Signal	10.8	B	22.0	C
5	Main St. & Atlantic Ave.	Signal	10.3	B	13.6	B
6	Main St. & Pacific Ave.	Signal	13.3	B	25.8	C
7	Webster St. & Atlantic Ave.	Signal	31.5	C	35.6	D
8	Constitution Way & Lincoln Ave.	Signal	25.7	C	24.6	C
9	Eighth St. & Central Ave.	Signal	32.8	C	35.9	D
10	Oak St. & Lincoln Ave.	Signal	13.0	B	15.1	B
11	Oak St. & Santa Clara Ave.	Signal	11.4	B	11.2	B
12	Park St. & Clement Ave.	Signal	19.7	B	19.2	B
13	Park St. & Central Ave.	Signal	11.3	B	12.6	B
14	Park St. & Encinal Ave.	Signal	25.3	C	27.0	C
15	Park St. & Otis Dr.	Signal	31.0	C	32.9	C
16	Broadway & Tilden Way	Signal	20.5	C	30.7	C
17	Broadway & Encinal Ave.	Signal	10.8	B	10.8	B
18	Broadway & Otis Dr.	Signal	37.8	D	45.2	D
19	Tilden Way & Blanding Ave.	Signal	17.3	B	20.5	C
20	High St. & Fernside Blvd.	Signal	20.9	C	38.1	D
21	High St. & Otis Dr.	Signal	20.8	C	21.2	C
22	Island Dr. & Otis Dr.	Signal	16.5	B	17.9	B
23	Constitution Way & Marina Village Pkwy.	Signal	22.1	C	23.0	C
24	Constitution Way & Atlantic Ave.	Signal	27.7	C	31.4	C
25	**Fernside Blvd. & Otis Dr.**	Signal	**58.8**	**E**	**75.0**	**E**
26	Park St. & Blanding Ave.	Signal	36.2	D	47.3	D
27	Challenger Dr. & Atlantic Ave.	Signal	13.3	B	13.5	B
28	Challenger Dr. & Marina Village Pkwy.	Signal	21.3	C	21.2	C
29	Webster St. & Willie Stargell Ave.	Signal	12.3	B	12.4	B
30	Fifth St. & Willie Stargell Ave.	One-Way Stop[b]	10.9	B	17.9	C
31	Constitution Way & Mariner Square Dr.	Signal	15.8	B	15.3	B
32	Park St. & Lincoln Ave.	Signal	16.8	B	18.7	B

TABLE 4.C-9 (Continued)
EXISTING PLUS PROJECT PM PEAK HOUR INTERSECTION LEVEL OF SERVICE

	Study Intersection Name	Control	Existing		Existing + Project	
			Delay[a]	LOS	Delay[a]	LOS
Oakland Intersections						
33	Jackson Street & Seventh Street	Signal	10.5	B	22.2	C
34	**Jackson Street & Sixth Street**	**Signal**	**77.0**	**E**	**91.4**	**F**
35	Jackson Street & Fifth Street	Signal	14.6	B	14.6	B
36	Harrison Street & 14th Street	Signal	13.6	B	13.1	B
37	Harrison Street & Eighth Street	Signal	18.6	B	21.2	C
38	Harrison Street & Seventh Street	Signal	21.6	C	36.4	D
39	Webster Street & Eighth Street	Signal	27.6	C	28.8	C
40	Webster Street & Seventh Street	Signal	16.2	B	15.5	B
41	Broadway & Seventh Street	Signal	14.0	B	14.4	B
42	Broadway & Sixth Street	Signal	22.4	C	21.0	C
43	Broadway & Fifth Street	Signal	36.9	D	44.1	D
44	Brush Street & 12th Street	Signal	23.1	C	24.1	C
45	High Street & Oakport Street	Signal	29.0	C	34.7	C
46	High Street & Coliseum Way	Signal	33.9	C	35.6	D
47	Fruitvale Ave & Ninth Street	Signal	30.6	C	32.7	C
48	Fruitvale Ave & Eighth Street	Signal	20.8	C	20.3	C
49	23rd Avenue & E 11th Street / I-880 NB on-ramp	Signal	44.3	D	43.9	D
50	23rd Avenue & Ford Street	Signal	11.4	B	17.3	B
51	29th Avenue & Ford Street	One-Way Stop[c]	13.5	B	19.4	C
52	29th Avenue & I-880 NB off ramp / E. Eighth / E. Ninth Street [d]	All-Way Stop	49.9	E	45.7	E
53	Harrison Street & 12th Street	Signal	9.5	A	9.3	A
54	Harrison Street & 11th Street	Signal	12.2	B	12.6	B
55	Brush Street & 11th Street	Signal	14.5	B	14.7	B
56	23rd Avenue & Seventh Street	Signal	38.7	D	44.6	D

NOTES:

[a] The LOS/Delay for Side-Street Stop-Control (SSSC) intersections represents the worst movement or approach; for Signalized intersections, the LOS/Delay represents the overall intersection.
[b] T-intersection.
[c] Ford Street is one-way westbound west of 29th Street; only westbound Ford Street is stop-controlled.
[d] The 29th Ave./I-880 NB off-ramp intersection will be reconstructed beginning in late 2013. With completion scheduled for 2017, before the project would add substantial traffic, this new intersection will avoid the project's otherwise significant impact; therefore, no significant impact is identified in this EIR.

Bold indicates locations with significant impacts.

SOURCE: Kittelson & Associates, Inc., 2013.

TABLE 4.C-10
EXISTING PLUS PROJECT PEDESTRIAN LEVELS OF SERVICE (LOS) BY CROSSWALK

Intersection	Peak Hour	Scenario	South		North		East		West		5th Leg	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Main St. & Pacific Ave.	AM	Existing	21.7	C	17.4	B	13.0	B	14.6	B	-	-
		Plus Project	29.3	C	27.6	C	19.7	B	15.6	B	-	-
	PM	Existing	18.2	B	17.7	B	12.5	B	10.3	B	-	-
		Plus Project	28.6	C	31.7	D	23.1	C	14.1	B	-	-
Webster St. & Atlantic Ave.	AM	Existing	20.9	C	29.2	C	21.8	C	24.4	C	-	-
		Plus Project	20.6	C	29.5	C	23.0	C	25.7	C	-	-
	PM	Existing	23.7	C	27.9	C	22.9	C	20.6	C	-	-
		Plus Project	22.8	C	30.5	D	23.3	C	25.0	C	-	-
Park St. & Otis Dr.	AM	Existing	17.0	B	17.4	B	19.9	B	14.6	B	-	-
		Plus Project	16.2	B	16.6	B	21.5	C	16.1	B	-	-
	PM	Existing	23.2	C	24.1	C	24.4	C	19.7	B	-	-
		Plus Project	22.3	C	23.2	C	24.3	C	20.3	C	-	-
Broadway & Tilden Way	AM	Existing	25.5	C	23.7	C	11.0	B	11.0	B	-	-
		Plus Project	29.5	C	22.3	C	16.0	B	16.0	B	-	-
	PM	Existing	21.9	C	17.5	B	14.4	B	14.4	B	-	-
		Plus Project	26.7	C	21.1	C	23.7	C	23.7	C	-	-
High St. & Fernside Blvd.	AM	Existing	40.0	E	25.6	C	24.9	C	12.9	B	25.6	C
		Plus Project	41.3	E	26.8	C	26.5	C	12.7	B	26.8	C
	PM	Existing	36.2	D	19.4	B	24.7	C	13.4	B	19.4	B
		Plus Project	42.4	E	25.1	C	28.8	C	12.0	B	25.1	C
Constitution Way & Atlantic Ave.	AM	Existing	25.5	C	27.6	C	18.2	B	17.5	B	-	-
		Plus Project	26.0	C	29.4	C	19.9	B	21.6	C	-	-
	PM	Existing	25.6	C	27.2	C	20.9	C	17.6	B	-	-
		Plus Project	28.9	C	32.8	D	25.2	C	21.2	C	-	-

Shading indicates a significant impact due to degradation of pedestrian level of service.

SOURCE: Kittelson & Associates, Inc., 2013.

Bicycle LOS

Table 4.C-11 compares the bicycle LOS for existing with existing plus project conditions for those locations where a significant impact was identified. The full table showing the all the bicycle LOS results can be found in Appendix G.

Transit LOS

Table 4.C-12 displays the results for transit LOS under existing conditions with and without project-related traffic for both a.m. and p.m. peak hours.

TABLE 4.B-11
EXISTING PLUS PROJECT BICYCLE LEVELS OF SERVICE (LOS)

Segment	Peak Hour	Scenario	NB / WB			SB / EB		
			Bike Score	LOS	% Change in Bike Score	Bike Score	LOS	% Change in Bike Score
Willie Stargell Ave. (Main St./ Webster St.)	AM	Existing	2.3	B	56%	2.8	C	19%
		Plus Project	3.6	D		3.3	C	
	PM	Existing	2.6	C	35%	2.7	C	33%
		Plus Project	3.4	C		3.7	D	
Main St. (Appezzato Pkwy./ Pacific Ave.)	AM	Existing	3.6	D	15%	3.1	C	32%
		Plus Project	4.2	D		4.0	D	
	PM	Existing	2.9	C	42%	3.3	C	26%
		Plus Project	4.1	D		4.2	D	
Central Ave. (Main St./ 4th St.)	AM	Existing	2.9	C	33%	2.8	C	33%
		Plus Project	3.9	D		3.8	D	
	PM	Existing	2.2	B	76%	2.4	B	63%
		Plus Project	3.8	D		3.9	D	

Shading indicates a significant impact due to degradation of bicycle level of service.

SOURCE: Kittelson & Associates, 2013.

TABLE 4.C-12
EXISTING AND EXISTING PLUS PROJECT TRANSIT LEVEL OF SERVICE (LOS)

Segment	Peak Hour	Scenario	NB / WB			SB / EB		
			Travel Speed (MPH)	LOS	% Change in Travel Speed	Travel Speed (MPH)	LOS	% Change in Travel Speed
Main St. at Willie Stargell Ave. to Pacific Ave. at Webster St.	AM	Existing	19.0	B	-4%	17.8	C	-3%
		Plus Project	18.2	C		17.2	C	
	PM	Existing	18.8	C	-1%	17.9	C	-3%
		Plus Project	18.6	C		17.3	C	
Webster St. (Webster Tube to Central Ave.)	AM	Existing	9.8	D	1%	14.4	C	-1%
		Plus Project	9.9	D		14.3	C	
	PM	Existing	10.2	D	0%	14.0	C	-1%
		Plus Project	10.2	D		13.8	C	
Park St. (Blanding Ave. to Otis Dr.)	AM	Existing	10.7	D	-7%	12.6	D	-2%
		Plus Project	10.0	D		12.3	D	
	PM	Existing	11.3	D	-1%	11.4	D	-7%
		Plus Project	11.2	D		10.6	D	

TABLE 4.C-12 (Continued)
EXISTING AND EXISTING PLUS PROJECT TRANSIT LEVEL OF SERVICE (LOS)

Segment	Peak Hour	Scenario	NB / WB			SB / EB		
			Travel Speed (MPH)	LOS	% Change in Travel Speed	Travel Speed (MPH)	LOS	% Change in Travel Speed
Otis St. (Willow Dr. to Robert Davey Jr. Dr.)	AM	Existing	13.2	C	-8%	16.7	C	0%
		Plus Project	12.2	D		16.7	C	
	PM	Existing	12.8	D	-6%	15.5	C	-3%
		Plus Project	12.0	D		15.0	C	

SOURCE: Kittelson & Associates, 2013

Freeway Mainline

The results on the analysis for the freeway mainline are shown in **Table 4.C-13** for the existing conditions. The change in traffic due to the project has minimal effect on the freeway operations with no change in LOS and minimal, if any, change in density under existing conditions, with the exception of I-980 south of I-580 in the westbound direction during the a.m. peak hour.

TABLE 4.C-13
EXISTING PLUS PROJECT FREEWAY MAINLINE CONDITIONS – AM(PM)

FWY section	Direction	Without Project			With Project		
		Volume (pc/h/ln)[a]	Density (pc/mi/ln)[b]	LOS	Volume (pc/h/ln)[a]	Density (pc/mi/ln)[b]	LOS
I-980 s/o I-580	WB	1610(945)	25.8(15.1)	C(B)	1658(953)	26.6(15.2)	D(B)
	EB	731(1326)	11.7(21.2)	B(C)	735(1370)	11.8(21.9)	B(C)
I-580 w/o I-980	WB	2369(1360)	44.7(20.1)	E(C)	2368(1374)	44.6(20.4)	E(C)
	EB	1118(1679)	16.6(25.1)	B(C)	1130(1676)	16.7(25.1)	B(C)

NOTES:
[a] Passenger cars per hour per lane
[b] Passenger cars per mile per lane

SOURCE: KAI, 2013.

Ramps Results

The results on the analysis for the ramps are shown in **Table 4.C-14** for the existing conditions. As shown, the change in traffic due to the project has minimal effect on the ramp operations with no change in LOS and minimal, if any, change in density under existing conditions.

TABLE 4.C-14
EXISTING PLUS PROJECT FREEWAY RAMP CONDITIONS – AM(PM)

Ramp	FWY	Without Project		With Project	
		Density (pc/mi/ln)[a]	LOS	Density (pc/mi/ln)[a]	LOS
Jackson St. on	I-880 NB	38.8(39.0)	F(F)	38.9(39.2)	F(F)
Broadway off	I-880 NB	32.7(29.8)	D(D)	33.0(29.9)	D(D)
18th St. off	I-980 WB	36.6(13.6)	F(B)	38.6(13.7)	F(B)
Fifth St. off (to Broadway)	I-880 SB	14.0(15.3)	B(B)	14.4(15.4)	B(B)
High St. on	I-880 SB	33.4(33.6)	D(D)	33.4(33.5)	D(D)
High St. off	I-880 NB	27.2(27.4)	C(C)	27.4(27.3)	C(C)
Jackson St. off	I-980 WB	19.8(16.3)	B(B)	20.0(16.5)	C(B)
Oak St. on	I-880 SB	24.1(26.4)	C(C)	24.1(26.5)	C(C)
12th St. on	I-980 EB	29.1(62.0)	D(F)	29.3(62.8)	D(F)
12th St. off	I-980 EB	19.1(26.3)	B(C)	18.8(26.3)	B(C)

NOTE:
[a] Passenger cars per mile per lane
SOURCE: KAI, 2013.

Project Construction Analysis

Impact 4.C-1: Development facilitated by the proposed project would generate temporary increases in traffic volumes on area roadways during construction. (Significant)

Project construction activities would generate off-site traffic that would include the initial delivery of construction vehicles and equipment to the project site, the daily arrival and departure of construction workers, and the delivery of materials throughout the construction period and removal of construction debris. Deliveries would include shipments of concrete, lumber, and other building materials for on-site structures, utilities (e.g., plumbing equipment and electrical supplies), and paving and landscaping materials.

Construction-generated traffic would be temporary and therefore would not result in any long-term degradation in operating conditions on roadways in the project site vicinity. The impact of construction-related traffic would be a temporary and intermittent lessening of the capacities of streets in the project site vicinity because of the slower movements and larger turning radii of construction trucks compared to passenger vehicles. Most construction traffic would be dispersed throughout the day. Thus, the temporary increase would not significantly disrupt daily traffic flow on roadways in the project site vicinity in the long term.

Although the impact would be temporary, truck movements could have an adverse effect on traffic flow in the project site vicinity. As such, the impact is considered to be potentially significant.

> **Mitigation Measure 4.C-1:** The City shall require that project applicant(s) and construction contractor(s) shall develop a construction management plan for review and approval by the

Public Works Department prior to issuance of any permits. The plan shall include at least the following items and requirements to reduce traffic congestion during construction:

1. A set of comprehensive traffic control measures shall be developed, 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.

2. The Construction Management Plan shall identify haul routes for movement of construction vehicles that would minimize impacts on motor vehicle, bicycle, and pedestrian traffic, circulation, and safety, and specifically to minimize impacts to the greatest extent possible on streets in the project area. The haul routes shall be approved by the City.

3. The Construction Management Plan shall provide for notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures would occur.

4. The Construction Management Plan shall provide for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by the project applicant.

Significance after Mitigation: Less than Significant.

Project Operational Analysis – Multimodal Level of Service

As stated above in the discussion of travel demand modeling, the impact analysis does not assume, prior to implementation of mitigation, the benefits of future TDM programs at the project site.

Impact 4.C-2: Development facilitated by the proposed project would potentially result in a transportation impact at study intersection under Existing plus Project conditions. (Significant)

Automobile Travel

For each of the significant impact locations, mitigation measures are identified.

Fernside/Otis. The signalized intersection of Fernside Boulevard and Otis Drive (#25) operates at an unacceptable LOS E during both peak hours under Existing conditions. Under Existing plus Project conditions, this intersection would operate at LOS F in the a.m. peak and LOS E in the p.m. peak. The increase in traffic volumes due to the project would contribute more than three percent to the intersection traffic volume under existing conditions during both peak hours.

The increase in traffic volumes due to the project represents a three percent increase when compared to existing volumes during the a.m. peak hour. Similarly, during the p.m. peak hour, the increase in traffic from the project represents a six percent increase. This change in traffic volume can be attributed in part to some project trips directly as well as diverted trips.

Mitigation Measure 4.C-2a (TDM Program): Prior to issuance of building permits for each development project at Alameda Point, the City of Alameda shall prepare, and shall require that the sponsor of the development project participate in implementation of, a Transportation Demand Management (TDM) program for Alameda Point aimed at meeting the General Plan peak-hour trip reduction goals of 10 percent for residential development and 30 percent for commercial development.

Mitigation Measure 4.C-2b (Monitoring and Improvement Program): Prior to issuance of the first building permits for any development project at Alameda Point, the City of Alameda shall adopt a Transportation Network Monitoring and Improvement Program to: 1) determine the cost of the transportation network improvements identified in this EIR; 2) identify appropriate means and formulas to collect fair share financial contributions from Alameda Point development; 3) monitor conditions at the locations that will be impacted by the redevelopment of Alameda Point; 4) monitor traffic generated by Alameda Point; and 5) establish the appropriately time to implement the necessary improvements described in this EIR to minimize or eliminate significant transportation impacts prior to the impacts occurring.

Mitigation Measure 4.C-2c (Otis/Fernside): The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when and if required to avoid the impact or reduce its severity, shall implement the following improvements:

- Remove the right turn island for the westbound approach on Otis Drive, add a dedicated right turn lane with approximately 50 feet of storage length, and move the northbound stop-bar upstream approximately 20 feet to accommodate the right turn lane storage length. Restripe Fernside Boulevard with two receiving lanes.

- Optimize signal timing.

Level of Significance after Mitigation: The degree to which implementation of the TDM Program and Monitoring (Mitigation Measures 4.C-2a and 4C-2b) would reduce peak-hour travel cannot be accurately determined at this time, particularly given that effectiveness would be anticipated to improve over time as an increasing number of residential and non-residential tenants and residents of Alameda Point begin to contribute to, and participate in, program implementation. Accordingly, it would be speculative to assume that the TDM mitigation measure would reduce the impact to less than significant. Therefore, if determined by the Monitoring and Improvement Program to be needed, Mitigation Measure 4.C-2c is recommended.

Implementation of Mitigation Measure 4.C-2c would improve the LOS from LOS F to LOS C during the a.m. peak and from LOS E to LOS B during the p.m. peak. The mitigation would increase pedestrian delay by a marginal amount but would not result in a significant degradation of pedestrian LOS for any leg. It would not cause a diminution of transit travel speed in the vicinity of the intersection, so transit LOS would not degrade.

Auto Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Jackson/Sixth. The signalized intersection of Jackson Street and Sixth Street (#34) operates at LOS E with 77 seconds of delay during the p.m. peak hour under Existing conditions. Under Existing plus Project conditions, this intersection would degrade to LOS F with 91 seconds of delay. The project traffic would cause the overall volume-to-capacity ("V/C") ratio to increase by 0.06 during the p.m. peak hour.

As documented in the City of Oakland's Central Estuary Implementation Guide Supplemental EIR, this intersection was previously identified by the City of Oakland as having a **significant and unavoidable** impact under existing conditions in the Kaiser Center Redevelopment Project EIR.[7] An improvement identified as part of the Broadway-Jackson Interchange project to provide direct access to Sixth Street from the Posey Tube would reduce traffic through Oakland Chinatown. With the assistance of the ACTC, the cities of Alameda and Oakland are working to develop consensus on this improvement. To date, Oakland and Caltrans, which has jurisdiction over the freeway and its ramps, have not agreed upon a solution.

> **Mitigation Measure 4.C-2d (Jackson/Sixth):** The City of Alameda shall implement Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), which could improve intersection LOS by reducing vehicle trips.

Significance after Mitigation: Significant and Unavoidable.

Brush and 11th Street. The signalized intersection of Brush Street and 11th Street (#55) operates at LOS F with 80 seconds of delay during the a.m. peak hour under Existing conditions. Under Existing plus Project conditions, this intersection would degrade to LOS F with more than 120 seconds of delay. The addition of project traffic (almost all of which would be exiting westbound I-980 at 12th Street and approaching this intersection from the north) would cause the overall volume-to-capacity ("V/C") ratio to increase by 0.05.

As documented in the Central Estuary Implementation Guide Supplemental EIR (November 2012), this intersection was previously identified as having a **significant and unavoidable** impact (LOS E) under future conditions during the a.m. peak hour in the Kaiser Center Redevelopment Project DEIR. The City of Oakland has not required any mitigation for this location to mitigate the impacts of the Central Estuary Implementation Guide or Kaiser Center development.

[7] An earlier (2010) Oakland EIR for a project at 325 Seventh Street, identified signal optimization as potentially feasible mitigation for a lesser impact. However, because that measure would require Caltrans approval, the project impact was conservatively considered to be significant and unavoidable. Moreover, no feasible mitigation measure was identified by the City of Oakland for the cumulative impact at this intersection.

A potential improvement would be to optimize the splits to provide more green time for the southbound traffic. If the City of Oakland were to choose signal optimization, this intersection would improve from LOS F to LOS B during the a.m. peak. The mitigation would reduce delays for the southbound movements, resulting in an overall intersection delay of 11. 3 seconds. However, because the City of Alameda cannot implement the mitigation measure without the City of Oakland cooperation, the City of Alameda cannot require that the improvement be implemented**.**

> **Mitigation Measure 4.C-2e (Brush/11th):** The City of Alameda shall implement Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), which could improve intersection LOS by reducing vehicle trips.

Significance after Mitigation: Significant and Unavoidable.

23rd Avenue and Seventh Street. The signalized intersection of 23rd Avenue and Seventh Street (#56) would operate at LOS F with more than 120 seconds of delay during the a.m. peak hour under the Existing conditions. Under Existing plus Project conditions, project-related vehicle traffic would degrade the LOS to F with greater delay, also more than 120 seconds. The project traffic would cause the overall volume-to-capacity ("V/C") ratio to increase by 0.11.

This intersection was studied as part of the I-880 Operational improvements. The incremental traffic due to the project as identified in the travel demand model indicates an increase in the northbound left-turn movements which would allow for access to the I-880 southbound on-ramp. With the future reconfiguration of the 23rd Avenue and 29th Avenue overpasses and ramps, this intersection would continue to operate at a level of service in excess of Oakland's standard for significance, and the impact would be **significant and unavoidable**.

A potential improvement would be to optimize the signal timing by providing for a longer cycle length and optimizing the splits. If the City of Oakland were to choose signal optimization, this intersection would operate at LOS C with 32.7 seconds of average delay during the a.m. peak hour. However, the City of Alameda cannot implement the mitigation without City of Oakland cooperation, therefore the City of Alameda cannot require that the improvement be implemented.

> **Mitigation Measure 4.C-2f (23rd/Seventh):** The City of Alameda shall implement Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), which could improve intersection LOS by reducing vehicle trips.

Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, would lessen the pedestrian impacts at the affected locations by reducing vehicle trips,

although it would be speculative to quantify the potential improvement. Therefore, additional mitigation measures are identified, as applicable, for each impact.

Main/Pacific Pedestrian. At the actuated signal at Main Street and Pacific Avenue (#6), the increase in volumes due to project-related traffic during the a.m. and p.m. peak hours would cause increases in pedestrian delay for several legs of the intersection.

As shown in Table 4.C-10, at the actuated signalized intersection of Main Street and Pacific Avenue, the increase in volumes due to project-related traffic during the a.m. and p.m. peak hours would cause increases in green time for several approaches. These green times increase the overall cycle length, causing increases in pedestrian delay for all legs during both peak hours. Project-related vehicle traffic would increase the a.m. peak hour pedestrian delay along the south leg by more than 10 percent, from 21.7 seconds (LOS C) to 29.3 seconds (LOS C) and along the north leg from 17.4 seconds (LOS B) to 27.6 seconds (LOS C), which would be considered a significant impact. The increase in delay on the east and west legs would not be significant. Project-related vehicle traffic would increase the p.m. peak hour pedestrian delay along the south leg from 18.2 seconds (LOS B) to 28.6 seconds (LOS C), along the north leg from 17.7 seconds (LOS B) to 31.7 seconds (LOS D), and along the east leg from 12.5 seconds (LOS B) to 23.1 seconds (LOS C), which would be considered a significant impact. The increase in delay on the west leg would not be significant.

> **Mitigation Measure 4.C-2g (Main/Pacific Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall implement the following physical improvements:
>
> - change the signal timing to a two-phase timing plan (i.e., northbound and southbound move concurrently; then eastbound and westbound move concurrently); and
> - optimize cycle length.

Level of Significance after Mitigation: Implementation of Mitigation Measure 4.C-3a would reduce projected pedestrian delay during the a.m. peak hour from 29.3 seconds (LOS C) to 11.2 seconds (LOS B) for the south leg and from 27.6 seconds (LOS C) to 11.2 seconds (LOS B) for the north leg. During the p.m. peak hour, this mitigation measure would reduce projected pedestrian delay from 28.6 seconds (LOS C) to 11.0 seconds (LOS B) for the south leg, from 31.7 seconds (LOS D) to 11.0 seconds (LOS B) for the north leg, and from 23.1 seconds (LOS C) to 2.6s (LOS A) for the east leg. This measure would increase average speed along Main Street, thereby also benefitting transit service along the corridor, and it would not degrade auto LOS at the intersection.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Webster/Appezzato Parkway Pedestrian. At the actuated signal at Webster Street and Ralph Appezzato Memorial Parkway (#7), the increase in volumes due to project-related traffic during the p.m. peak hour would cause increases in pedestrian delay for several legs of the intersection.

At the actuated signalized intersection of Webster Street and Appezzato Parkway, the increase in volumes due to project-related traffic during the p.m. peak hour would cause increases in green time for several approaches. These green time increases cause increases in pedestrian delay for all legs. Project-related vehicle traffic would increase the p.m. peak hour pedestrian delay along the west leg from 20.6 seconds (LOS C) to 25.0 seconds (LOS C), which would be considered a significant impact.

> **Mitigation Measure 4.C-2h (Webster/Appezzato Parkway Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall optimize the signal timing during the p.m. peak hour.

Level of Significance after Mitigation: Implementation of Mitigation Measure 4.C-3b would reduce projected pedestrian delay during the p.m. peak hour from 25.0 seconds (LOS C) to 19.7 seconds (LOS B) for the west leg. It would increase average speed along Webster Street, thereby benefitting transit service along that corridor. It would not change the average travel speed along Appezzato Parkway, thereby not impacting transit service along that corridor. It would not degrade auto LOS at the intersection.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Park/Otis Pedestrian. At the actuated signal at Park Street and Otis Drive (#15), the increase in volumes due to project-related traffic during the a.m. and p.m. peak hours would cause increases in pedestrian delay for several legs of the intersection.

At the actuated signalized intersection of Park Street and Otis Drive, the increase in volumes due to project-related traffic during the a.m. and p.m. peak hours would cause increases in green time for several approaches. These green time increases cause increases in pedestrian delay for the east and west legs during both peak hours. Project-related vehicle traffic would increase the a.m. peak hour pedestrian delay along the east leg from 19.9 seconds (LOS B) to 21.5 seconds (LOS C), which would be considered a significant impact. The increase in delay on the west leg would not be a significant impact. Project-related vehicle traffic would increase the p.m. peak hour pedestrian delay along the west leg from 19.7 seconds (LOS B) to 20.3 seconds (LOS C), which

would be considered a significant impact. The increase in delay on the east leg would not be a significant impact.

> **Mitigation Measure 4.C-2i (Park/Otis Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall optimize the signal timing during the a.m. and p.m. and peak hours.

Level of Significance after Mitigation: Implementation of Mitigation Measure 4.C-3c would reduce projected pedestrian delay during the a.m. peak hour from 21.5 seconds (LOS C) to 19.2 seconds (LOS B) for the east leg. During the p.m. peak hour, this measure would reduce projected pedestrian delay from 20.3 seconds (LOS C) to 16.8 seconds (LOS B) for the east leg. It would increase average speed along Park Street and along Otis Drive, thereby benefitting transit service along both corridors, and it would not degrade auto LOS at the intersection.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Broadway/Tilden Pedestrian. At the actuated signal at Broadway and Tilden Way (#16), the increase in volumes due to project-related traffic during the a.m. and p.m. peak hours would cause increases in pedestrian delay for several legs of the intersection.

The signal at Broadway and Tilden Way (#16) is an actuated signal. The increase in volumes due to project-related traffic at the intersection of Broadway and Tilden Way during the a.m. and p.m. peak hours would cause increases in green time for several approaches. These green time increases in addition to the overall cycle length cause increases in pedestrian delay for all legs during both peak hours. Project-related vehicle traffic would increase the a.m. peak hour pedestrian delay along the south leg from 23.5 seconds (LOS C) to 29.5 seconds (LOS C), which would be considered a significant impact. The increase in delay on the north, east, and west legs would not be considered a significant impact. Project-related vehicle traffic would increase the p.m. peak hour pedestrian delay along the south leg from 21.9 seconds (LOS C) to 26.7 seconds (LOS C), along the north leg from 17.5 seconds (LOS B) to 21.1 seconds (LOS C), along the east leg from 14.4 seconds (LOS B) to 23.7 seconds (LOS C), and along the west leg from 14.4 seconds (LOS B) to 23.7 seconds (LOS C), which would be considered a significant impact.

> **Mitigation Measure 4.C-2j (Broadway/Tilden Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall optimize the signal timing during the a.m. and p.m. peak hours.

Level of Significance after Mitigation: Implementation of Mitigation Measure 4.C-2j would reduce projected pedestrian delay during the a.m. peak hour from 29.5 seconds (LOS C) to 22.4 seconds (LOS C) for the south leg. During the p.m. peak hour, Mitigation 4.C-2j would reduce projected pedestrian delay from 26.7 seconds (LOS C) to 19.3 seconds (LOS B) for the south leg, from 21.1 seconds (LOS C) to 16.2 seconds (LOS B) for the north leg, from 23.7 seconds (LOS C) to 17.5 seconds (LOS B) for the east leg, and from 23.7 seconds (LOS C) to 17.5 seconds (LOS B) for the west leg.

During the a.m. peak hour, this measure would increase average speed along Broadway in the southbound direction, but it would decrease average speed in the northbound direction by 2 percent. This 2 percent decrease in average speed does not meet the significance criteria for an impact and therefore would result in a secondary significant impact on transit. Mitigation Measure 4.C-2j would not degrade auto LOS at the intersection.

During the p.m. peak hour, Mitigation Measure 4.C-2j would increase average speed along Broadway in both directions to the benefit of transit service along the corridor, and it would not degrade auto LOS at the intersection.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

High/Fernside Pedestrian. At the actuated signal at High Street and Fernside Boulevard (#20), the increase in volumes due to project-related traffic during the p.m. peak hour would cause increases in pedestrian delay for several legs of the intersection.

The signal at High Street and Fernside Boulevard is an actuated signal. The increase in volumes due to project-related traffic at the intersection of High Street and Fernside Boulevard during the a.m. and p.m. peak hours would cause increases in green time for several approaches. These green time increases cause increases in pedestrian delay for most legs during the p.m. peak hour. Project-related vehicle traffic would increase the p.m. peak hour pedestrian delay along the south leg from 36.2 seconds (LOS D) to 42.4 seconds (LOS E), along the north leg from 19.4s (LOS B) to 25.1 seconds (LOS C), along the east leg from 24.7 seconds (LOS C) to 28.8 seconds (LOS C), and along the southwest leg from 19.4 seconds (LOS B) to 25.1 seconds (LOS C), which would be considered a significant impact.

> **Mitigation Measure 4.C-2k (High/Fernside Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall optimize the signal timing during the p.m. peak hour.

Implementation of Mitigation Measure 4.C-2k would reduce projected pedestrian delay during the p.m. peak hour from 42.4 seconds (LOS E) to 32.8 seconds (LOS D) for the south leg, from 25.1 seconds (LOS C) to 19.1 seconds (LOS B) for the north leg, from 28.8 seconds (LOS C) to 24.1 seconds (LOS C) for the east leg, and from 25.1 seconds (LOS C) to 19.1 seconds (LOS B) for the southwest leg.

Level of Significance after Mitigation: During the p.m. peak hour, Mitigation Measure 4.C-2k would increase average speed along High Street in both directions and along Fernside Boulevard in both directions to the benefit of transit service along both corridors. It would not degrade auto LOS at the intersection.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Atlantic Avenue/Constitution Pedestrian. At the actuated signal at Atlantic Avenue and Constitution Way (#24), the increase in volumes due to project-related traffic during the a.m. and p.m. peak hours would cause increases in pedestrian delay for several legs of the intersection.

The signal at Atlantic Avenue and Constitution Way is an actuated signal. The increase in volumes due to project-related traffic at the intersection of Atlantic Avenue and Constitution Way during the a.m. and p.m. peak hours would cause increases in green time for all approaches. These green time increases in addition to the overall cycle length cause increases in pedestrian delay for the west leg during the a.m. peak hour and for all legs during the p.m. peak hour. Project-related vehicle traffic would increase the a.m. peak hour pedestrian delay along the west leg from 17.5s (LOS B) to 21.6s (LOS C), which would be considered a significant impact. The increase in delay on the south, north, and west legs would not be a significant impact. Project-related vehicle traffic would increase the p.m. peak hour pedestrian delay along the south leg from 25.6s (LOS C) to 28.9s (LOS C), along the north leg from 27.2s (LOS C) to 32.8s (LOS D), along the east leg from 20.9s (LOS C) to 25.2s (LOS C), and along the west leg from 17.6s (LOS B) to 21.2s (LOS C), which would be considered a significant impact.

> **Mitigation Measure 4.C-2l (Atlantic/Constitution Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall implement the following physical improvements:
>
> - modify the existing signal phasing for eastbound and westbound Atlantic Avenue approaches from split to permitted-protected lefts; and
>
> - optimize the signal timing.

Implementation of Mitigation Measure 4.C-2l would reduce projected pedestrian delay during the a.m. and p.m. peak hours to LOS B or C and would reduce delay for all legs. Currently the City has set the pedestrian crossing time at this intersection to accommodate elderly pedestrians crossing at this intersection. Mitigation Measure 4.C-2l would reduce the cycle length while still maintaining this longer crossing time. This measure would not degrade transit LOS along Atlantic Avenue or Constitution Way, nor would it degrade auto LOS at the intersection.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, would improve bicycle conditions at the affected locations by reducing vehicle trips, although it would be speculative to quantify the potential improvement. Therefore, additional mitigation measures are identified, as applicable, for each location.

Stargell Avenue Bike. The increase in motorized vehicle volume due to project-related traffic along Willie Stargell Avenue between Main Street and Webster Street would be substantial in the eastbound and westbound directions during both peak hours, and it would cause bicycle LOS to degrade in both directions during both peak hours. For westbound bicycle traffic, in the a.m. peak hour, the increase in traffic volume would degrade bicycle operations from LOS B to LOS D and the bicycle score would increase by 56 percent with the project, which exceeds the 10 percent threshold of significance for segments already at LOS B or worse, while in the p.m. peak hour, LOS C would be maintained but the bicycle score would increase by 35 percent, also significant. For eastbound bicycles, the a.m. bicycle score would increase by 19 percent (LOS C would be maintained), while the p.m. LOS would decrease from LOS C to LOS D and the bicycle score would increase by 33 percent; both would be significant impacts.

> **Mitigation Measure 4.C-2m (Stargell Avenue Bike):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall construct a Class I or Class II bicycle facility between Main Street and Webster Street.

Implementation of Mitigation Measure 4.C-2m would enhance the cyclist experience along Willie Stargell Avenue. However, due to the limitation of the methodology, bicycle LOS for Class I bicycle paths cannot be calculated directly, and this impact would remain **significant and unavoidable**. If Class II bicycle lanes were to be installed it would improve bicycle LOS for the eastbound a.m. peak hour from LOS C (3.3) to LOS A (1.5), for the eastbound p.m. peak hour from LOS D (3.7) to LOS B (1.9), for the westbound a.m. peak hour from LOS D (3.6) to LOS B

(1.9), and for the westbound p.m. peak hour from LOS C (3.4) to LOS B (1.8). This measure would not degrade the transit LOS or auto LOS along the corridor.

Bicycle Travel Impact Significance after Mitigation: Significant and Unavoidable.

Transit Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Auto Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Main Street Bike. The increase in motorized vehicle volume due to project-related traffic along Main Street between Ralph Appezzato Memorial Parkway and Pacific Avenue would cause bicycle LOS to degrade in both directions during both peak hours. For northbound bicycle traffic, in the a.m. peak hour, the increase in traffic volume would degrade the bicycle score by 15 percent with the project (LOS C would be maintained), which exceeds the 10 percent threshold of significance for segments already at LOS B or worse, while in the p.m. peak hour, bicycle operations would degrade from LOS C to LOS D and the score would decrease by 42 percent, also significant. For southbound bicycles, the a.m. bicycle LOS would degrade from LOS C to LOS D and the score would decrease by 32 percent, while the p.m. LOS would also decrease from LOS C to LOS D and the score would decrease by 26 percent; both would be significant impacts.

> **Mitigation Measure 4.C-2n (Main Street Bike):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall implement the following physical improvements:
>
> - construct a Class II bicycle lane or improve the existing Class I bicycle path on the west side of the street between Appezzato Parkway and Pacific Avenue to current City standards;
>
> - provide connectivity to existing Class I bicycle path on the east and west sides of the street north of Appezzato Parkway. Appropriate intersection treatments for connectivity may include striping, signage, and/or bicycle boxes at the intersection of Main Street and Appezzato Parkway; and
>
> - if Mitigation Measure 4.C-4c (described below) is implemented, provide connectivity to that bicycle facilities on west side of the street north of the Main Street-Pacific Street intersection.

Implementation of Mitigation Measure 4.C-4b would enhance the cyclist experience along Main Street and would likely improve bicycle LOS to LOS B or better. However, due to the limitation of the methodology, bicycle LOS for Class I bicycle paths cannot be calculated directly, and this impact would remain **significant and unavoidable**. If Class II bicycle lanes were to be installed, bicycle LOS would improve for the northbound a.m. peak hour from LOS D (3.6) to LOS C (2.7), for the northbound p.m. peak hour from LOS C (2.9) to LOS C (2.6), for the southbound a.m.

peak hour from LOS C (3.1) to LOS C (2.5), and for the southbound p.m. peak hour from LOS C (3.3) to LOS C (2.7). A Class I bike path would further improve the bicycle LOS to less than significant level. This measure would not degrade the transit LOS or auto LOS along the corridor.

Bicycle Travel Impact Significance after Mitigation: Significant and Unavoidable.

Transit Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Auto Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Central Avenue Bike. The increase in motorized vehicle volume due to project-related traffic along Central Avenue between the Main Street-Pacific Street intersection and Fourth Street would cause bicycle LOS to degrade in both directions during both peak hours. For westbound bicycle traffic, in the a.m. peak hour, the increase in traffic volume would degrade bicycle operations from LOS C to LOS D and the bicycle score would increase by 33 percent with the project, which exceeds the 10 percent threshold of significance for segments already at LOS B or worse, while in the p.m. peak hour, operations would degrade from LOS B to LOS D and the bicycle score would increase by 76 percent, also significant. For eastbound bicycles, a.m. bicycle operations would degrade from LOS C to LOS D and the score would increase by 33 percent, while the p.m. LOS would decrease from LOS B to LOS D and the bicycle score would increase by 63 percent; both would be significant impacts.

> **Mitigation Measure 4.C-2o(Central Avenue Bike):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, shall implement the following physical improvements:
>
> - construct a Class II bicycle lane or improve the existing Class I bicycle path on the west (south) side of the street between the Main Street-Pacific Street intersection and Lincoln Avenue to current City standards;
> - extend a Class I bicycle path to Third Street; and
> - restripe and sign the street segment between Third Street and Fourth Street to provide Class II bicycle lanes between Lincoln Avenue and Fourth Street.

Implementation of Mitigation Measure 4.C-2o would enhance the cyclist experience along Central Avenue. As previously described, the limits of the methodology used to evaluate bicycle LOS for this study do not include Class I bicycle paths, so bicycle LOS for Mitigation Measure 4.C-2o cannot be calculated. Were a Class II bicycle lane implemented, it would improve bicycle LOS for the northbound a.m. peak hour from LOS D (3.9) to LOS B (2.2), for the northbound p.m. peak hour from LOS D (3.8) to LOS B (2.1), for the southbound a.m. peak hour from LOS D (3.8) to LOS B (2.0), and for the southbound p.m. peak hour from LOS D (3.9) to LOS B (2.2). Mitigation Measure 4.C-2o would not degrade the transit LOS or auto LOS along the corridor.

Mitigation Measure 4.C-2o would require acquisition of additional right-of-way from the Alameda Unified School District along the northeastern boundary of the Encinal High School property and require removal of on-street parking in order to restripe the street with bicycle lanes. Because the acquisition of right of way is uncertain and removal of on-street parking along the block between Third Street and Fourth Street would adversely affect local residents who use the existing on-street parking regularly, the impact would remain **significant and unavoidable**.

Bicycle Travel Impact Significance after Mitigation: Significant and Unavoidable.

Transit Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Auto Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Freeways and Ramps Analysis

Impact 4.C-3: The increase in traffic on the freeway mainline due to the project would result in negligible changes in density (vehicles per lane) and no change in LOS, with the exception of the segment of I-980 south of I-580. (Less than Significant)

The freeway mainline segment of I-980 south of I-580 would experience an increase in volume of about 48 vehicles per hour per lane during the a.m. peak hour. This slight increase in volume would result in change in density from 25.8 to 26.6 passenger cars per mile per lane, which is just enough to drop the LOS from C to D. However, the magnitude of the change in volume is less than three percent of the total volume; therefore, the change would be imperceptible to drivers and within normal daily fluctuation of traffic volumes on the freeway.

Mitigation: None required.

Impact 4.C-4: The change in traffic volumes on the freeway ramps due to the project would result in no change in LOS and minimal, if any, change in density (vehicles per lane). (Less than Significant)

The change in density on the freeway ramps due to the project results in at most a two passenger car per mile per lane difference on only one freeway mainline segment. This magnitude of difference would be imperceptible to drivers.

Mitigation: None required.

Cumulative Analysis

Cumulative traffic operating conditions, and the project's contribution to those cumulative conditions, were analyzed on the basis of forecasts of 2035 conditions. The Cumulative Condition incorporates reasonably foreseeable future growth in the study area, the rest of Alameda, Oakland, and the region. Cumulative scenario forecasts were developed according to the process described in the Travel Demand Modeling Approach section, p. 4.C-22.

Automobile LOS

The cumulative a.m. and p.m. peak hour intersection LOS is summarized in **Table 4.C-15** and **Table 4.C-16**, respectively. As shown, a number of study intersections would operate at unacceptable levels of service as a result of assumed local and regional growth by 2035. Figures showing the Cumulative No Project and Cumulative plus Project peak hour volumes at study intersections and LOS calculation reports are provided in **Appendix G**.

TABLE 4.C-15
CUMULATIVE (2035) AM PEAK HOUR INTERSECTION LEVEL OF SERVICE

	Study Intersection Name	Control	2035 No Project		2035 + Project	
			Delay[a]	LOS	Delay[a]	LOS
Alameda Intersections						
1	Main St. & Navy Way	One-Way Stop[b]	9.0	A	9.3	A
2	Main St. & Ferry Terminal Way	Signal	1.3	A	1.3	A
3	Main St. & Singleton Ave.	Signal	62.7	E	51.3	D
4	Main St. & W. Midway Ave.	Signal	11.1	B	22.6	C
5	Main St. & Atlantic Ave.	Signal	10.6	B	14.9	B
6	Main St. & Pacific Ave.	Signal	22.0	C	28.7	C
7	Webster St. & Atlantic Ave.	Signal	35.6	D	42.2	D
8	Constitution Way & Lincoln Ave.	Signal	27.9	C	24.5	C
9	Eighth St. & Central Ave.	Signal	36.2	D	50.2	D
10	Oak St. & Lincoln Ave.	Signal	12.6	B	13.4	B
11	Oak St. & Santa Clara Ave.	Signal	10.8	B	12.8	B
12	**Park St. & Clement Ave.**	**Signal**	**>120**	**F**	**>120**	**F**
13	Park St. & Central Ave.	Signal	23.0	C	21.0	C
14	Park St. & Encinal Ave.	Signal	44.3	D	48.1	D
15	Park St. & Otis Dr.	Signal	26.7	C	27.9	C
16	Broadway & Tilden Way	Signal	38.8	D	39.4	D
17	Broadway & Encinal Ave.	Signal	30.5	C	29.4	C
18	**Broadway & Otis Dr.**	**Signal**	**111.7**	**F**	**94.5**	**F**
19	**Tilden Way & Blanding Ave.**	**Signal**	**>120**	**F**	**>120**	**F**
20	**High St. & Fernside Blvd.**	**Signal**	**>120**	**F**	**>120**	**F**
21	**High St. & Otis Dr.**	**Signal**	**>120**	**F**	**>120**	**F**
22	**Island Dr. & Otis Dr.**	**Signal**	**>120**	**F**	**>120**	**F**
23	Constitution Way & Marina Village Pkwy.	Signal	8.1	A	7.8	A
24	Constitution Way & Atlantic Ave.	Signal	26.6	C	30.5	C
25	**Fernside Blvd. & Otis Dr.**	**Signal**	**114.4**	**F**	**>120**	**F**
26	**Park St. & Blanding Ave.**	**Signal**	**>120**	**F**	**>120**	**F**

TABLE 4.C-15 (Continued)
CUMULATIVE (2035) AM PEAK HOUR INTERSECTION LEVEL OF SERVICE

Study Intersection Name		Control	2035 No Project		2035 + Project	
			Delay[a]	LOS	Delay[a]	LOS
Alameda Intersections (cont.)						
27	**Challenger Dr. & Atlantic Ave.**	**Signal**	**71.2**	**E**	**85.8**	**F**
28	Challenger Dr. & Marina Village Pkwy.	Signal	32.4	C	23.4	C
29	Webster St. & Willie Stargell Ave.	Signal	11.1	B	11.4	B
30	Fifth St. & Willie Stargell Ave.	One-Way Stop[b]	15.3	C	18.0	C
31	Constitution Way & Mariner Square Dr.	Signal	11.7	B	11.8	B
32	Park St. & Lincoln Ave.	Signal	31.8	C	28.5	C
Oakland Intersections						
33	Jackson Street & Seventh Street	Signal	15.7	B	15.5	B
34	**Jackson Street & Sixth Street**	**Signal**	**>120 v/c = 1.75**	**F**	**>120 v/c = 1.88**	**F**
35	Jackson Street & Fifth Street	Signal	>120 v/c =0.63	F	>120 v/c =0.63	F
36	Harrison Street & 14th Street	Signal	13.5	B	13.6	B
37	Harrison Street & Eighth Street	Signal	15.5	B	14.2	B
38	Harrison Street & Seventh Street	Signal	44.2	D	49.1	D
39	Webster Street & Eighth Street	Signal	>120 v/c =0.74	F	>120 v/c =0.73	F
40	Webster Street & Seventh Street	Signal	15.2	B	17.4	B
41	Broadway & Seventh Street	Signal	18.5	B	19.1	B
42	Broadway & Sixth Street	Signal	23.0	C	23.2	C
43	**Broadway & Fifth Street**	**Signal**	**97.0**	**F**	**118.9**	**F**
44	**Brush Street & 12th Street**	**Signal**	**108.8**	**F**	**118.4**	**F**
45	High Street & Oakport Street	Signal	65.3	E	64.0	E
46	High Street & Coliseum Way	Signal	72.8	E	60.8	E
47	Fruitvale Ave & Ninth Street	Signal	77.8	E	79.7	E
48	Fruitvale Ave & Eighth Street	Signal	17.0	B	22.3	C
49	23rd Avenue & E 11th Street / I-880 NB on-ramp	Signal	5.9	A	6.1	A
50	23rd Avenue & Ford Street	Signal	33.3	C	49.1	D
51	29th Avenue & Ford Street	Signal	54.4	D	69.1	E
52	29th Avenue & I-880 NB off ramp / E. Eighth / E. Ninth Street	Signal	10.1	B	10.2	B
53	Harrison Street & 12th Street	Signal	11.8	B	11.5	B
54	Harrison Street & 11th Street	Signal	15.0	B	14.5	B
55	Brush Street & 11th Street	Signal	106.9	F	119.1	F
56	23rd Avenue & Seventh Street	Signal	47.0	D	49.1	D
57	23rd Avenue & I-880 NB on-ramp	Signal	38.8	D	40.1	D

NOTES:

[a] The LOS/Delay for Side-Street Stop-Control (SSSC) intersections represents the worst movement or approach; for Signalized intersections, the LOS/Delay represents the overall intersection. For signalized intersections in Oakland with delay in excess of 120 seconds, volume-to-capacity ratio is provided, as delay calculation may not be accurate.

[b] T-intersection.

Bold indicates locations with significant impacts.

SOURCE: Kittelson & Associates, Inc., 2013.

TABLE 4.C-16
CUMULATIVE (2035) PM PEAK HOUR INTERSECTION LEVEL OF SERVICE

Study Intersection Name		Control	2035 No Project		2035 + Project	
			Delay[a]	LOS	Delay[a]	LOS
Alameda Intersections						
1	Main St. & Navy Way	One-Way Stop[b]	9.5	A	11.1	B
2	Main St. & Ferry Terminal Way	Signal	5.3	A	3.6	A
3	Main St. & Singleton Ave.	Signal	6.4	A	6.1	A
4	Main St. & W. Midway Ave.	Signal	11.8	B	18.3	B
5	Main St. & Atlantic Ave.	Signal	9.8	A	14.6	B
6	Main St. & Pacific Ave.	Signal	17.7	B	26.0	C
7	Webster St. & Atlantic Ave.	Signal	37.0	D	43.8	D
8	Constitution Way & Lincoln Ave.	Signal	25.3	C	23.5	C
9	Eighth St. & Central Ave.	Signal	39.5	D	50.9	D
10	Oak St. & Lincoln Ave.	Signal	16.7	B	20.5	C
11	Oak St. & Santa Clara Ave.	Signal	11.0	B	10.9	B
12	**Park St. & Clement Ave.**	**Signal**	**>120**	**F**	**>120**	**F**
13	Park St. & Central Ave.	Signal	16.2	B	17.7	B
14	**Park St. & Encinal Ave.**	**Signal**	**97.8**	**F**	**110.8**	**F**
15	Park St. & Otis Dr.	Signal	32.9	C	32.5	C
16	Broadway & Tilden Way	Signal	43.3	D	50.0	D
17	Broadway & Encinal Ave.	Signal	25.1	C	24.2	C
18	**Broadway & Otis Dr.**	**Signal**	51.9	D	**61.9**	**E**
19	**Tilden Way & Blanding Ave.**	**Signal**	**>120**	**F**	**>120**	**F**
20	**High St. & Fernside Blvd.**	**Signal**	**>120**	**F**	**>120**	**F**
21	**High St. & Otis Dr.**	**Signal**	54.4	D	**71.1**	**E**
22	Island Dr. & Otis Dr.	Signal	36.8	D	33.3	C
23	Constitution Way & Marina Village Pkwy.	Signal	7.5	A	7.6	A
24	Constitution Way & Atlantic Ave.	Signal	37.2	D	46.9	D
25	**Fernside Blvd. & Otis Dr.**	**Signal**	**>120**	**F**	**>120**	**F**
26	**Park St. & Blanding Ave.**	**Signal**	**>120**	**F**	**>120**	**F**
27	Challenger Dr. & Atlantic Ave.	Signal	92.9	F	79.8	E
28	Challenger Dr. & Marina Village Pkwy.	Signal	28.0	C	27.1	C
29	Webster St. & Willie Stargell Ave.	Signal	12.3	B	12.5	B
30	Fifth St. & Willie Stargell Ave.	One-Way Stop[b]	13.1	B	19.9	C
31	Constitution Way & Mariner Square Dr.	Signal	14.9	B	14.9	B
32	**Park St. & Lincoln Ave.**	**Signal**	38.5	D	**57.9**	**E**
Oakland Intersections						
33	Jackson Street & Seventh Street	Signal	>120 v/c = 1.60	F	>120 v/c = 1.60	F
34	Jackson Street & Sixth Street	Signal	>120 v/c = 3.26	F	>120 v/c = 3.17	F
35	Jackson Street & Fifth Street	Signal	75.1	E	71.4	E
36	Harrison Street & 14th Street	Signal	13.8	B	13.8	B
37	Harrison Street & Eighth Street	Signal	14.3	B	16.8	B
38	Harrison Street & Seventh Street	Signal	64.9	E	78.5	E
39	Webster Street & Eighth Street	Signal	>120 v/c = 0.93	F	>120 v/c = 0.96	F

TABLE 4.C-16 (Continued)
CUMULATIVE (2035) PM PEAK HOUR INTERSECTION LEVEL OF SERVICE

Study Intersection Name		Control	2035 No Project		2035 + Project	
			Delay[a]	LOS	Delay[a]	LOS
Oakland Intersections (cont.)						
40	Webster Street & Seventh Street	Signal	46.4	D	51.4	D
41	Broadway & Seventh Street	Signal	32.3	C	37.9	D
42	Broadway & Sixth Street	Signal	26.4	C	28.4	C
43	Broadway & Fifth Street	Signal	43.4	D	49.2	D
44	Brush Street & 12th Street	Signal	37.8	D	38.3	D
45	High Street & Oakport Street	Signal	60	E	60.1	E
46	High Street & Coliseum Way	Signal	74.0	E	82.1	F
47	Fruitvale Ave & Ninth Street	Signal	>120 v/c = 1.36	F	>120 v/c = 1.32	F
48	Fruitvale Ave & Eighth Street	Signal	35.2	D	51.7	D
49	23rd Avenue & E 11th Street / I-880 NB on-ramp	Signal	6.6	A	8.1	A
50	23rd Avenue & Ford Street	Signal	13.2	B	14.9	B
51	29th Avenue & Ford Street	Signal	>120 v/c = 1.24	F	>120 v/c = 1.27	F
52	29th Avenue & I-880 NB off ramp / E. Eighth / E. Ninth Street	Signal	11.6	B	11.9	B
53	Harrison Street & 12th Street	Signal	12.1	B	12.9	B
54	Harrison Street & 11th Street	Signal	12.9	B	13.8	B
55	Brush Street & 11th Street	Signal	16.9	B	16.9	B
56	23rd Avenue & Seventh Street	Signal	47.6	D	60.4	E
57	23rd Avenue & I-880 NB on-ramp	Signal	5.9	A	5.9	A

NOTES:

[a] The LOS/Delay for Side-Street Stop-Control (SSSC) intersections represents the worst movement or approach; for Signalized intersections, the LOS/Delay represents the overall intersection. For signalized intersections in Oakland with delay in excess of 120 seconds, volume-to-capacity ratio is provided, as delay calculation may not be accurate.

[b] T-intersection.

Bold indicates locations with significant impacts.

SOURCE: Kittelson & Associates, Inc., 2013.

Pedestrian LOS

Table 4.C-17 compares the pedestrian LOS for cumulative conditions with cumulative plus project conditions at those locations where a significant cumulative impact was identified. The full table showing the pedestrian LOS results for all signalized intersections in Alameda can be found in Appendix G.

Transit LOS

Table 4.C-18 displays the results for transit LOS under cumulative conditions with and without project-related traffic for both a.m. and p.m. peak hours.

TABLE 4.C-17
CUMULATIVE PEDESTRIAN LEVELS OF SERVICE (LOS) BY CROSSWALK

Intersection	Peak Hour	Scenario	South		North		East		West		5th Leg	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Main St. & Pacific Ave.	AM	Cumulative	27.3	C	23.9	C	17.3	B	15.1	B	-	-
		Plus Project	31.9	D	28.5	C	23.7	C	15.4	B	-	-
	PM	Cumulative	20.5	C	22.2	C	13.6	B	14.8	B	-	-
		Plus Project	28.5	C	31.5	D	21.3	C	15.4	B	-	-
Webster St. & Atlantic Ave.	AM	Cumulative	21.6	C	29.5	C	24.4	C	24.6	C	-	-
		Plus Project	20.6	C	28.3	C	24.4	C	27.3	C	-	-
	PM	Cumulative	24.5	C	27.3	C	24.0	C	23.4	C	-	-
		Plus Project	23.3	C	27.9	C	26.0	C	25.8	C	-	-
High St. & Fernside Blvd.	AM	Cumulative	38.9	D	24.8	C	20.4	C	13.4	B	24.8	C
		Plus Project	41.2	E	27.4	C	19.3	B	12.5	B	27.4	C
	PM	Cumulative	46.6	E	33.2	D	24.7	C	11.5	B	33.2	D
		Plus Project	46.4	E	33.8	D	25.3	C	11.7	B	33.8	D
Constitution Way & Atlantic Ave.	AM	Cumulative	25.3	C	26.1	C	20.2	C	19.4	B	-	-
		Plus Project	26.8	C	25.1	C	24.7	C	25.8	C	-	-
	PM	Cumulative	29.7	C	34.0	D	29.5	C	26.0	C	-	-
		Plus Project	27.8	C	35.6	D	35.6	D	30.1	D	-	-

Shading indicates a significant impact due to degradation of bicycle level of service.

SOURCE: Kittelson & Associates, Inc., 2013.

TABLE 4.C-18
CUMULATIVE AND CUMULATIVE PLUS PROJECT TRANSIT LEVEL OF SERVICE (LOS)

Segment	Peak Hour	Scenario	NB / WB			SB / EB		
			Travel Speed (MPH)	LOS	% Change in Travel Speed	Travel Speed (MPH)	LOS	% Change in Travel Speed
Main St. at Willie Stargell Ave. to Pacific Ave. at Webster St.	AM	Cumulative	18.3	C	-7%	16.9	C	-10%
		Plus Project	17.1	C		15.2	C	
	PM	Cumulative	18.0	C	-2%	16.5	C	-6%
		Plus Project	17.7	C		15.5	C	
Park St. (Blanding Ave. to Otis Dr.)	AM	Cumulative	8.5	E	2%	8.4	E	-13%
		Plus Project	8.7	E		7.3	E	
	PM	Cumulative	7.6	E	21%	8.5	E	-4%
		Plus Project	9.2	D		8.2	E	
Appezzato Pkwy. (Main St. to Webster St.)	AM	Cumulative	11.0	D	-7%	11.0	D	-1%
		Plus Project	10.2	D		10.9	D	
	PM	Cumulative	11.0	D	-10%	10.9	D	-1%
		Plus Project	9.9	D		10.8	D	
Willie Stargell Ave. (Main St. to Webster St.)	AM	Cumulative	22.4	B	-29%	19.7	B	2%
		Plus Project	15.9	C		20.0	B	
	PM	Cumulative	22.7	B	-20%	19.8	B	-3%
		Plus Project	18.2	C		19.3	B	

Shading indicates a significant impact due to degradation of transit level of service.

SOURCE: Kittelson & Associates, 2013.

Bicycle LOS

Table 4.C-19 compares the bicycle LOS for cumulative with cumulative plus project conditions for those locations where a significant impact was identified. The full table showing the all the bicycle LOS results can be found in Appendix G.

TABLE 4.C-19
CUMULATIVE AND CUMULATIVE PLUS PROJECT BICYCLE LEVELS OF SERVICE (LOS)

			NB / WB			SB / EB		
Segment	**Peak Hour**	**Scenario**	**Bike Score**	**LOS**	**% Change in Bike Score**	**Bike Score**	**LOS**	**% Change in Bike Score**
Willie Stargell Ave. (Main St./ Webster St.)	AM	Cumulative	2.7	C	36%	3.6	D	1%
		Plus Project	3.6	D		3.7	D	
	PM	Cumulative	3.6	D	4%	3.1	C	18%
		Plus Project	3.7	D		3.7	D	
Main St. (RAMP/ Pacific Ave.)	AM	Cumulative	3.7	D	13%	3.7	D	14%
		Plus Project	4.1	D		4.2	D	
	PM	Cumulative	3.6	D	16%	3.5	D	18%
		Plus Project	4.2	D		4.2	D	
Central Ave. (Main St./ 4th St.)	AM	Cumulative	2.9	C	32%	3.5	C	14%
		Plus Project	3.8	D		3.9	D	
	PM	Cumulative	3.0	C	31%	2.5	B	54%
		Plus Project	3.9	D		3.8	D	
Oak St. (Santa Clara Ave./ Central Ave.)	AM	Cumulative	2.5	C	2%	2.3	B	18%
		Plus Project	2.6	C		2.8	C	
	PM	Cumulative	3.0	C	5%	3.5	C	3%
		Plus Project	3.1	C		3.6	D	

SOURCE: Kittelson & Associates, 2013

Freeways Mainline

The results on the analysis for the freeway mainline are shown in **Table 4.C-20** for the cumulative (2035) conditions. As shown, the change in traffic due to the project has minimal effect on the freeway operations with no change in LOS and minimal, if any, change in density under cumulative conditions.

Ramps Results

The results on the analysis for the ramps are shown in **Table 4.C-21** for the cumulative (2035) conditions. As shown, the change in traffic due to the project has minimal effect on the ramp operations with no change in LOS and minimal, if any, change in density under existing conditions.

TABLE 4.C-20
CUMULATIVE FREEWAY MAINLINE CONDITIONS – AM(PM)

FWY Section	Direction	Without Project			With Project		
		Volume (pc/h/ln)[a]	Density (pc/mi/ln)[b]	LOS	Volume (pc/h/ln)[a]	Density (pc/mi/ln)[b]	LOS
880 w/o Adeline	NB	2131(2246)	40.1(44.4)	E(E)	2115(2246)	39.6(44.4)	E(E)
	SB	1554(1726)	27.8(30.8)	D(D)	1569(1717)	28.0(30.7)	D(D)
880 w/o 23rd	NB	2642(2729)	N/A*	F(F)	2639(2753)	N/A*	F(F)
	SB	2504(2241)	N/A*(N/A**)	F(F)	2513(2250)	N/A*(N/A**)	F(F)
880 e/o High	NB	1577(1997)	23.4(31.6)	C(D)	1566(1999)	23.3(31.6)	C(D)
	SB	1873(1750)	28.8(26.4)	D(D)	1849(1734)	28.3(26.1)	D(D)
980 s/o 580	WB	1762(1118)	28.4(17.9)	D(B)	1762(1115)	28.4(17.8)	D(B)
	EB	840(1457)	13.4(23.3)	B(C)	860(1481)	13.8(23.7)	B(C)
880 e/o 980	NB	1604(1840)	24.5(28.7)	C(D)	1607(1842)	24.6(28.8)	C(D)
	SB	1198(1172)	18.3(17.9)	C(B)	1219(1176)	18.6(17.9)	C(B)
580 w/o 980	WB	2597(1648)	N/A*(24.6)	F(C)	2595(1646)	N/A*(24.6)	F(C)
	EB	1374(1878)	20.4(28.9)	C(D)	1383(1856)	20.5(28.4)	C(D)

NOTES:

[a] Passenger cars per hour per lane
[b] Passenger cars per mile per lane

* Volume exceeds capacity, so HCM methodology does not apply, and density is not calculated; automatic LOS F.
** Adjusted free-flow speed is beyond extents of HCM methodology, so density is not calculated.

TABLE 4.C-21
CUMULATIVE FREEWAY RAMP CONDITIONS – AM(PM)

Ramp	FWY	Without Project		With Project	
		Density (pc/mi/ln)[a]	LOS	Density (pc/mi/ln)[a]	LOS
Jackson St. on	880 NB	47.4(48.5)	F(F)	47.5(49.0)	F(F)
Broadway off	880 NB	34.5(35.5)	D(E)	34.8(35.9)	D(F)
18th St. off	980 WB	43.1(17.8)	F(B)	43.1(17.7)	F(B)
Fifth St. off (to Broadway)	880 SB	19.7(23.2)	B(F)	20.0(23.0)	C(F)
High St. on	880 SB	38.7(36.4)	F(F)	37.9(36.3)	F(E)
High St. off	880 NB	28.4(35.0)	D(F)	28.2(34.7)	D(F)
Jackson St. off	980 WB	29.9(27.8)	D(C)	30.5(26.8)	D(C)
Oak St. on	880 SB	30.2(32.0)	D(D)	30.6(32.1)	D(D)
12th St. on	980 EB	29.1(64.0)	D(F)	29.7(64.3)	D(F)
12th St. off	980 EB	18.2(27.9)	B(C)	18.2(28.3)	B(D)

NOTE:

[a] Passenger cars per mile per lane

SOURCE: KAI, 2013.

Cumulative Operational Analysis – Multimodal Level of Service

Impact 4.C-5: Cumulative development, including the proposed project, would potentially result in transportation impacts at local study intersections under Cumulative plus project conditions. (Significant)

Automobile Travel

For each of the significant cumulative impacts, mitigation measures are identified. As shown in **Tables 4.C-15** and **4.C-16,** significant cumulative impact would occur at the following intersections in Alameda and Oakland (intersection number from Table 4.C-2 in parentheses):

Alameda

- Park Street and Clement Avenue (#12)
- Park Street and Encinal Avenue (#14)
- Broadway and Otis Drive (#18)
- Tilden Way and Blanding Avenue (#19)
- High Street and Fernside Boulevard (#20)
- High Street and Otis Drive (#21)
- Island Drive and Otis Drive (#22)
- Fernside Boulevard and Otis Drive (#25)
- Park Street and Blanding Avenue (#26)
- Challenger Drive and Atlantic Avenue (#27)
- Park Street and Lincoln Avenue (#32)

Oakland

- Jackson Street and Sixth Street (#34)
- Webster Street and Eighth Street (#39)
- Broadway and Fifth Street (#43)
- Brush Street and 12th Street (#44)
- High Street and Oakport Street (#45)
- High Street and Coliseum Way (#46)
- 29th Avenue and Ford Street (#51)
- 23rd Avenue and Seventh Street (#56)

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, would reduce traffic delay by reducing vehicle trips, although it would be speculative to quantify the potential improvement. Therefore, additional mitigation measures are identified, as applicable, for each impact.

Park/Clement. The signalized intersection of Park Street and Clement Avenue (#12) would operate at an unacceptable LOS F during the a.m. peak hour and p.m. peak hours under Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than 3 percent (approximately 9 percent) to the growth of intersection traffic volume from Existing to Cumulative plus Project conditions during the p.m. peak hour. The critical movement is the eastbound movement, specifically the heavy left-turn movement towards the Park Street bridge, which occurs from a single eastbound lane. Combined with the heavy traffic on Park Street to and from the Park Street bridge, average delays at this intersection exceed 120 seconds.

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve intersection LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement.

Increasing the capacity of the intersection would not reduce traffic volumes but could improve the level of service for automobiles by including the following elements:

- Widen the eastbound Clement Avenue approach to the intersection to add two eastbound left turn lanes, thereby providing two left turn lanes and a shared through/right turn lane on the eastbound approach;
- Add a westbound right turn lane to provide a left turn lane, a through lane and a right turn lane on the westbound approach;
- Add a northbound left turn pocket along Park Street; and
- Optimize signal timing.

With these capacity expansions, the intersection would operate at LOS B during the a.m. peak hour and LOS D during the p.m. peak hour. However, these improvements would require removal of approximately six on street parking spaces, utility relocation, roadway widening, and property acquisition from adjacent property owners. Widening of Clement Avenue would not be consistent with Policy 4.4.2.b of the General Plan Transportation Element ("Intersections will not be widened beyond the width of the approaching roadway with the exception of a single exclusive left turn lane when necessary, with the exception of increasing transit exclusive lanes or non-motorized vehicle lanes."). Therefore, these improvements would not be considered feasible. Additionally, these improvements would also result in a secondary impact on pedestrian levels of service.

To avoid the pedestrian impact and maintain consistency with the General Plan, the City may adopt the following mitigation.

> **Mitigation Measure 4.C-5a (Park/Clement):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following physical improvements:
>
> - Add northbound left turn pocket along Park Street;
> - Optimize the signal offsets and splits; and
> - Complete the Clement Avenue extension, which would reduce the demand for left turn movements onto Park Street from eastbound traffic on Clement Avenue.

The northbound left-turn pocket on Park Street could be added within the existing right-of-way. With this mitigation, the intersection would operate at LOS E in the a.m. peak hour and LOS F in the p.m. peak hour. This impact would remain **significant and unavoidable**.

Auto Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Park/Encinal. The signalized intersection of Park Street and Encinal Avenue (#14) would operate at an unacceptable LOS E during the p.m. peak hour under Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than 3 percent (8 percent) to the growth in intersection traffic volume from Existing to Cumulative Plus Project conditions from during the p.m. peak hour.

The critical movement during the a.m. peak is the eastbound left turn from Encinal Avenue for vehicles traveling toward the Park Street bridge. This traffic conflicts with the westbound Encinal Avenue through movement. The project would result in an increase of about 30 vehicles to the eastbound left turn. The addition of a second left turn lane eastbound would address this impact. However, adding a second left turn lane would not be consistent with Transportation Element Policy 4.4.2.b. Conversely, restriping to convert an existing eastbound through lane to a left-turn lane would not require widening of the existing right-of-way, and would therefore be consistent with the General Plan.

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, would reduce traffic delay by reducing vehicle trips, although it would be speculative to quantify the potential improvement.

> **Mitigation Measure 4.C-5b (Park/Encinal):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following physical improvements:
>
> - Convert one eastbound through lane on Encinal Avenue to a left-turn lane to provide two left-turn lanes and a shared through-right lane on the eastbound approach; and
> - Optimize offsets and splits.

With these improvements, the LOS at the intersection of Park Street and Encinal Avenue would remain at LOS F during the p.m. peak hour with a reduction in auto delay from 110.8 seconds to 94.4 seconds under Cumulative plus Project conditions. Restriping the eastbound approach to provide a left turn lane would not require widening of the intersection beyond the current right-of-way. This impact would remain **significant and unavoidable**, as the level of service would remain LOS F.

Auto Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Broadway/Otis. The signalized intersection of Broadway and Otis Drive (#18) would operate at an unacceptable LOS F during the a.m. peak hour and LOS D during the p.m. peak hour under

Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than 3 percent to the growth in intersection traffic volumes (9 percent during the a.m. peak and 8 percent during the p.m. peak) from Existing to Cumulative plus Project conditions.

During the a.m. peak the project would add about 75 vehicle trips to the westbound right-turn from Otis to Broadway. During the p.m. peak hour, a critical movement is the southbound left turn from Broadway to Otis. The project-related traffic would result in an increase of about 50 vehicles to the southbound left turn during the p.m. peak. This p.m. peak-hour impact could be addressed with an additional southbound left turn lane and adjustments to the signal timing to accommodate this movement. However, adding a second left-turn lane would require removal of on-street parking and would not be consistent with Transportation Element Policy 4.4.2.b. Restriping to convert an existing southbound through lane to a left-turn lane would not require widening, and thus would be consistent with the General Plan.

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve intersection LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement.

> **Mitigation Measure 4.C-5c: (Broadway/Otis):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement, the following physical improvements:
>
> - Add a southbound left-turn lane on Broadway to provide two left-turn lanes and a shared through-right for that approach;)
> - Convert the southbound Broadway left-turn phase to permitted-protected;
> - Convert to actuated-uncoordinated timing plan during the p.m. peak hour; and
> - Optimize the signal timing during both peak hours.

With the implementation of Mitigation Measure 4.C-5c, the LOS at the intersection of Broadway and Otis Drive would improve to LOS C in the a.m. and p.m. peak hours under Cumulative plus Project conditions. Restriping the southbound approach to provide an additional left-turn lane would not require removal of on-street parking north of the intersection. This improvement would require Caltrans review and approval because Otis Street east of this intersection and Broadway north of this intersection comprise State Route 61. However, because the City of Alameda cannot implement the improvement without Caltrans approval, this impact would remain **significant and unavoidable**.

Auto Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Tilden/Blanding/Fernside. The signalized intersection of Tilden Way/Blanding Avenue/Fernside Boulevard (#19) would operate at an unacceptable LOS F during the a.m. and p.m. peak hours under Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than 3 percent to the growth in intersection traffic volumes (4 percent during the a.m. peak and 5 percent during the p.m. peak) from Existing to Cumulative plus Project conditions, which would exceed the 3 percent criterion for a significant impact.

While the critical movements are the eastbound and westbound shared thru-left-turn movements during both a.m. and p.m. peaks, the project-related traffic does not add volumes to those movements. The project would increase traffic during the a.m. peak on the southbound left from the Fruitvale bridge and during the p.m. peak on the southbound through movement. These increases would further exacerbate the unacceptable peak delays.

> **Mitigation Measure 4.C-5d: (Tilden/Blanding/Fernside):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements:
>
> - Add a westbound left turn to provide a left turn lane, a through lane and a right turn lane on the westbound Fernside Boulevard approach.
> - Add an eastbound left turn lane to provide a left turn lane, a through lane and a right turn lane on the eastbound Blanding Avenue approach.
> - Optimize the offsets and splits.

With Mitigation Measure 4.C-5d, the LOS would improve to LOS D during the a.m. and p.m. peak. The geometric reconfigurations of this improvement could be accommodated through removal of part of the existing concrete islands on the southern side of the intersection.

Auto Travel Impact Significance after Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

High/Fernside. The signalized intersection of High Street and Fernside Boulevard (#20) would operate at an unacceptable LOS F during the a.m. and p.m. peak hours under Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than

3 percent to the growth in intersection traffic volumes (12 percent during the a.m. peak and 30 percent during the p.m. peak) from Existing to Cumulative plus Project conditions.

During the a.m. peak, the project-related traffic would add about 35 vehicle to the northbound left turn from High Street to Fernside, which shares a single lane approach with the through and right-turns. During the p.m. peak, the project-related traffic would add shift about 80 trips from Fernside eastbound through to left movement to cross the High Street bridge and add about 50 trips to the northbound through movement on High Street towards the bridge. During the p.m. peak these are both critical movements.

To mitigate this impact to less than significant the following improvements would need to be made:

- Addition of left-turn lane for the eastbound Fernside Boulevard approach to provide two left-turn lanes and one through-right turn lane;
- Addition of northbound High Street left-turn lane to provide a left-turn lane and a shared through-right turn lane;
- Optimize the signal timing; and
- Adjust the signal cycle phasing during the a.m. and p.m. peak hours such that the southbound left turn from High Street is a permitted rather than protected movement.

With improvements described above, the LOS would improve to LOS D during the a.m. peak hour and LOS C during the p.m. peak hour. These improvements would require reconfiguration of the concrete islands that guide access for Gibbons Drive and would adversely impact pedestrian LOS, thereby resulting in a significant secondary impact. Procedures for prioritizing improvements to the different (potentially competing) travel modes for High Street (Island Arterial) and Fernside Boulevard (Island Arterial) establish the following order of the modal preference: transit, pedestrians, bicycles and automobiles. Therefore, the recommended mitigation measure should give priority to pedestrians over automobiles.

> **Mitigation Measure 4.C-5e (High/Fernside):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements:
>
> - Adjust the signal cycle phasing during the a.m. and p.m. peak hours such that the southbound left turn from High Street is a permitted rather than protected movement; and
> - Optimize signal timing.

Auto LOS would remain LOS F with a 20 second decrease in delay during the a.m. peak hour and would improve to LOS E with a 55.5 second decrease in delay during the p.m. peak hour. However, this impact would remain **significant and unavoidable**.

Auto Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

High/Otis. The signalized intersection of High Street and Otis Drive (#21) would operate at an unacceptable LOS F during the a.m. peak hour under Cumulative No Project conditions, and would degrade from LOS D to LOS E during the p.m. peak hour. The increase in traffic volumes due to the project would contribute more than 3 percent to the growth in intersection traffic volumes (12 percent during the a.m. peak and 14 percent during the p.m. peak) from Existing to Cumulative plus Project conditions, and, therefore, would be significant.

At the High/Otis intersection, the critical movements are the southbound and the westbound movements. Project-related traffic would result in an increase in westbound traffic of about 110 vehicles during the a.m. peak hour, which would affect the critical movement. During the p.m. peak hour, the project-related traffic would add about 80 vehicles to the eastbound through movement. While the project would not add traffic to the critical southbound approach, the single-lane approach southbound on High Street would not accommodate the high number of southbound left-turns. The additional project traffic would only exacerbate that condition.

To mitigate this impact to less than significant the following improvements would need to be made:

- Add a northbound right turn lane on High Street to provide a shared through-left and right turn lane on the northbound approach;
- Add an overlap phase for the northbound High Street right-turn movement and prohibit the conflicting westbound U-turn movement;
- Add a westbound right-turn lane on Otis Drive to provide one left-turn, two through, and one right-turn lanes;
- Add a southbound left-turn lane on High Street to provide a left-turn lane and a shared through-right lane; and
- Optimize signal timing.

Implementation of these improvements would improve the LOS to LOS D in the a.m. peak hour and to LOS C in the p.m. peak hour under Cumulative plus Project conditions. These improvements would require the removal during peak hours of approximately six parking spaces on the northbound Bayview Drive approach. They would further require acquisition of additional right-of-way to accommodate the westbound right-turn and southbound left-turn lanes, which would be infeasible due to geometric limitations of existing structures. Furthermore, these improvements would have significant secondary impacts on pedestrians at a location near a

school, near a park, and on a Safe Routes to School Route with school crosswalks. High Street (Island Arterial) and Otis Drive (Regional Arterial) have modal preferences in the following order: transit, pedestrians, bicycles and automobiles.

> **Mitigation Measure 4.C-5f (High/Otis):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements:
>
> - Add a northbound right turn lane on High Street to provide a shared through-left and right turn lane on the northbound approach;
> - Add an overlap phase for the northbound High Street right-turn movement and prohibit the conflicting westbound Otis Drive U-turn movement; and
> - Optimize the signal timing for both peak hours.

Mitigation Measure 4.C-5f would improve LOS to LOS D in the p.m. peak hour. However, the a.m. peak hour LOS would remain LOSF. Therefore, this impact would remain **significant and unavoidable**.

Auto Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Island/Otis/Doolittle. The signalized intersection of Island Drive/Otis Drive and Doolittle Drive (#22) would operate at an unacceptable LOS F during the a.m. peak hour under Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than 3 percent to the growth in intersection traffic volumes (7 percent) from Existing to Cumulative plus Project conditions during the a.m. peak hour.

During the a.m. peak hour, the critical movements would be the eastbound through movement from the bridge, the westbound left turn from Doolittle to Island Drive, and the northbound left from Island Drive. The project would result in an increase of about 100 vehicles to the westbound through on Doolittle during the a.m. peak hour, which would operate at LOS F without the project. Although this is not a critical movement, the increase would exacerbate the excessive delays for this approach.

To mitigate this impact to a less-than-significant level, the following improvements would need to be made:

- Add a westbound left-turn lane to provide two left-turn lanes and two through lanes on the westbound Doolittle Drive approach;

- Add an eastbound through lane to provide three through lanes and a right turn lane on the eastbound Island Drive approach; and
- Optimize signal timing during both peak hours.

Implementation of these improvements would improve the LOS to D during the a.m. peak. However, this mitigation would require additional right-of-way and street widening. The addition of the third eastbound through lane would require modifications to the existing concrete island.

> **Mitigation Measure 4.C-5g** (**Island Drive/Otis Drive and Doolittle Drive):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements:
>
> - Add a westbound left-turn lane to provide two left-turn lanes and two through lanes on the westbound Doolittle Drive approach; and
> - Optimize signal timing during both peak hours.

Implementation of these improvements would maintain LOS F but would decrease the delay for autos. Therefore, this impact would remain **significant and unavoidable**.

Auto Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Fernside/Otis. The signalized intersection of Fernside Boulevard and Otis Drive (#25) would operate at an unacceptable LOS F during both peak hours under Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than 3 percent to the growth in intersection traffic volumes (10 percent during the a.m. peak and 5 percent during the p.m. peak) from Existing to Cumulative plus Project conditions, and therefore would be significant.

The critical movements would be the eastbound through and west/northbound through movements on Otis. During the a.m. peak, the project would add about 180 vehicles to the westbound through movement, while during the p.m. peak; the project would add about 135 vehicles to the eastbound through movement.

> **Mitigation Measure 4.C-5h** (**Fernside Boulevard and Otis Drive):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and implement Mitigation Measure 4.C-2-c (Otis/Fernside), and fund a fair share contribution to add a westbound right-turn overlap phase from Fernside Boulevard.

Implementation of Mitigation Measures 4.C-5h (4.C-2c) would improve the LOS to D in the a.m. peak and B in the p.m. peak. This mitigation would require geometric modifications, such as removal of the existing concrete island and the Otis Drive median, and reconstruction of the southeast curb along Fernside Boulevard. These improvements would occur within the existing right-of-way by shifting the centerline to allow for the northbound right turn from Otis Drive to Fernside Boulevard.

Auto Travel Impact Significance after Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Park/Blanding. The signalized intersection of Park Street and Blanding Avenue (#26) would operate at an unacceptable LOS E during the a.m. peak hour and LOS F during the p.m. peak hour under Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than 3 percent to the growth in intersection traffic volumes (12 percent) to the growth of intersection traffic volume from Existing to Cumulative plus Project conditions during both peak hours, and therefore would be significant.

The critical movements would be the southbound through from the Park Street bridge and the eastbound through from a single lane approach on Blanding Avenue, which would experience the longest delays. However, the single lane approach westbound on Blanding Avenue as well as the northbound movements on Park Street would also experience excessive delays. The project would add about 90 trips southbound during the a.m. peak hour and 70 vehicles to the eastbound left turn movement during the p.m. peak hour.

To mitigate this impact to less than significant the following improvements would need to be made:

- Add two eastbound left turn lanes to provide two left turn lanes and a shared through and right turn lane on the eastbound Blanding Avenue approach;
- Add a westbound left turn lane to provide a left turn lane, a through lane and a right turn lane on the westbound Blanding Avenue approach;
- Separate the operation of the Nursing Home driveway from the Park Street and Blanding Avenue intersection;
- Change east-west phasing to protected phasing; and
- Increase the cycle length with respect to the coordination plan along the corridor and timing during both peak hours.

These improvements would improve the LOS to B during the a.m. peak hour and LOS C during the p.m. peak hour. These changes would require removal of approximately 10 on-street parking spaces on the south side of the east leg of Blanding Avenue and three additional parking spaces on the north side of the street to accommodate the addition of westbound turn lanes. The addition of a left turn lane on the eastbound Blanding Avenue approach would require the removal of approximately 10 on-street parking spaces. This improvement would have a significant secondary impact on pedestrians. Park Street (Regional Arterial) has modal preferences in the following order: transit, pedestrians, bicycles and automobiles. Therefore, the suitability of implementing these improvements was considered in the context of impacts to travel modes ranked higher than automobiles.

The following mitigation, which would avoid the secondary impacts to pedestrians, should be implemented:

> **Mitigation Measure 4.C-5i (Park/Blanding).** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements:
>
> - Add two eastbound left turn lanes to provide two left turn lanes and a shared through/right turn lane on the eastbound Blanding Avenue approach;
> - Add a westbound left turn lane to provide a left turn lane, a through lane and a right turn lane on the westbound Blanding Avenue approach;
> - Separate the operation of the Nursing Home driveway from the Park Street and Blanding Avenue intersection;
> - Change east-west signal phasing to protected phasing; and
> - Optimize signal timing during both peak hours.

This measure would improve LOS to LOS E during the a.m. and p.m. peak hours. However, this impact would remain **significant and unavoidable**.

Auto Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Challenger/Atlantic. The signalized intersection of Challenger Drive and Atlantic Avenue (#27) would operate at an unacceptable LOS E during the p.m. peak hour under Cumulative No Project conditions. The increase in traffic volumes due to the project would contribute more than 3 percent to the growth in intersection traffic volumes (4 percent) to the growth of intersection

traffic volume from Existing to Cumulative plus Project conditions during the p.m. peak hour, and therefore would be significant.

The critical movement would be the westbound through movement. The project would add 140 vehicles westbound through on Atlantic Avenue during the a.m. peak hour. During the p.m. peak hour, the project would add 50 vehicles to both the eastbound and westbound approaches shifting 50 trips from the southbound left movement.

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve intersection LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement. However, given that project traffic would exceed the significance threshold by only one-third (4 percent versus 3 percent), it is possible that TDM alone could avoid this impact.

To mitigate this impact to a less-than-significant level the following improvements would need to be made to increase the capacity of the intersection:

- Restripe the southbound Challenger Drive approach to provide a left-turn lane and a shared left-right lane; and
- Optimize signal timing during both peak hours.

These improvements would improve the LOS to C during the p.m. peak hour under Cumulative plus Project conditions. The two left-turn lanes would funnel into one receiving lane. The additional turn-lane could be accommodated by removing the median on Atlantic Avenue, but that median leads to a left turn lane shortly after the intersection, which would force cars to merge right into a single lane. This quick merge would eliminate the benefit of removing the median to create a second receiving lane for the double left turns, and is deemed ineffective, so this would remain a significant impact. Furthermore, this improvement would have a significant secondary impact on pedestrians. Challenger Drive and Atlantic Avenue (Regional Arterials) have modal preferences in the following order: transit, pedestrians, bicycles and automobiles. Therefore, the suitability of implementing this improvement was considered in the context of impacts to travel modes ranked higher than automobiles. Thus, this mitigation measure would be infeasible and is not recommended. The following recommended mitigation measure would avoid a pedestrian impact.

> **Mitigation Measure 4.C-5j (Challenger/Atlantic):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, a fairshare to contribution optimize signal timing during the p.m. peak hour.

Mitigation Measure 4.C-5j would improve LOS to LOS E in the a.m. and p.m. peak hours. However, this impact would remain **significant and unavoidable**.

Auto Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Park/Lincoln. The signalized intersection of Park Street and Lincoln Avenue (#32) would operate at an acceptable LOS D during the p.m. peak hour under Cumulative No Project conditions. However, it would operate at an unacceptable LOS E under Cumulative plus Project conditions.

The critical movements would be southbound through and westbound left during the p.m. peak hour. The project would add about 150 trips to the northbound movement, which would increase the delay for that approach to LOS E.

> **Mitigation Measure 4.C-5k (Park/Lincoln):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, the City shall fund a fairshare to optimize signal timing during the p.m. peak hour.

Implementation of Mitigation Measure 4.C-5k would improve the LOS to D during the p.m. peak hour under Cumulative plus Project conditions.

Auto Travel Impact Significance after Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Auto Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Auto Mitigation: Less than Significant.

Transit Travel Secondary Impact after Auto Mitigation: Less than Significant.

Jackson/Sixth. The signalized intersection of Jackson Street and Sixth Street (#34) would operate at LOS F with delay in excess of 120 seconds during the a.m. peak hour and the p.m. peak hour under 2035 Cumulative conditions. Under 2035 Cumulative plus Project conditions, project-related vehicle traffic would increase delay and cause the overall volume-to-capacity ("V/C") ratio to increase by 0.13 during the a.m. peak hour.

Under cumulative conditions, the growth in background traffic would result in excessive delays at the intersection of Jackson Street and Sixth Street during the a.m. peak hour. The change in traffic volumes due to the project results in a decrease in average delay. However, the overall v/c ratio increased by 0.13 during the a.m. peak hour, which would be considered a significant impact.

As documented in the City of Oakland's Central Estuary Implementation Guide Supplemental EIR, this intersection was previously identified by the City of Oakland as having a significant and

unavoidable impact under existing conditions in the Kaiser Center Redevelopment Project EIR. Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve intersection LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement. An improvement identified as part of the Broadway-Jackson Interchange project to provide direct access to Sixth Street from the Posey Tube would reduce traffic through Oakland Chinatown. With the assistance of the ACTC, the cities of Alameda and Oakland are working to develop consensus on this improvement. To date, Oakland and Caltrans, which has jurisdiction over the freeway and its ramps, have not agreed upon a solution. No other feasible mitigation measures have been identified.

> **Mitigation Measure 4.C-5l (Jackson/Sixth):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b).

Significance after Mitigation: This impact would remain **significant and unavoidable.**

Webster/Eighth. The signalized intersection of Webster Street and Eighth Street (#39) would operate at LOS F with delay in excess of 120 seconds during the p.m. peak hour under 2035 Cumulative conditions. Under 2035 Cumulative plus Project conditions, project-related vehicle traffic would degrade the LOS to LOS F with increased delay in excess of 120 seconds. The project traffic would cause the overall volume-to-capacity ("V/C") ratio to increase by 0.04.

These delays reflect the pedestrian scramble at this intersection which results in an all-red phase allowing pedestrians to cross in all directions including diagonally.

As documented in the City of Oakland's Central Estuary Implementation Guide Supplemental EIR, this intersection was previously identified as having a significant and unavoidable impact under existing and future conditions during the p.m. peak hour in the Oak to Ninth Avenue EIR. Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve intersection LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement. An improvement identified as part of the Broadway-Jackson Interchange project to provide direct access to Sixth Street from the Posey Tube would reduce traffic through Oakland Chinatown. With the assistance of the ACTC, the cities of Alameda and Oakland are working to develop consensus on this improvement. To date, Oakland and Caltrans, which has jurisdiction over the freeway and its ramps, have not agreed upon a solution. No other feasible mitigation measures have been identified.

> **Mitigation Measure 4.C-5m (Webster/Eighth):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b).

Significance after Mitigation: This impact would remain **significant and unavoidable.**

Broadway/Fifth. The signalized intersection of Broadway and Fifth Street (#43) would operate at LOS F with 97 seconds of delay during the a.m. peak hour under 2035 Cumulative conditions. Under 2035 Cumulative plus Project conditions, project-related vehicle traffic would degrade the LOS to LOS F with 119 seconds of delay. The project traffic would cause the overall volume-to-capacity ("V/C") ratio to increase by more than 0.04.

As documented in the Central Estuary Implementation Guide Supplemental EIR, this intersection was previously identified as having a significant and unavoidable impact under existing and future conditions during the a.m. and p.m. peak hours in the Oak to Ninth Avenue EIR and the Oakland Army Base Auto Mall Project SEIR. Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve intersection LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement. No other feasible mitigation measures have been identified.

> **Mitigation Measure 4.C-5n (Broadway/Fifth):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b).

Significance after Mitigation: This impact would remain **significant and unavoidable**.

Brush/12th. The signalized intersection of Brush Street and 12th Street (#44) would operate at LOS F with 113 seconds of delay during the a.m. peak hour under 2035 Cumulative conditions. Under 2035 Cumulative plus Project conditions, project-related vehicle traffic would degrade LOS to LOS F with delay in excess of 120 seconds. The project traffic would cause the critical volume-to-capacity ("V/C") ratio to increase by 0.05.

This increase in project-related traffic is due primarily to the increase in traffic from I-980 ramps combined with the background growth in the westbound traffic on 12th Street heading towards West Oakland. Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve intersection LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement.

> **Mitigation Measure 4.C-5o (Brush/12th):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b).

Significance after Mitigation: Because the potential future mitigation for this intersection, and the cost of that mitigation, are not known, and because the City of Alameda has no jurisdiction over the mitigation, this impact is conservatively considered to be **significant and unavoidable**.

High/Oakport. The signalized intersection of High Street and Oakport Street (#45) would operate at LOS E with 60 seconds of delay during the p.m. peak hour under 2035 Cumulative conditions. Under 2035 Cumulative plus Project conditions, project-related vehicle traffic would

operate the LOS E. However, the project traffic would cause an increase the average delay of the northbound critical movement by 17 seconds.

The City of Oakland's Central Estuary Implementation Guide Supplemental EIR identified an impact at this location during the p.m. peak hour under 2035 conditions. The project-related vehicle traffic resulted in LOS E in a.m. and p.m. peak hours. A third travel lane along High Street would be required to fully mitigate. However, widening of High Street under I-880 was found to be infeasible due to structural columns and existing land use. Therefore, the Central Estuary Implementation Guide EIR found this impact to be significant and unavoidable.

The seismic retrofit once completed with the connection from 42nd Avenue to Alameda Avenue will alleviate some of the traffic to and from Alameda currently using High Street since it provides for a direct connection to the Fruitvale Bridge and Tilden Way.

> **Mitigation Measure 4.C-5p (High/Oakport):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and work with the City of Oakland to optimize the signal timing to allow for more green time for northbound traffic.

Mitigation Measure 4.C-5p would result in LOS C with 34.5 seconds of average delay during the p.m. peak hour.

Significance after Mitigation: Because the potential future mitigation for this intersection, and the cost of that mitigation, are not known, and because the City of Alameda has no jurisdiction over the mitigation, this impact is conservatively considered to be **significant and unavoidable**.

High/Coliseum. The signalized intersection of High Street and Coliseum Way (#46) would operate at LOS E with 74 seconds of delay during the p.m. peak hour under 2035 Cumulative conditions. Under 2035 Cumulative plus Project conditions, project-related vehicle traffic would degrade the LOS to LOS F with 82 seconds of delay. The project traffic would cause to degrade the LOS from E to F and increase delay 8 seconds.

While this intersection would operate at LOS E during the a.m. peak hour, the project-related traffic would result in slightly reduced average delay from 73 seconds to 61 seconds.

The City of Oakland's Central Estuary Implementation Guide Supplemental EIR identified a significant impact at this location during the p.m. peak hour under existing conditions with LOS E conditions. The proposed mitigation assumes the 42nd Avenue / High Street Access Improvements, which widen High Street to accommodate additional travel and left-turn lanes. The widening was found to reduce the impact to less than significant levels under existing plus project conditions.

The seismic retrofit once completed with the connection from 42nd Avenue to Alameda Avenue will alleviate some of the traffic to and from Alameda currently using High Street since it provides for a direct connection to the Fruitvale Bridge and Tilden Way.

> **Mitigation Measure 4.C-5q (High/Coliseum):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and work with the City of Oakland to optimize the signal timing.

Mitigation Measure 4.C-5q would result in LOS E with 70 seconds of average delay during the p.m. peak hour.

Significance after Mitigation: Because the potential future mitigation for this intersection, and the cost of that mitigation, are not known, and because the City of Alameda has no jurisdiction over the mitigation, this impact is conservatively considered to be **significant and unavoidable**.

29th/Ford. The signalized intersection of 29th Avenue and Ford Street (#51) would operate at LOS F during the p.m. peak hour under 2035 Cumulative conditions. Under 2035 Cumulative plus Project conditions, project-related vehicle traffic would cause the p.m. peak hour overall volume-to-capacity ("V/C") ratio to increase by 0.04.

During the a.m. peak hour, this intersection would operate at LOS F. The project-related traffic would result in an increase in delay from 130 seconds to 135 seconds. However, the changes in overall intersection and critical movement v/c ratios are less than 0.03 and 0.05 thresholds.

The City of Oakland's Central Estuary Implementation Guide Supplemental EIR identified an impact at this location during the p.m. peak hour under 2035 conditions. The heavy southbound right from the 29th Avenue overpass and the heavy northbound double-left turn coming from Alameda result in LOS E during the p.m. peak hour. Although the 29th/23rd Overcrossing project was assumed to be completed, the improvement were not sufficient to maintain acceptable LOS. Additional mitigations were considered, but the Central Estuary Implementation Guide EIR made a finding that mitigation was not feasible and the impact was significant and unavoidable.

> **Mitigation Measure 4.C-5r (29th/Ford):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b).

Significance after Mitigation: Because no feasible mitigation has been identified to improve the intersection, and because the City of Alameda has no jurisdiction over the mitigation, this impact is conservatively considered to be **significant and unavoidable**.

23rd Ave./Seventh St. The signalized intersection of 23rd Avenue and Seventh Street (#56) would operate at LOS D with 47.6 seconds of delay during the p.m. peak hour under the 2035

Cumulative conditions. Under 2035 Cumulative plus Project conditions, project-related vehicle traffic would degrade the LOS to LOS E with 60.4 seconds of delay during the p.m. peak hour. During the a.m. peak hour, this intersection would operate at LOS D with and without the project.

> **Mitigation Measure 4.C-5s (23rd Ave./Seventh St.):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and work with the City of Oakland to modify the northbound to provide a separate left –turn lane and a shared through-right-turn lane, and optimize the signal.

Mitigation Measure 4.C-5s would result in LOS D with 40.2 seconds of delay during the a.m. peak hour and would result in LOS D with 37.7 seconds of delay during the p.m. peak hour.

Significance after Mitigation: Because the City of Alameda has no jurisdiction over the mitigation, this impact is conservatively considered to be **significant and unavoidable**.

Pedestrian Analysis

For each of the significant cumulative pedestrian impacts, mitigation measures are identified. As shown in Table 4.C-17**,** the following intersections would be affected, as described in detail below:

- Main Street and Pacific Avenue (#6)
- Webster Street and Atlantic Street (#7)
- High Street and Fernside Boulevard (#20)
- Constitution Way and Atlantic Avenue (#24)

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve pedestrian LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement. Therefore, additional mitigation measures are identified, as applicable, for each impact.

Main/Pacific Pedestrian. At the actuated signal at Main Street and Pacific Avenue (#6), the increase in volumes due to project-related traffic during the a.m. and p.m. peak hours would cause increases in pedestrian delay for several legs of the intersection.

The signal at Main Street and Pacific Avenue is an actuated signal. The increase in volumes due to project-related traffic at the intersection of Main Street and Pacific Avenue during the a.m. and p.m. peak hours would cause increases in green time for all approaches. These green time increases cause increases in pedestrian delay for all legs during both peak hours. Pedestrian delay would increase during the a.m. peak from 27.3 seconds to 31.9 seconds on the south leg, from 23.9 seconds to 28.5 seconds on the north leg, and from 17.3 seconds to 23.7 seconds on the east leg. Pedestrian delay would increase during the p.m. peak from 20.5 seconds to 28.5 seconds on the south leg, from 22.2 seconds to 31.5 seconds on the north leg, and from 13.6 seconds to 21.3 seconds on the east leg, which would be considered a significant impact.

> **Mitigation Measure 4.C-5t (Main/Pacific Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fairshare contribution to change signal timing to two-phase timing plan (i.e., northbound and southbound move concurrently; then eastbound and westbound move concurrently) and optimize cycle length.

Implementation of Mitigation Measure 4.C-5t would reduce projected pedestrian delay during the a.m. and p.m. peak hours to LOS B or LOS A. It would increase average speed along Main Street, thereby benefitting transit service along the corridor, and it would not degrade auto LOS at the intersection.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Webster/Appezzato Pedestrian. At the actuated signal at Webster Street and Ralph Appezzato Memorial Parkway (#7), the increase in volumes due to project-related traffic during the a.m. and p.m. peak hours would cause increases in pedestrian delay for several legs of the intersection.

The signal at Webster Street and Appezzato Parkway is an actuated signal. The increase in volumes due to project-related traffic at the intersection of Webster Street and Appezzato Parkway during both peak hours would cause increases in green time for several approaches. These green time increases cause increases in pedestrian delay for most legs. Project-related vehicle traffic would increase pedestrian delay during the a.m. peak hour from 24.6 seconds to 27.3 seconds on the west leg and during the p.m. peak hour from 23.4 seconds to 25.8 seconds on the west leg, which would be considered a significant impact.

> **Mitigation Measure 4.C-5u** (**Webster/Appezzato Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to optimize signal timing.

Implementation of Mitigation Measure 4.C-5u would reduce projected pedestrian delay during both peak hours to LOS C or LOS B and would reduce the increase in pedestrian delay to less than 10 percent. It would increase average speed along Webster Street, thereby benefitting transit service along that corridor. The addition of an eastbound queue jump lane would require widening the intersection and providing a receiving lane of adequate length for buses. This mitigation would degrade auto LOS at the intersection to LOS E, which would be considered a significant impact. Procedures for prioritizing improvements to the different (potentially competing) travel modes establish the following order of modal preference for Webster Street and Appezzato Parkway (both Regional Arterials): transit, pedestrians, bicycles, and automobiles.

Therefore, the suitability of implementing Mitigation Measure 4.C-5u was considered in the context of impacts to travel modes ranked higher than automobiles. However, this impact would be **significant and unavoidable**.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Significant and Unavoidable.

High/Fernside Pedestrian. At the actuated signal at High Street and Fernside Boulevard (#20), the increase in volumes due to project-related traffic during the a.m. peak hour would cause increases in pedestrian delay for several legs of the intersection.

The signal at High Street and Fernside Boulevard is an actuated signal. Project-related vehicle traffic would increase the a.m. peak hour pedestrian delay along the north leg (crossing High Street) to increase from 24.8 seconds to 27.4 seconds and along the southwest leg (crossing Gibbons Drive) from 24.8 seconds to 27.4 seconds, which would be considered a significant impact. Because these increased pedestrian delays are only one-half percent above the 10 percent significance threshold, it is anticipated that this impact could be mitigated by implementation of TDM and Monitoring and Mitigation Measure 4.C-5e (High/Fernside Pedestrian).

> **Mitigation Measure 4.C-5v (High/Fernside Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and Mitigation Measure 4.C-5e (optimize signal timing during the p.m. peak hour).

Implementation of Mitigation Measure 4.C-5v would reduce projected pedestrian delay during the a.m. peak hour to LOS C with an increase in delay of less than 10 percent. It would not degrade auto LOS at the intersection.

Pedestrian Travel Impact Significance after Mitigation: Less than Significant.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Appezzato/Constitution Pedestrian. At the actuated signal at Ralph Appezzato Memorial Parkway and Constitution Way (#24), the increase in volumes due to project-related traffic during the a.m. peak hour would cause increases in pedestrian delay for several legs of the intersection.

The signal at Appezzato Parkway and Constitution Way is an actuated signal. Project-related vehicle traffic would increase pedestrian delay during the a.m. peak from 20.2 seconds on the east leg and from 19.4 seconds to 25.8 seconds on the west. During the p.m. peak hour, pedestrian delay would increase from 29.5 seconds to 35.6 seconds along the east leg and from 26.0 seconds to 30.1 seconds along the west leg, which would be considered a significant impact.

> **Mitigation Measure 4.C-5w** (**Appezzato/Constitution Pedestrian):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements:
>
> - Modify the existing signal phasing for eastbound and westbound approaches from split to permitted-protected lefts; and
> - Optimize the signal timing.

Implementation of Mitigation Measure 4.C-5w would reduce projected pedestrian delay during the a.m. and p.m. peak hours to LOS B, C, or D and would reduce delay for all but one leg. The west leg during the p.m. peak hour would experience a 0.5 seconds (2 percent) increase in delay. In order to accommodate elderly pedestrians crossing at this intersection, the cycle length would not be reduced sufficiently to fully mitigate to less than significant. This measure would not degrade transit LOS along Appezzato Parkway or Constitution Way, nor would it degrade auto LOS at the intersection. However, this impact would be **significant and unavoidable**.

Pedestrian Travel Impact Significance after Mitigation: Significant and Unavoidable.

Transit Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Bicycle Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Auto Travel Secondary Impact after Pedestrian Mitigation: Less than Significant.

Transit Analysis

For each of the significant cumulative transit impacts, mitigation measures are identified. As shown in **Table 4.C-18,** the following segments would be affected, as described in detail below:

- Park Street between Blanding Avenue and Otis Drive
- Ralph Appezzato Memorial Parkway between Main Street and Webster Street
- Willie Stargell Avenue between Main Street and Webster Street

Implementation of Mitigation Measures 4.C-2a (TDM Program), p. 4.C-37, would improve transit operations by reducing vehicle trips, although it would be speculative to quantify the potential improvement. Therefore, additional mitigation measures are identified, as applicable, for each impact.

Park Street Transit. Project-related vehicle traffic would degrade transit LOS during the a.m. peak hour in the southbound direction along the corridor of Park Street between Blanding Avenue and Otis Drive to LOS E with a decrease in average speed of 13% in the southbound direction during the a.m. peak hour.

> **Mitigation Measure 4.C-5x (Park Street Transit):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements:
>
> - Provide transit signal priority at intersections along this corridor;
> - Separate the operation of the Nursing Home driveway from the Park Street and Blanding Avenue intersection; and
> - Optimize splits at the Park Street and Blanding Avenue intersection during a.m. and p.m. peak hours.

Implementation of Mitigation Measure 4.C-10a would maintain transit LOS E and would reduce the change in average travel speed through the corridor to a change of less than 10 percent. It would degrade pedestrian LOS at an intersection along the corridor only when a bus is present and transit signal prioritization is engaged at that intersection. At other times, it would not degrade pedestrian LOS. It would not degrade auto LOS at the intersection of Park Street and Blanding Avenue. The pedestrian impact would be **significant and unavoidable**; however, the mode priority is for transit on Park Street.

Transit Travel Impact Significance after Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Transit Mitigation: Significant and Unavoidable.

Bicycle Travel Secondary Impact after Transit Mitigation: Less than Significant.

Auto Travel Secondary Impact after Transit Mitigation: Less than Significant.

Appezzato Parkway Transit. Project-related vehicle traffic would degrade transit LOS during the p.m. peak hour in the westbound direction along the corridor of Ralph Appezzato Memorial Parkway between Main Street and Webster Street to LOS D with a decrease in average speed of 10 percent.

> **Mitigation Measure 4.C-5y (Appezzato Parkway Transit):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the following improvements:
>
> - Install transit signal priority at intersections along this corridor;

- Optimize cycle length at the Appezzato Parkway and Webster Street intersection during a.m. and p.m. peak hours and provide signal priority; and
- Establish exclusive transit lanes or queue jump lanes from Alameda Point to Webster Street.

Implementation of Mitigation Measure 4.C-5y would maintain transit LOS D and would reduce the change in average travel speed through the corridor to a change of less than 10 percent. It would degrade pedestrian LOS at an intersection along the corridor only when a bus is present and transit signal prioritization is engaged at that intersection. At other times, it would not degrade pedestrian LOS. Mitigation Measure 4.C-5y would degrade auto LOS at the intersection to LOS E, which would be considered a significant impact. For Webster Street and Appezzato Parkway (both Regional Arterials), the modal preference is as follows: transit, pedestrians, bicycles, and automobiles. The pedestrian impact would be **significant and unavoidable**; however, the mode priority is for transit.

Transit Travel Impact Significance after Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Transit Mitigation: Significant and Unavoidable.

Bicycle Travel Secondary Impact after Transit Mitigation: Less than Significant.

Auto Travel Secondary Impact after Transit Mitigation: Significant and Unavoidable.

Stargell Avenue Transit. Project-related vehicle traffic would degrade transit LOS during the a.m. and p.m. peak hours in the westbound direction along the corridor of Willie Stargell Avenue between Main Street and Webster Street to LOS C.

> **Mitigation Measure 4.C-5z (Stargell Avenue Transit):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, implement the following improvements:

- Provide eastbound and westbound queue jump lanes on Willie Stargell Avenue at Main Street and at Fifth Street or construct exclusive transit lanes on Willie Stargell Avenue;
- Install transit signal priority at intersections along this corridor; and
- Optimize cycle length at the Main Street and Willie Stargell Avenue intersection during a.m. and p.m. peak hours.

Implementation of Mitigation Measure 4.C-5z would maintain transit LOS B. The addition of queue jump lanes at Main Street and Willie Stargell Avenue and at Fifth Street and Willie Stargell Avenue would require widening those intersections and providing receiving lanes of adequate length for buses. It would degrade pedestrian LOS at an intersection along the corridor only when a bus is present and transit signal prioritization is engaged at that intersection. At other

times, it would not degrade pedestrian LOS or auto LOS at the intersection. However, the impact would be **significant and unavoidable**.

Transit Travel Impact Significance after Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Transit Mitigation: Significant and Unavoidable.

Bicycle Travel Secondary Impact after Transit Mitigation: Less than Significant.

Auto Travel Secondary Impact after Transit Mitigation: Less than Significant.

Bicycle Analysis

For each of the significant cumulative bicycle impacts, mitigation measures are identified. As shown in Table 4.C-19, the following segments would be affected, as described in detail below:

- Willie Stargell Avenue between Main Street and Webster Street
- Main Street between Singleton Avenue and Willie Stargell Avenue
- Central Avenue between Main Street and Fourth Street
- Oak Street between Santa Clara Avenue and Encinal Avenue

Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, would improve bicycle conditions by reducing vehicle trips, although it would be speculative to quantify the potential improvement. Therefore, additional mitigation measures are identified, as applicable, for each impact.

Stargell Avenue Bike. The increase in motorized vehicle volume due to project-related traffic along Willie Stargell Avenue between Main Street and Webster Street would cause bicycle LOS to degrade to LOS D in the westbound direction during the a.m. peak hour and in the eastbound direction during the p.m. peak hour between Cumulative conditions and Cumulative with Project conditions. For westbound bicycle traffic, in the a.m. peak hour, the increase in traffic volume would degrade bicycle operations from LOS C to LOS D and the bicycle score would increase by 36 percent with the project, which exceeds the 10 percent threshold of significance for segments already at LOS B or worse. For eastbound bicycles, the p.m. LOS would decrease from LOS C to LOS D and the bicycle score would increase by 18 percent, also a significant impacts.

> **Mitigation Measure 4.C-5zi (Stargell Avenue Bike):** The City shall implement Mitigation Measure 4.C-2m (Stargell Avenue bike path).

Implementation of Mitigation Measure 4.C-2mwould enhance the cyclist experience along Willie Stargell Avenue. However, due to the limitation of the methodology, bicycle LOS for Class I bicycle paths cannot be calculated. Therefore, this impact would be considered **significant and unavoidable**.

Bicycle Travel Impact Significance after Mitigation: Significant and Unavoidable.

Transit Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Auto Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Main Street Bike. The increase in motorized vehicle volume due to project-related traffic along Main Street between Ralph Appezzato Memorial Parkway (Appezzato Parkway) and Pacific Avenue would cause bicycle LOS to degrade in both directions during both peak hours. For northbound bicycle traffic, in the a.m. peak hour, the increase in traffic volume would degrade the bicycle score by 13 percent with the project (LOS D would be maintained), which exceeds the 10 percent threshold of significance for segments already at LOS B or worse, while in the p.m. peak hour, the bicycle score would decrease by 16 percent (LOS D would be maintained), also significant. For southbound bicycles, the a.m. bicycle score would decrease by 14 percent (LOS D would be maintained), while the p.m. bicycle score would decrease by 16 percent (LOS D would be maintained); both would be significant impacts.

> **Mitigation Measure 4.C-5zii:** The City shall implement Mitigation Measure 4.C-2n (Main Street bicycle improvements).

Implementation of Mitigation Measure 4.C-2n would enhance the cyclist experience along Main Street and would likely improve bicycle LOS to LOS B or better. However, due to the limitation of the methodology, bicycle LOS for Class I bicycle paths cannot be calculated. Therefore, this impact would be considered **significant and unavoidable**. If Class II bicycle lanes, a less robust measure, were to be installed, bicycle LOS would improve to LOS C, a less than significant level. A Class I bike path would further improve the bicycle LOS to a less than significant level. Mitigation Measure 4.C-4b would not degrade the transit LOS or auto LOS along the corridor.

Bicycle Travel Impact Significance after Mitigation: Significant and Unavoidable.

Transit Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Auto Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Central Avenue Bike. The increase in motorized vehicle volume due to project-related traffic along Central Avenue between the Main Street-Pacific Street intersection and Fourth Street would cause bicycle LOS to degrade in both directions during both peak hours. For northbound bicycle traffic, in the a.m. peak hour, the increase in traffic volume would degrade the bicycle LOS from LOS C to LOS D and decrease the bicycle score by 32 percent with the addition of project traffic to Cumulative conditions, which exceeds the 10 percent threshold of significance

for segments already at LOS B or worse, while in the p.m. peak hour, the bicycle LOS would also degrade from LOS C to LOS D and the score would decrease by 31 percent, also significant. For southbound bicycles, the LOS would degrade from LOS C to LOS D and the bicycle score would decrease by 14 percent with the addition of project traffic to Cumulative conditions, while in the p.m. peak hour, LOS would degrade from LOS B to LOS D and the score would decrease by 54 percent; both would be significant impacts.

> **Mitigation Measure 4.C-5ziii (Central Avenue Bike):** The City shall implement Mitigation Measure 4.C-2o (Central Avenue bicycle improvements).

Implementation of Mitigation Measure 4.C-2o would enhance the cyclist experience along Central Avenue. As previously described, the limits of the methodology used to evaluate bicycle LOS for this study do not include Class I bicycle paths, so bicycle LOS cannot be calculated. This measure would not degrade the transit LOS or auto LOS along the corridor. Nevertheless, this impact would be considered **significant and unavoidable**.

Bicycle Travel Impact Significance after Mitigation: Significant and Unavoidable.

Transit Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Auto Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Oak Street Bike. The increase in motorized vehicle volume due to project-related traffic along Oak Street between Santa Clara Avenue and Central Avenue would cause bicycle LOS to degrade to LOS C in the southbound direction during the a.m. peak. Implementation of Mitigation Measures 4.C-2a (TDM Program) and 4.C-2b (Monitoring), p. 4.C-37, could improve bicycle LOS by reducing vehicle trips, although it would be speculative to quantify the potential improvement.

> **Mitigation Measure 4.C-5ziv (Oak Street Bike):** The City shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and, when required to avoid the impact or reduce its severity, fund a fair share contribution to implement the completion of a bicycle boulevard with appropriate signage and striping along Oak Street from Blanding Avenue to Encinal Avenue to advise motorists and bicyclists to share the street.

Implementation of Mitigation Measure 4.C-5ziv would not reduce the impact to bicyclists to less than significant and impact is considered **significant and unavoidable**.

While additional mitigation could be provided by removing on-street parking along the street and installing bike lanes, it would adversely affect local residents, businesses, and civic uses (City Hall, Library, Police Department) who use the existing on-street parking regularly and is not recommended.

Bicycle Travel Impact Significance after Mitigation: Significant and Unavoidable.

Transit Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Pedestrian Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Auto Travel Secondary Impact after Bicycle Mitigation: Less than Significant.

Freeways and Ramp Analysis

Impact 4.C-6: The increase in traffic on the freeway mainline due to the project results in negligible changes in density and no change in LOS under cumulative conditions. (Less than Significant)

The magnitude of the change in volume is such that at almost three percent of the total volume, the change is imperceptible to the driver and within normal daily fluctuation of traffic volumes on the freeway.

Mitigation: None required.

Impact 4.C-7: The change in traffic volumes on the freeway ramps due to the project results in no change in LOS and minimal, if any, change in density under existing conditions. (Less than Significant)

Under cumulative conditions, the project would result in a change in LOS at the following ramps:

- Broadway off-ramp from I-880 northbound during the p.m. peak hour. The project-related traffic volumes increase by 35 vehicles on this ramp and by 46 vehicles along the contiguous portion of the mainline, which results in a change in LOS from E to F during the p.m. peak hour and a corresponding change in density of 0.4 passenger cars per mile per lane (pc/mi/ln) within the diverge area.

- High Street on-ramp from I-880 southbound during the p.m. peak hour. The project-related traffic volumes increase by 28 vehicles on the ramp, but the density at the merge actually decreases from 36.4 to 36.3 since the mainline freeway volume decreases by 102 vehicles. This decrease in mainline volumes drops below the capacity resulting in a change in LOS from F to E with the project-related traffic.

- 12th Street off-ramp from I-980 eastbound during the p.m. peak hour. The project-related traffic volumes increase by one vehicle on this ramp and by 44 vehicles along the contiguous portion of the mainline, affecting the density at the diverge area and resulting in a change in LOS from C to D during the p.m. peak hour.

While this discussion focuses on the change in LOS based on the significance thresholds, the change in project-related traffic is minimal compared to the total volume on the mainline as well as the total volume on the ramps and any resulting change in mainline and ramp operations would likely be imperceptible to the motorist.

Mitigation: None required.

Emergency Vehicle Access

Impact 4.C-8: Development facilitated by the proposed project would potentially result in inadequate emergency access. (Less than Significant)

The proposed project, including the proposed Master Infrastructure Plan (MIP), would improve access and circulation both on the project site and between the project site and other areas of Alameda. To the extent that the traffic analysis, above, reveals significant intersection impacts that cannot be mitigated to a less-than-significant level, the proposed project would result in increased traffic congestion on certain local streets. However, Alameda's streets are generally of sufficient width to permit emergency vehicles responding to an incident to pass stopped traffic, either by the stopped traffic moving to the right shoulder, by emergency vehicles using the opposite lane(s), or a combination thereof. New streets proposed for the project site as part of the MIP would likewise provide sufficient clearance for responding emergency vehicles.

Construction of new development on the project site and of roadway and circulation system improvements also could result in potential temporary obstructions or delays that may affect emergency response times. However, in accordance with the existing City requirements standards and regulations, all development projects and transportation improvements would be reviewed by local emergency services providers (including the police and fire departments) for consistency with their standards and provision of adequate emergency access, both during construction and subsequently, during project operation.

The City maintains up-to-date emergency response plans that establish response routes for emergency services that address emergency service needs. Existing City of Alameda requirements, procedures, and plans ensure that the proposed project would not result in a significant impact to emergency services.

Mitigation: None required.

Traffic Safety Hazards

Impact 4.C-9: Development facilitated by the proposed project could potentially increase traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways due to roadway design features or incompatible uses. (Significant)

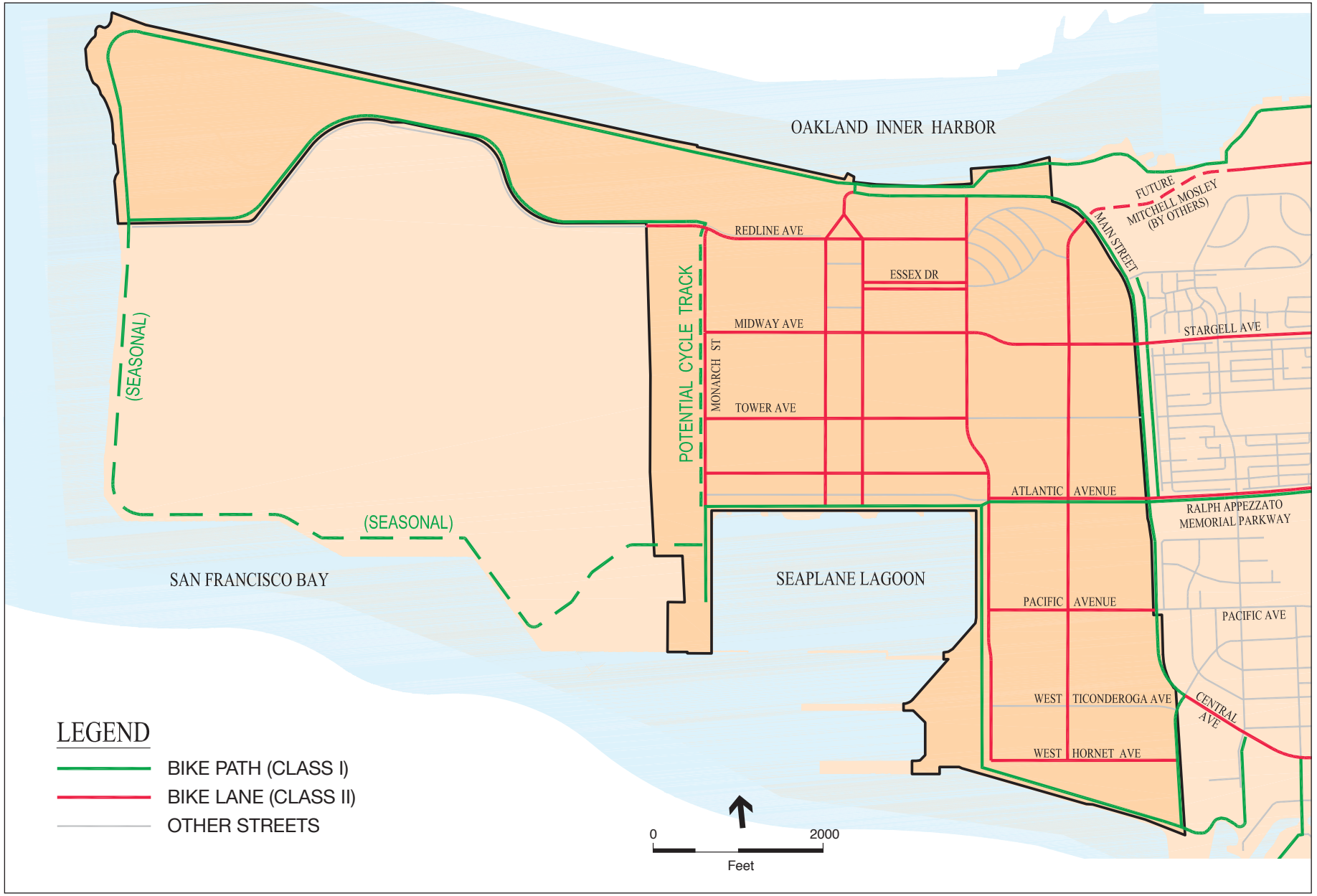
The draft Master Infrastructure Plan (MIP) calls for a transportation network of "complete streets" within the project site to support a variety of modes of transportation. By providing for pedestrian and bicycle circulation separated from vehicles, as well as designated truck routes, the MIP would

result in a circulation system on the project site that would enhance public safety compared to the existing street network. The MIP also calls for certain potential off-site circulation improvements to enhance connectivity between the project site and the adjacent neighborhoods of Alameda. Proposed onsite bicycle and truck routes are shown in **Figures 4.C-3** and **4.C-4**, respectively.

Potential safety impacts and design features would be considered on a project-by-project basis as specific developments are proposed within the project site and as street improvement and circulation projects are implemented. In accordance with existing City standards and regulations, future development projects and proposed transportation improvements would be reviewed by the City Public Works and Community Development Departments for consistency with applicable regulations and standards. The proposed project would not construct new streets or upgrade existing streets in a manner that would result in unsafe design features, such as sharp turns or blind intersections. Accordingly, potential traffic safety impacts in Alameda would be less than significant.

Project traffic would cause an increase in peak-hour traffic volumes in the core area of Chinatown, compared to existing conditions. In particular, with peak-hour traffic from employment-generating uses entering the Webster Tube in the morning and exiting the Posey Tube in the afternoon, the a.m. peak-hour volume would increase at Seventh/Webster Streets and at Eighth/Webster Streets, while the p.m. peak hour volume would increase at Eighth/Harrison Streets and at Seventh/Harrison Streets. Daily volumes would increase as well, although overall volumes outside the peak hours are, and would remain, lower. Because more than half of the reported collisions involving pedestrians in the 2009 – 2012 period occurred as vehicles were making left-turns, the project impact on pedestrian safety could be particularly pronounced at the Eighth/Harrison Streets intersection, where project traffic would more than double the northbound left-turn volume from Harrison Street to Eighth Street in the p.m. peak hour. At this location, there was only one collision between 2009 and 2012, but that collision, in December 2009, involved a pedestrian fatality. However, the accident report notes that it was raining at the time of the collision, the collision occurred on a Saturday, the vehicle was moving through (westbound) on Eighth Street, and the collision was classified as a hit-and-run. Because this collision occurred on a Saturday, it occurred at a time in which increased weekday peak-hour traffic associated with the proposed project would not change conditions. Moreover, inasmuch as this collision occurred during poor weather and was a hit-and-run incident, it is not necessarily correlated with traffic volume.

Although the collision rate at the Chinatown intersections closest to the tunnel portals (Seventh Street and Eight Street at Webster and Harrison Streets) would not be expected to increase in a linear fashion with the increase in traffic generated by the proposed project, the relatively large increases in peak-hour traffic volume at the these intersections could potentially result in additional collisions involving pedestrians. Therefore, the impact to pedestrian safety at these intersections is conservatively considered to be significant. Other intersections in Chinatown would experience substantially less additional traffic due to the project, and thus lesser effects on pedestrian safety.



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

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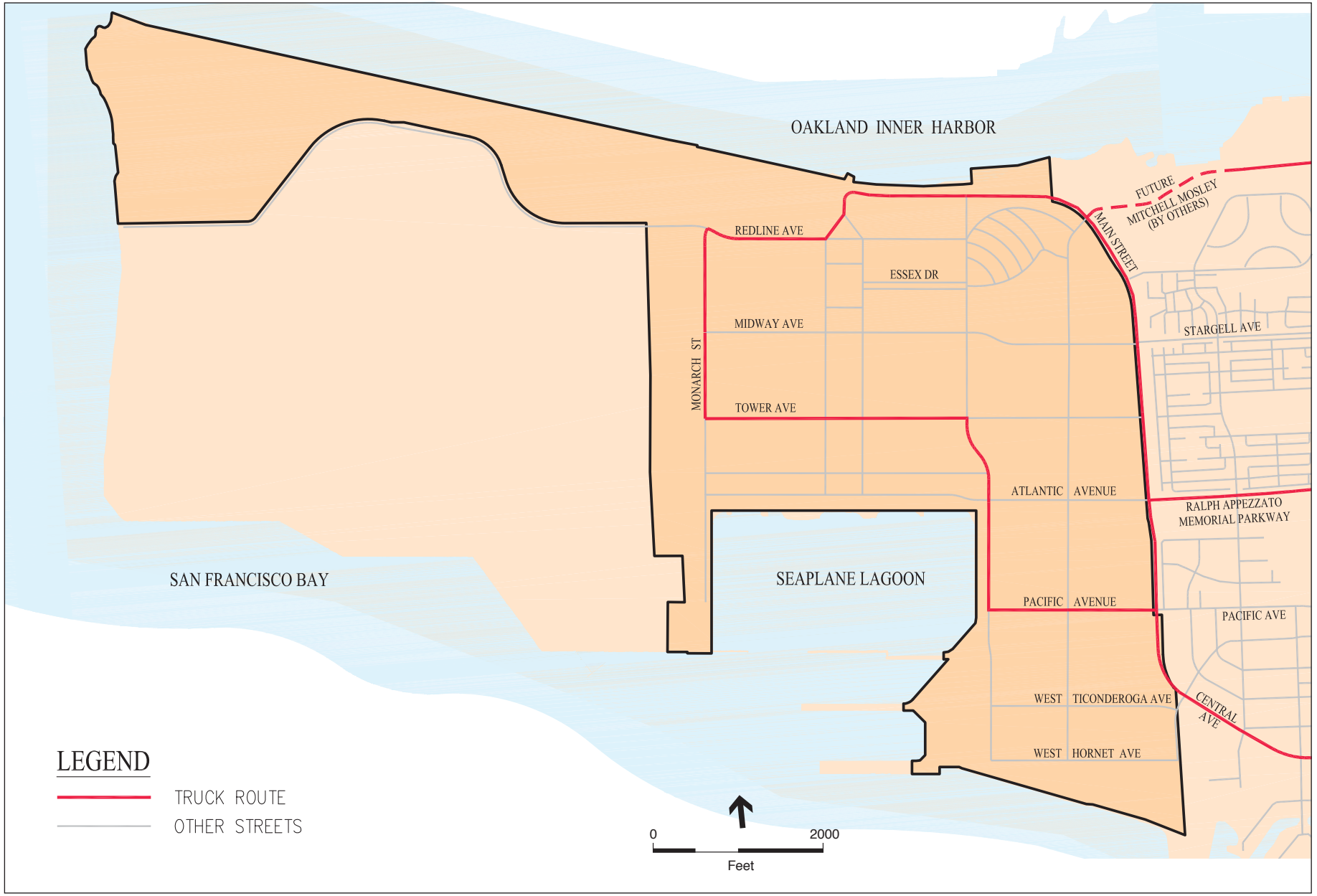
Figure 4.C-3
Proposed Bike Facilities



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

Alameda Point Project . 130025

Figure 4.C-4
Proposed Truck Route

Under 2035 cumulative conditions, the countywide traffic model predicts some redistribution of peak-hour project traffic to routes other than the Webster and Posey Tubes (i.e., to the bridges at Park Street/29th Avenue, Tilden Way/Fruitvale Avenue, and High Street), because travel times through the tunnels are anticipated to lengthen due to increasing congestion from other development in and around downtown Oakland and Alameda. Because of this, and because other growth would increase volumes at Chinatown intersections, the project contribution to 2035 traffic volumes would be substantially less than under Existing plus Project conditions, and no additional significant effects to pedestrians at Chinatown intersections would be anticipated.

It is noted that this analysis does not account for potential future improvements as part of the Broadway-Jackson Interchange project. The latest ACTC Broadway-Jackson Interchange Project Fact Sheet (June 2013) depicts a proposed connection from Harrison Street to Sixth Street with a connection from Sixth Street at Martin Luther King, Jr. Way to I-880. This would reduce through traffic to and from Alameda from the Chinatown core, but could result in higher volumes at peripheral locations, such as Sixth Street and Broadway.

> **Mitigation Measure 4.C-9 (Chinatown Pedestrians):** The City of Alameda shall implement TDM and Monitoring (Mitigation Measures 4.C-2a and 4.C-2b) and shall continue to work with the City of Oakland, the ACTC, and Caltrans, to evaluate and implement measures to reduce or divert the volume of traffic that travels through Oakland Chinatown to and from Alameda Point and other City of Alameda destinations.

Reduction in vehicle travel through implementation of a TDM Program would be a means of minimizing project impacts on pedestrian safety in Chinatown that Alameda could implement at its own discretion.

Mitigation Measure 4.C-9 could potentially reduce the number of collisions involving pedestrians. However, because the effectiveness of TDM at reducing project vehicle trips cannot be quantified, and because the potential access improvements are uncertain, it cannot be stated with certainty that the impact would be reduced to a less-than-significant level.

Significance after Mitigation: Because the City of Alameda has no jurisdiction over mitigation other than implementation of the project TDM Program and Monitoring, the impact at four intersections in Oakland Chinatown is conservatively considered to be **significant and unavoidable**.

Consistency with Adopted Policies, Plans or Programs Supporting Alternative Transportation

Impact 4.C-10: Development facilitated by the proposed project could potentially be inconsistent with adopted polices, plans, and programs supporting alternative transportation. (Less than Significant)

The City of Alameda's multi-modal approach to transportation analysis, presented throughout this analysis of transportation impacts, ensures that the City's priorities with respect to modes other

than cars, including pedestrians, bicycles, and transit, are adequately supported. Moreover, as noted above, the Master Infrastructure Plan proposes a "complete streets" transportation network for the project site, including bicycle and pedestrian circulation and transit. The proposed project would be consistent with the General Plan Transportation Element, including Policy 4.2.4.a, which states, "Encourage development patterns and land uses that promote the use of alternate modes and reduce the rate of growth in region-wide vehicle miles traveled"; Policy 4.2.4.b, which states "Integrate planning for Environmentally Friendly Modes, including transit, bicycling and walking, into the City's development review process"; and Policy 4.2.4.c, which states, "Encourage mixed use development that utilizes non-single occupancy vehicle transportation modes." Additionally, the City will develop and implement a comprehensive Transportation Demand Management Program for the project site (see Mitigation Measure 4.C-2a, p. 37). Accordingly, the proposed project would have a less-than-significant impact with respect to polices, plans, and programs supporting alternative transportation.

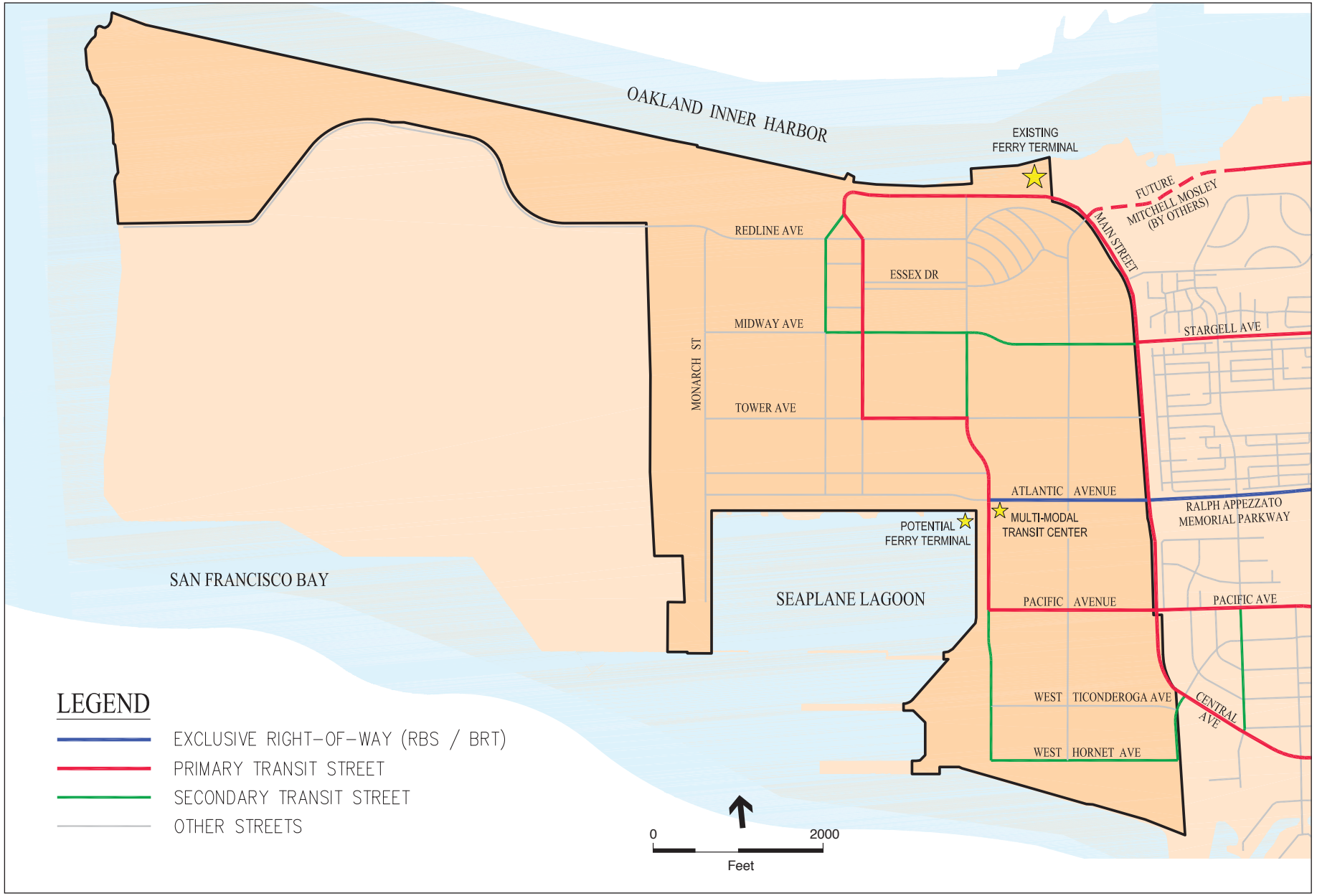
The proposed onsite transit network is shown in **Figure 4.C-5**.

Mitigation: None required.

C.5 Congestion Management Program Analysis

The proposed project would require a General Plan Amendment and would generate more than 100 p.m. peak hour trips (see Table 4.C 3, page 4.C-23). Pursuant to the request of the ACTC in a letter dated January 23, 2013, in response to the Notice of Preparation (NOP), a CMP analysis was conducted for this project. The impacts of the project on the regional transportation system were assessed using the most current version of the ACTC Countywide Travel Demand Model (ACTC Model), dated August 2011, which uses Association of Bay Area Government's (ABAG) *Projections 2009* socio-economic forecasts. For the roadway analysis, the 2020 No Project and 2035 No Project forecasts were obtained from the ACTC Model. The "with-project" forecasts at the roadway segments were obtained by manually adding the increment of p.m. peak hour trips between the proposed project and the "no project" forecasts from the impact analyses using an updated ACTC Model that provided a more detailed traffic analysis zone system in the City of Alameda (see Travel Demand Modeling Approach, page 4.C-22).

The land use for the project was added into the more detailed model developed for the City of Alameda in the form of socio-demographic data for 2035 forecasts for the purpose of analyzing transit impacts for AC Transit and BART. For the transit analysis, the "with project" forecasts were compared to the baseline "no project" forecasts for transit to determine impacts. The traffic impact analysis elsewhere in this section (and the traffic analysis commonly undertaken for most any project in satisfaction of CEQA) evaluates impacts at intersections, because that is where "conflicts" between traffic streams occur. Intersections, therefore, typically serve as the limiting locations on traffic flow. However, the emphasis in the CMP analysis is on the operation of the roadway segments in the Metropolitan Transportation System (MTS) roadways as designated by



SOURCE: Carlson, Barbee, & Gibson, Inc., 2013

Alameda Point Project . 130025

Figure 4.C-5
Proposed Transit Systems

the Metropolitan Transportation Commission. The ACTC-designated Congestion Management Program network is a subset of the MTS network. This impact analysis, therefore, includes all MTS roadways and CMP-designated roadways, plus several local MTS roadways and transit corridors in the project vicinity. Consistent with the modeling undertaken by the ACTC and the direction from the ACTC with respect to the required CMP analysis, the analysis is presented for an interim year (2020), as well as the horizon year under the current CMP model, which is 2035. Because, as noted above, the CMP analysis is for roadway segments and not intersections, it typically reveals lesser impacts, because, any two individual roadway segments have greater capacity than the intersection at which those same two roadways meet. For this reason, and because the ACTC does not require it, no analysis of existing-plus-project conditions is undertaken for the MTS roadway network. Given the greater capacity of roadway segments, such an analysis would necessarily be less conservative than the existing-plus project intersection analysis presented in this section, and therefore would provide no useful additional information. The CMP transit analysis uses the same years for consistency. Detailed tables are provided in Appendix G for review and include all data for 2020 and 2035 forecast years.

Significance Criteria

Roadway Segments

As described above, level of service is a qualitative measure of the traffic flow under different traffic conditions. The roadway impacts of the project were considered significant if the addition of project-related traffic would result in a service level worse than LOS E, except where the roadway link was already at LOS F under no project conditions. For those locations where this no-project condition is LOS F, the impacts of the project were considered significant if the contribution of project-related traffic is three percent or more of the total traffic. This criterion has been included to address impacts along roadway segments currently operating under unacceptable levels and was developed based on professional judgment using a “reasonableness test” of daily fluctuations of traffic. Also a change of **volume-to-capacity (V/C) ratio of 0.03** has been found to be the threshold for which a perceived change in congestion is observed. The V/C ratio is calculated by comparing the peak-hour link volume to the peak-hour capacity of the road link. That change is equivalent to about one-half of the change from one level of service to the next.

Transit Segments

Transit frequency-of-service standards for the CMP are **15- to 30-minute** headways for bus service and **3.75- to 15-minute** headways for BART during peak hours. The transit impacts of the project were considered significant if the addition of project-related trips would result in a ridership worse than capacity of the transit system, except where the transit system was already operating at capacity under no project conditions. For those locations where this no-project condition is at capacity, the impacts of the project were considered significant if the contribution of project-related trips is three percent or more of the total pm peak hour transit trips. Capacity of the transit system is measured by the load factor for the transit segments in the study area. This criterion has been included to address impacts along transit segments currently operating under

unacceptable levels and was developed based on professional judgment using a "reasonableness test" of daily fluctuations of transit ridership.

Congestion Management Program Land Use Analysis

The traffic forecasts were based on the more detailed model developed for the City of Alameda with Projections 2009 for the 2035 baseline year. As described above, the project increment of trips was then added to the baseline volumes from the ACTC model for 2020 and 2035 baseline years. A conservative assumption was made that 100 percent of the project would be developed by 2020.

Highway impacts were summarized for the designated link locations based on the ACTC's comments on the Notice of Preparation for the project. The roadway links include selected segments of I-880, Main Street, Central Avenue, Encinal Avenue, Atlantic Avenue, Webster Street, Webster Street Tube, Harrison Street, Posey Tube, and westbound and southbound connectors to SR 260/ I-880, and eastbound and northbound connectors from SR 260/ I-880.

Transit impacts were addressed for AC Transit bus routes servicing the project study area and Bay Area Rapid Transit (BART) at the West Oakland, Lake Merritt, 12th Street and Fruitvale BART stations.

CMP and MTS Highway Segments

The LOS for the designated links were analyzed in a spreadsheet using the Florida Department of Transportation LOS methodology, which provides a planning level analysis based on the 2000 *Highway Capacity Manual* methods. As a planning level analysis, the level of service is based on forecasts of traffic and assumptions for roadway and signalization control conditions, such as facility type (freeway, expressway, and arterial classification), speeds, capacity and number of lanes. The assumption for the number of lanes at each link location was extracted from the ACTC Model, and also confirmed through aerial and field observations.

The traffic baseline forecasts for 2020 and 2035 were extracted at the required CMP and MTS highway segments from the ACTC Model for the p.m. peak hour. The "With Project" forecasts at the roadway segments for the proposed project were obtained by manually adding the proposed project trips to the "No Project" forecasts. Due to the size and type of development proposed for Alameda Point as part of this project, this approach would reflect not only the additional traffic generated by the proposed project, but also the shift in traffic patterns due to increased employment as well as the diversion of non-project traffic to alternative routes due to congestion and capacity constraint along some of the key roadways serving the project site.

The peak hour operations were evaluated in compliance with ACTC requirements. The tables (see **Appendix G**) compare the no-project results to the with-project results for each model horizon year. The peak hour volumes, V/C ratios and the level of service for with and without project conditions are provided for each direction of flow.

2020 Baseline Plus Project Conditions

Impact 4.C-11: The addition of project-generated traffic would increase traffic volumes on many CMP and MTC roadways above levels identified under 2020 Baseline Conditions. (Less than Significant)

With the addition of the project, most of the MTS roadways would experience increases in volume from 2020 baseline conditions, but no change in the level of service (see tables in **Appendix G**). The addition of project-related traffic at following MTS roadway would result in LOS F conditions:

- At the SR-260 Webster and Posey Street Tubes, the p.m. peak-hour service level in northbound and southbound directions would be LOS F under 2020 Baseline No-Project conditions. With the addition of project traffic, this location would remain at LOS F, but the project-generated increase in traffic V/C ratio would be 2.5 percent in the northbound direction and 1.2 percent in the southbound direction. Therefore, the impact at this location would be considered a less than significant impact.

Mitigation: None required.

2035 Cumulative Plus Project Conditions

Impact 4.C-12: The addition of project-generated traffic would increase traffic volumes on many CMP and MTC roadways above levels identified under 2035 Baseline Conditions. (Less than Significant)

With the addition of the project, most of the MTS roadways would experience increases in volume from 2035 baseline conditions, but no change in the level of service (see tables in **Appendix G**). The addition of project-related traffic at the following MTS roadways would result in LOS F conditions:

- At I-880, south of Oak Street, the p.m. peak-hour service level in the northbound direction would be LOS F under 2035 Cumulative No-Project conditions. With the addition of project traffic, this location would remain at LOS F, but the project-generated increase in traffic V/C ratio would be 1.3 percent in the northbound direction. Therefore, the impact at this location would be considered a less than significant impact.

- At the SR-260 Webster and Posey Street Tubes, the p.m. peak-hour service level in northbound and southbound directions would be LOS F under 2035 Cumulative No-Project conditions. With the addition of project traffic, this location would remain at LOS F, but the project-generated increase in traffic V/C ratio would be 2.5 percent in the northbound direction and 1.2 percent in the southbound direction. Therefore, the impact at this location would be considered a less than significant impact.

Mitigation: None required.

MTS Transit Corridors

The proposed project is located within the service area of the AC Transit and the Bay Area Rapid Transit (BART) systems. The impact of the proposed project on these transit systems was assessed using the latest version of the ACTC Model, which predicts transit ridership for all transit operators. The transit ridership for AC Transit is summarized in tables in **Appendix G**.

Transit Ridership on AC Transit Buses

Future growth and development within the project area would increase ridership on AC Transit buses. The impact of the project on the AC Transit bus system was assessed based on the ridership derived from the ACTC Model. AC Transit Routes 31, 51, O and W were analyzed as they directly or (indirectly via transfers) serve the project area. Some project residents would be expected to use the transit system to travel to work. The model was used to quantify the change in transit trips associated with the project on the AC Transit routes, and impacts are assessed based on an assumed seated capacity of 25 passengers per bus for all AC transit routes. The peak load factor also assumes standing passengers, so the maximum load factor is assumed to be reached at 40 passengers per bus. The model was used to develop project ridership by routes, however, due to the all or nothing path algorithm of the transit assignments, there is more confidence in the aggregate change in transit ridership than in the assignment on individual routes. Therefore, the impact analysis is based on the aggregate change between the no-project and the with-project trips. In addition, maximum existing load factors for the above routes are not reached on the segments between Alameda and downtown Oakland or accessing adjacent BART stations from Alameda, but for the purposes of this analysis, it was conservatively assumed these routes are at maximum load.

2020 Baseline Plus Project Conditions

Impact 4.C-13: The addition of project-generated traffic would increase ridership on AC Transit buses above that under 2020 Baseline conditions. (Less than Significant)

With the addition of the project-generated passengers on the AC transit buses in the study area, no bus route would operate over capacity. The project generates a total of 313 new daily riders in 2020, corresponding to approximately 78 p.m. peak hour riders. Given the current service frequencies of 10 to 15 minutes for Routes 51 and O, 20 minutes for Route W, and 30 minutes for Route 31 during the p.m. peak, this corresponds to approximately 20 peak hour buses serving both directions in the p.m. peak hour. This equates to approximately 4 new riders per bus. As a result, with the high frequency of service and estimated ridership increase, the project would not impact peak-hour bus service and meets the 15-30 minute headway standard. Therefore, the impact of additional bus passengers from the project would be considered less than significant.

Mitigation: None required.

2035 Cumulative Base Plus Project Conditions

Impact 4.C-14: The addition of project-generated traffic would increase ridership on AC Transit buses above that under 2035 Cumulative Baseline conditions. (Less than Significant)

With the addition of the project-generated passengers on the AC transit buses in the study area, no bus route would operate over capacity. The project generates a total of 313 new daily riders in 2035, corresponding to approximately 78 p.m. peak hour riders. Given the current service frequencies of 10 to 15 minutes for Routes 51 and O, 20 minutes for Route W, and 30 minutes for Route 31 during the p.m. peak, this corresponds to approximately 20 peak hour buses serving both directions in the p.m. peak hour. This equates to approximately 4 new riders per bus. As a result, with the high frequency of service and the estimated ridership increase, the project would not impact the peak-hour bus service and meets the 15-30 minute headway standard. Therefore, the impact of additional bus passengers from the project would be considered less than significant.

Mitigation: None required.

Transit Ridership on BART

Future growth and development within the project area would increase ridership on BART trains. The impacts of the project on the BART system were assessed based on the ridership derived from the ACTC Model. The project site is served by BART from four possible stations, West Oakland, Lake Merritt, 12th Street and Fruitvale BART stations, which can be accessed by driving (park and ride and kiss and ride) or AC Transit bus lines. BART has three lines that stop at the Fruitvale and Lake Merritt stations (Fremont-to-San Francisco, Fremont-to-Richmond and Dublin/Pleasanton-to–San Francisco), three lines that stop at the 12th Street station (Richmond-to–San Francisco, Fremont-to–Richmond and Bay Point-to-San Francisco), and four lines that stop at West Oakland ((Fremont-to–San Francisco, Richmond-to-San Francisco, Pittsburg/Bay Point-to-San Francisco and Dublin/Pleasanton-to–San Francisco). The ACTC Model was used to quantify the change in transit trips associated with the project on these BART routes at these stations, and impacts are assessed based on an assumed existing load factor of 100 percent occupied seats (see table in **Appendix G**).

2020 Baseline Plus Project Conditions

Impact 4.C-15: The addition of project-generated passengers would increase ridership on BART above that under 2020 Baseline conditions. (Less than Significant)

Under 2020 Baseline Plus Project conditions, the project has the potential to generate an increase in overall daily BART ridership at all stations. The existing BART frequency of 15 minutes on the three lines and 5 minutes on the Pittsburg/Bay Point line equates to between 24 to 36 trains per hour (both directions). Given this amount of service provided at the four adjacent BART stations, the project-generated increase of 2,120 new daily riders, or approximately 530 new p.m. peak hour

riders (p.m. peak ridership is conservatively assumed as 25 percent of daily riders), would average to about 14 new riders per train. Conservatively assuming a 100 percent load factor on all BART routes servicing the project area, the maximum of 1.4 percent increase in p.m. peak trips per train would be within normal fluctuations in ridership on BART. As a result, the project impact assuming the current peak-hour BART train service which meets the 3.75- to 15minute headway standard, would be dispersed among several stations and trains. Therefore, this impact is considered to be less than significant.

Mitigation: None required.

2035 Cumulative Plus Project Conditions

Impact 4.C-16: The addition of project-generated passengers would increase ridership on BART above that under 2035 Cumulative Baseline conditions. (Less than Significant)

Under 2035 Cumulative Plus Project conditions, the project has the potential to generate an increase in overall daily BART ridership at all stations. The existing BART frequency of 15 minutes on the three lines and 5 minutes on the Pittsburg/Bay Point line equates to between 24 to 36 trains per hour (both directions); Given this amount of service provided at the four adjacent BART stations, the project-generated increase of 2,120 new daily riders, or approximately 530 new p.m. peak hour riders (p.m. peak ridership is conservatively assumed as 25 percent of daily riders), would average to about 14 new riders per train. Conservatively assuming a 100 percent load factor on all BART routes servicing the project area, the maximum of 1.4 percent increase in p.m. peak trips per train would be within normal fluctuations in ridership on BART. As a result, the project impact, assuming the current peak-hour BART train service which meets the 3.75- to 15-minute headway standard, would be dispersed among several stations and trains. Therefore, this impact is considered to be less than significant.

Mitigation: None required.

C.6 References – Transportation and Circulation

Alameda County Congestion Management Agency (ACCMA), 2011. *2011 Congestion Management Program,* adopted December 2011.

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