B. Transportation and Circulation

Introduction

This section describes transportation and circulation conditions in the project area, and assesses the proposed project in terms of whether it would (1) conflict with adopted policies or programs supporting alternative transportation (e.g., pedestrian, bicycles, and public transit travel modes), (2) cause an increase in traffic that is substantial in relation to background traffic load and capacity (i.e., increase congestion and delay at intersections), (3) exceed level of service standards established by the City of Alameda and by the Alameda County Congestion Management Agency, (4) substantially increase traffic safety hazards, or (5) result in inadequate emergency access. Both short-term and long-term project effects are analyzed to determine their significance under CEQA. For project impacts that are determined to be significant, mitigation measures have been identified to avoid or reduce those impacts.

Environmental Setting

Regional Setting

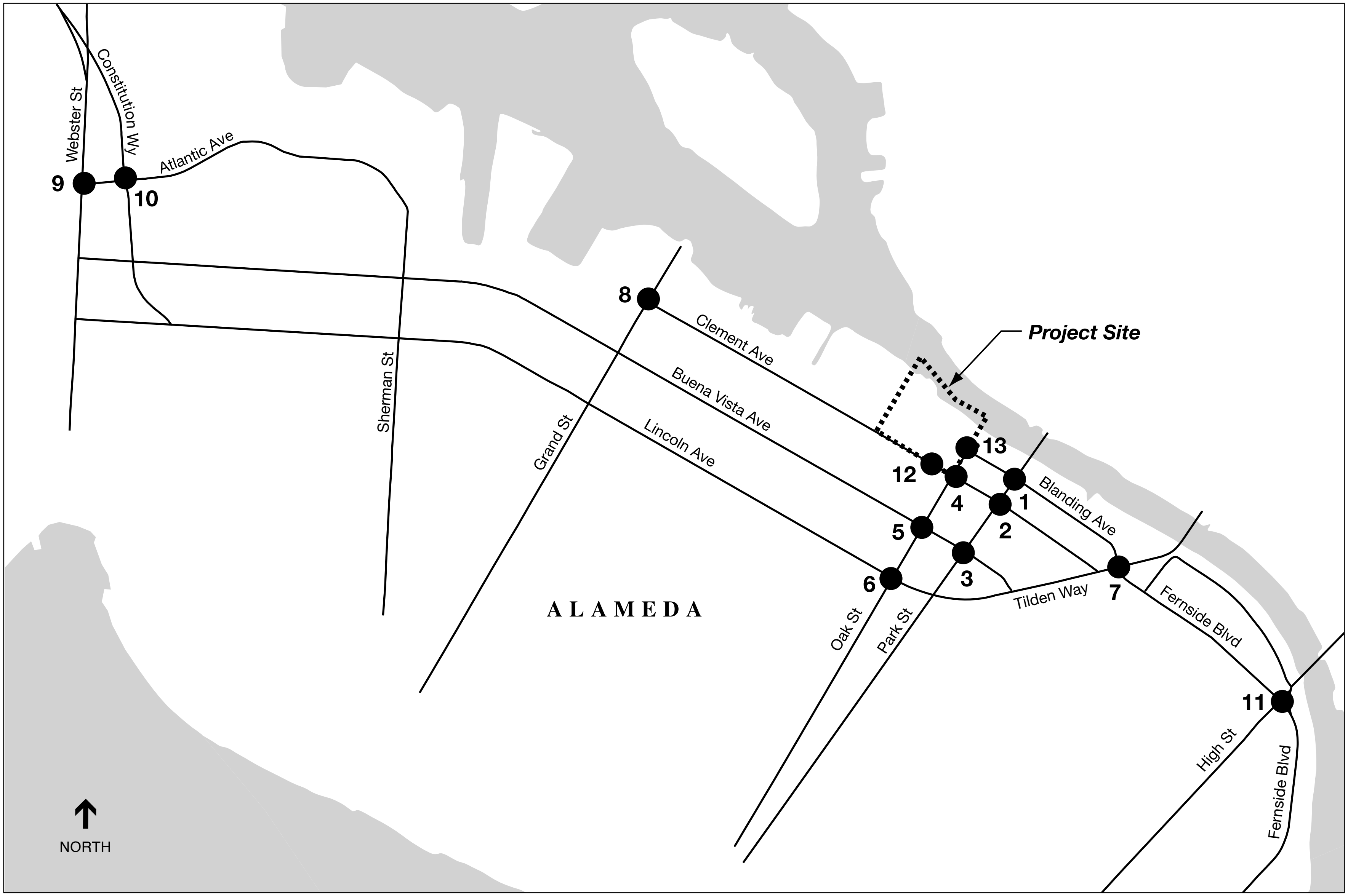
The City of Alameda is an island separated from the City of Oakland by the Oakland Estuary. Access to the City of Alameda across the Oakland-Alameda Estuary is provided by a one-way couplet of under-Estuary tubes at Webster and Posey Streets (State Route 260), and draw bridges at Park Street / 29th Avenue, Tilden Way / Fruitvale Avenue, and High Street. Doolittle Drive / Otis Drive (State Route 61) crosses San Leandro Channel, providing access from Bay Farm Island.

Interstate 880 (I-880) is a north-south eight-lane freeway (though oriented east-west in the study area) between I-80 near the Bay Bridge and San Jose. Traffic generated by this project could use I-880 to travel to/from eastern Alameda and Contra Costa County, San Francisco (via the Bay Bridge), the Tri-Valley (via State Route 238 and I-580), and the South Bay. The closest access to/from the project site is provided via circuitous routes to/from the 23rd Avenue and 29th Avenue / Fruitvale Avenue interchanges.

Local Setting

The proposed Boatworks Residential Project is located northwest of the intersection of Oak Street and Clement Avenue. One project access point is proposed to be located such that it would become a leg of the Oak Street / Blanding Avenue intersection. The second access point would form a T-intersection with Clement Avenue. Key local roadways that provide access to the project site are described below, and shown in **Figure 4.B-1**.

Park Street is the street that carries the most traffic near the project site. It consists of four travel lanes. One end is located at the Park Street Bridge (providing access to Oakland and I-880), while the other is located at Shoreline Drive, where it meets San Francisco Bay. Park Street is one of two major shopping streets in the City of Alameda.



SOURCE: Dowling Associates, Inc.

Boatworks Residential Project . 208559

Figure 4.B-1
Roadway Network

Oak Street lies parallel to Park Street, and serves as a bypass to avoid congestion on Park Street. Oak Street is a two-lane street and is fronted by a mix of residential and commercial uses.

Lincoln Avenue is a major street in Alameda (with two travel lanes in each direction), connecting with Tilden Way on its eastern end, which curves around to cross the Oakland Estuary via the Miller-Sweeney Bridge. It is fronted primarily by residential uses.

Buena Vista Avenue runs parallel to Lincoln Avenue, but consists only of a single travel lane in each direction with parking on both sides. It is fronted primarily by residential development. The San Francisco Bay Trail runs on Buena Vista Avenue in the project vicinity.

Clement Avenue is currently a two-lane street that runs from Grand Street to Broadway, and serves primarily industrial land uses. Parking is permitted on both sides of the street. This street is planned to be extended from Grand Street to Sherman Street / Atlantic Avenue, and from Broadway to Tilden Way, in the future. When those extensions are completed, the connection from Tilden Way to Sherman Street / Atlantic Avenue will tend to draw cross-town traffic from Lincoln Avenue and Buena Vista Avenue.

Blanding Avenue is a two-lane street that runs parallel to Clement Avenue and connects Oak Street on the west to Tilden Way on the east. It is fronted primarily by a mix of industrial and commercial uses.

Pedestrian / Bicycle / Transit Travel Modes

Pedestrian Travel

Currently, there is no sidewalk along the west side of Oak Street along the border of the project. These conditions are consistent with the historical usage of the project site as an industrial facility. Sidewalks exist along the east side of Oak Street north of Clement Avenue, on both sides of Oak Street south of Clement Avenue and on both sides of Clement Avenue to the east and west of Oak Street. There are numerous locations on these sidewalks where pedestrian access is partly obstructed by utility poles and other structures. The nearest crosswalks are at the intersection of Park Street / Clement Avenue. The waterfront Class I (a bicycle facility separated from vehicular facilities) path at Park Street Landing is a shared-use path accessible to pedestrians.

Bicycle Travel

There are currently no existing striped bike lanes or signed bike routes bordering the project site. The nearest north-south bike facility is a bike lane located on Broadway, approximately three blocks from the project site. The nearest east-west bike facility is a bike lane located on Central Avenue, about five blocks from the project site.

There are proposed bicycle facilities shown in the City's Bicycle Master Plan, which was re-adopted by the City in 2008. The plan shows a proposed Class I path along the waterfront, as well as bike lanes (Class II) along Clement Avenue, Oak Street, and Blanding Avenue. A portion of the waterfront Class I facility has been completed at the Park Street Landing shopping center, adjacent to the project site.

Although there are no bicycle improvements, the San Francisco Bay Trail runs along Buena Vista Avenue in the project vicinity.

Transit Travel

There are three AC Transit bus routes within about one-quarter mile (walking distance) of the proposed project, as well as three other AC Transit bus routes that stop within about 0.4 to 0.7 mile of the project site (AC Transit, 2010).

- Route 19 travels between the Fruitvale BART station and the North Berkeley BART station, passing through downtown Oakland. It runs along Buena Vista Avenue on half-hour headways seven days a week from approximately 6:00 a.m. to 10:00 p.m. The nearest bus stop to the project site on this route is at the intersection of Oak Street and Buena Vista Avenue. The future status of this route is unclear, as is has been proposed for elimination in 2010 by AC Transit.

- Route 50 travels between the Fruitvale BART station and Bayfair BART station, running along Park Street in the project site vicinity. It operates on 15-minute headways from approximately 5:00 a.m. to midnight on weekdays and on 30-minute headways from approximately 6:00 a.m. to midnight on weekends and holidays. The nearest bus stop to the project on this route is at the intersection of Park Street and Clement Avenue.

- Route OX is an express transbay route that travels between both downtown Alameda and Bay Farm Island and downtown San Francisco, running along Park Street in the project site vicinity. It operates on 10-minute headways during peak periods on weekdays only. The nearest bus stop to the project site on this route is at the intersection of Park Street and Clement Avenue.

- Route 51 travels from the Berkeley Amtrak station and the Berkeley BART station to the Alameda Bridgeside Center at the intersection of Blanding Avenue and Broadway. The line runs along Santa Clara Avenue and Broadway in the City of Alameda from approximately 5:00 a.m. to midnight on weekdays (on 10-minute headways) and on weekends and holidays (on 15-minute headways). The nearest bus stops to the project site are at the intersection of Broadway and Blanding Avenue (about 0.4 miles from project site), and the intersection of Santa Clara Avenue and Park Street (about 0.5 miles from project site).

- Route 851 is the all-nighter bus running a similar route to Route 51, except service is shortened, extending only from the Berkeley BART station to the intersection of Park Street and Santa Clara Avenue. Service is hourly from approximately midnight to 5:00 a.m. The nearest stop to the project site is at the intersection of Park Street and Santa Clara Avenue (about 0.5 miles from project site).

- Route O is a transbay route that travels between downtown Alameda and downtown San Francisco, running along Santa Clara Avenue in the project site vicinity. Some buses run an extended route to High Street and Fernside Boulevard. The bus operates on approximately half-hour headways from 6:30 a.m. to midnight on weekdays, with shorter headways during peak periods. The bus operates on 1-hour headways on weekends from 6:00 a.m. to midnight. The nearest bus stop to the project site on this route is at the intersection of Park Street and Encinal Avenue (about 0.7 miles from project site).

Vehicular Travel

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. Recent a.m. and p.m. peak-hour traffic counts conducted within the last two years were used for the analysis of existing conditions. Data concerning the existing intersection configurations and control were collected in the field. Existing traffic signal timing data was collected for all of the signalized study intersections from the City of Alameda Public Works Agency and other agencies, and then compared against the actual conditions at each study intersection to verify accuracy.

Analysis of peak-hour traffic conditions was conducted at the following 11 existing intersections in the project vicinity (all are signalized, except for #4 Oak Street / Clement Avenue (all-way stop-controlled) and #8 Grand Street / Clement Avenue (side-street stop-controlled).

1. Park Street and Blanding Avenue
2. Park Street and Clement Avenue
3. Park Street and Buena Vista Avenue
4. Oak Street and Clement Avenue
5. Oak Street and Buena Vista Avenue
6. Oak Street and Lincoln Avenue
7. Tilden Way and Blanding Avenue
8. Grand Street and Clement Avenue
9. Atlantic Avenue and Webster Avenue
10. Atlantic Avenue and Constitution Way
11. High Street and Fernside Boulevard
12. Clement Avenue and Project Access (*Future*)
13. Oak Street / Blanding Avenue and Project Access (*Future*)

They were selected because they represent locations along major traffic routes to and from the project site. Intersections #12 and #13 do not currently exist, but they would be created by the proposed project access drives. They are analyzed under future scenarios with the proposed project (i.e., Baseline Plus Project and Cumulative Plus Project).

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.B-1**).

Signalized Intersections. At the signalized study intersections, traffic conditions were evaluated applying the 2000 *Highway Capacity Manual* (HCM) operations methodology, using the 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.

TABLE 4.B-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	Stable Operation or Acceptable Delays: Higher delays resulting from fair signal progression and/or longer cycle lengths. Drivers begin having to wait through more than one red light. Most drivers feel somewhat restricted.
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.

Figure 4.B-2 shows lane geometry and peak-hour volumes at the 11 existing intersections. The eleven existing intersections were evaluated using existing traffic volumes. Traffic counts were conducted at the intersection of Clement Avenue and Grand Street in December 2008. Traffic counts conducted by the City in 2007 as part of the General Plan Amendment work were used at the other ten intersections. **Table 4.B-2** shows the results of the existing intersection level of service. LOS calculation reports are provided in **Appendix D**.

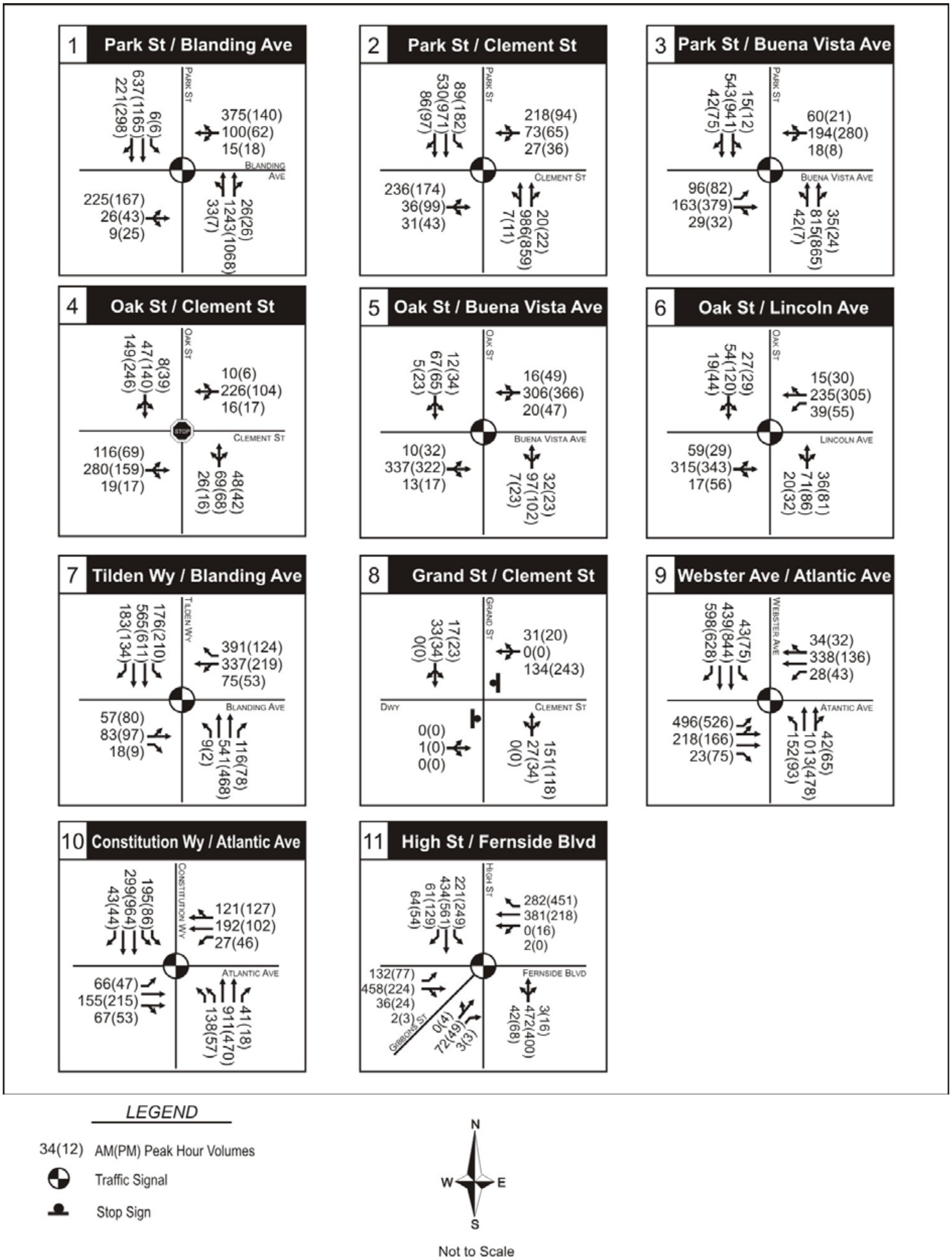
The intersection of Park Street / Blanding Avenue currently operates at an unacceptable LOS F during the a.m. peak hour, due to the heavy northbound volumes on Park Street (which dictates that the traffic light stays green a high proportion of available time to accommodate that traffic). Because the eastbound and westbound approaches are single-lane approaches, and right turns on red are prohibited on the westbound approach, the moderate-volume eastbound left turn and westbound right turn become critical movements and experience excessive delay during the a.m. peak hour. All other existing study intersections currently operate at an acceptable LOS D or better.

TABLE 4.B-2
EXISTING INTERSECTION LEVEL OF SERVICE (LOS) AND DELAY (seconds/vehicle)

No.	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			LOS	Delay	LOS	Delay
#1	Park Street and Blanding Avenue	Signal	F	91.5	C	22.2
#2	Park Street and Clement Avenue	Signal	D	37.8	C	24.7
#3	Park Street and Buena Vista Avenue	Signal	A	9.0	B	13.5
#4	Oak Street and Clement Avenue	AWSC	C	16.4	B	14.3
#5	Oak Street and Buena Vista Avenue	Signal	A	7.7	A	8.9
#6	Oak Street and Lincoln Avenue	Signal	B	11.5	A	8.7
#7	Tilden Way and Blanding Avenue	Signal	B	15.1	B	12.1
#8	Grand Street and Clement Avenue	SSSC	B	10.8	B	12.4
#9	Atlantic Avenue and Webster Avenue	Signal	D	53.4	D	41.7
#10	Atlantic Avenue and Constitution Way	Signal	D	43.1	C	34.2
#11	High Street and Fernside Boulevard	Signal	D	41.3	C	23.8

NOTE: The LOS/Delay for Side-Street Stop-Control (SSSC) intersections represent the worst movement or approach; for Signalized and All-Way Stop-Control (AWSC) the LOS/Delay represent overall intersection.

SOURCE: Dowling Associates, Inc.



SOURCE: Dowling Associates, Inc

Boatworks Residential Project . 208559

Figure 4.B-2
Existing Peak-Hour Volumes
and Lane Configurations

Truck Travel

Clement Avenue is one of two east-west truck routes in the City. Park Street and Broadway, which are within a few blocks of the project site, serve north-south truck travel at that end of the City. Tilden Way is also a truck route. A heavy vehicle percentage of 5 percent was used for truck routes in the intersection analysis (consistent with other City analyses).

Buena Vista Avenue formerly was a truck route, but the City removed the designation, except for the short distance between Sherman Street and Grand Street which will be taken off the truck route system when the extension of Clement Avenue from Grand Street to Sherman Street / Atlantic Avenue is constructed. It is relevant to note this situation because the Park Street / Buena Vista Avenue intersection was designed for trucks, especially the southbound-to-westbound right turn where the northwest corner has a large radius to accommodate turning paths of trucks. The intersection of Park Street / Clement Avenue has geometry more suitable for passenger vehicles, so is more limited in potential modifications involving re-striping. Specifically, the west leg of this intersection has a wide westbound receiving lane to enable trucks to make the southbound-to-westbound right turn onto Clement Avenue.

Research has shown that truck drivers appear to be better drivers than those of other vehicles, but truck crashes are more likely to result in fatality because of the vehicle’s size, weight, and stiffness (TRB, 2004). That research recommends several strategies to reduce the number of heavy truck fatality crashes, including the following:

- Reducing the number of tired truck drivers (e.g., increasing the efficiency of existing parking spaces, creating additional parking spaces, and incorporating rumble strips into new or existing roadways to alert fatigued drivers who wander out of traffic lane).
- Increasing the public’s awareness of how to share the road with trucks (e.g., incorporating Share the Road information into driver materials and promulgating Share the Road information through print and electronic media).
- Identifying and correcting unsafe roadway infrastructure and operational characteristics (e.g., identifying and correcting unsafe roadway configurations, installing interactive truck rollover signing, and modifying speed limits and increasing enforcement to reduce speeds).

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 proposed projects would not have a significant impact on state highway facilities.

Regional

The Alameda County Congestion Management Agency (ACCMA), 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. In addition to the other General Plan policies discussed in Section 4A Land Use, the following are relevant to the proposed project and this analysis:

> *Objective 4.4.2*: Ensure that new developments implement 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.
>
> *Policies*:
>
> 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.
>
> 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.
>
> 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.
>
> 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.
>
> 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.
>
> 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.

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.

Impacts and Mitigation Measures

Significance Criteria [1]

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.

For the purpose of this EIR[2], the project or a proposed mitigation measure would be a significant transportation impact if the project 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

1 Significance criteria used for the required Congestion Management Program evaluation (pages 4.B-39 to 4.B-42) are presented on page 4.B-39.

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.

significant if the delay for a crosswalk increases by 10 percent. (Pedestrian LOS would be determined using the 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 – If travel speed degrades 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 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 Highway Capacity Manual's methodology for Urban Street (arterial) Level of Service, or LOS).

- 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 Highway Capacity Manual's methodology for determining the average vehicle delay at an intersection.)

Other thresholds of significance.

- Planned Alternative Transportation Services and Facilities – Conflicts with, disrupts or interferes with planned transit, bicycle, or pedestrian services and facilities.

- Short Term Construction – Causes short-term construction related traffic impacts on pedestrian circulation, bicycle access, transit or automobile circulation.

- Safety – Results in an unsafe on-site circulation system, creates or contributes to an existing unsafe transportation condition or facility, or results in inadequate emergency access due to limited or circuitous access routes to the project site or lack of sufficient clear width on streets to provide emergency vehicle access.

- Crosswalks – The removal of a marked or unmarked crosswalk to address project impacts will be considered a significant impact.

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

If an acceptable level of service can not 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

- Exclusive Right of Way Transit
- Primary Transit
- Secondary Transit
- Pedestrian
- Bicycle
- Automobiles

Collectors

- Bicycle
- Pedestrian
- Transit
- Automobile

Local

- Pedestrian
- Bicycle
- Transit
- 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.

Impact Analysis

This following impact analysis focuses on potential impacts of the proposed project related to transportation and circulation. The evaluation considered the City's new Transportation Element policies, current Appendix G significance conditions at the project site, and applicable regulations and guidelines. The discussion of potential impacts generally follows the travel mode preferences set forth in the City's new Transportation Element policies and Street Classifications. Those impacts are described first for the direct project impacts, second for any secondary impacts, and third the project's contribution to cumulative impacts.

Analysis Methodology

The transportation analysis was conducted for typical weekday a.m. and p.m. peak commute hour conditions at local intersections and on the regional arterials. Those time periods are the most relevant for this analysis because traffic volumes (both background and project-generated) are generally the highest during those periods; therefore, evaluation of potentially significant impacts is most complete. In addition, standard traffic analytical tools focus on the weekday peak hours.

This analysis assumes full project buildout in three years. Conditions in 2013 with and without the proposed project were used to analyze direct project impacts. Cumulative traffic operating conditions, and the project's contribution to those cumulative conditions, were analyzed on the basis of forecasts of 2030 conditions.

Baseline Conditions

The purpose of this scenario is to characterize traffic conditions that are expected to occur in the future when the Boatworks Residential Project would receive occupancy approval in 2013, based on adding traffic generated by the following approved projects to existing traffic volumes at the study intersections:

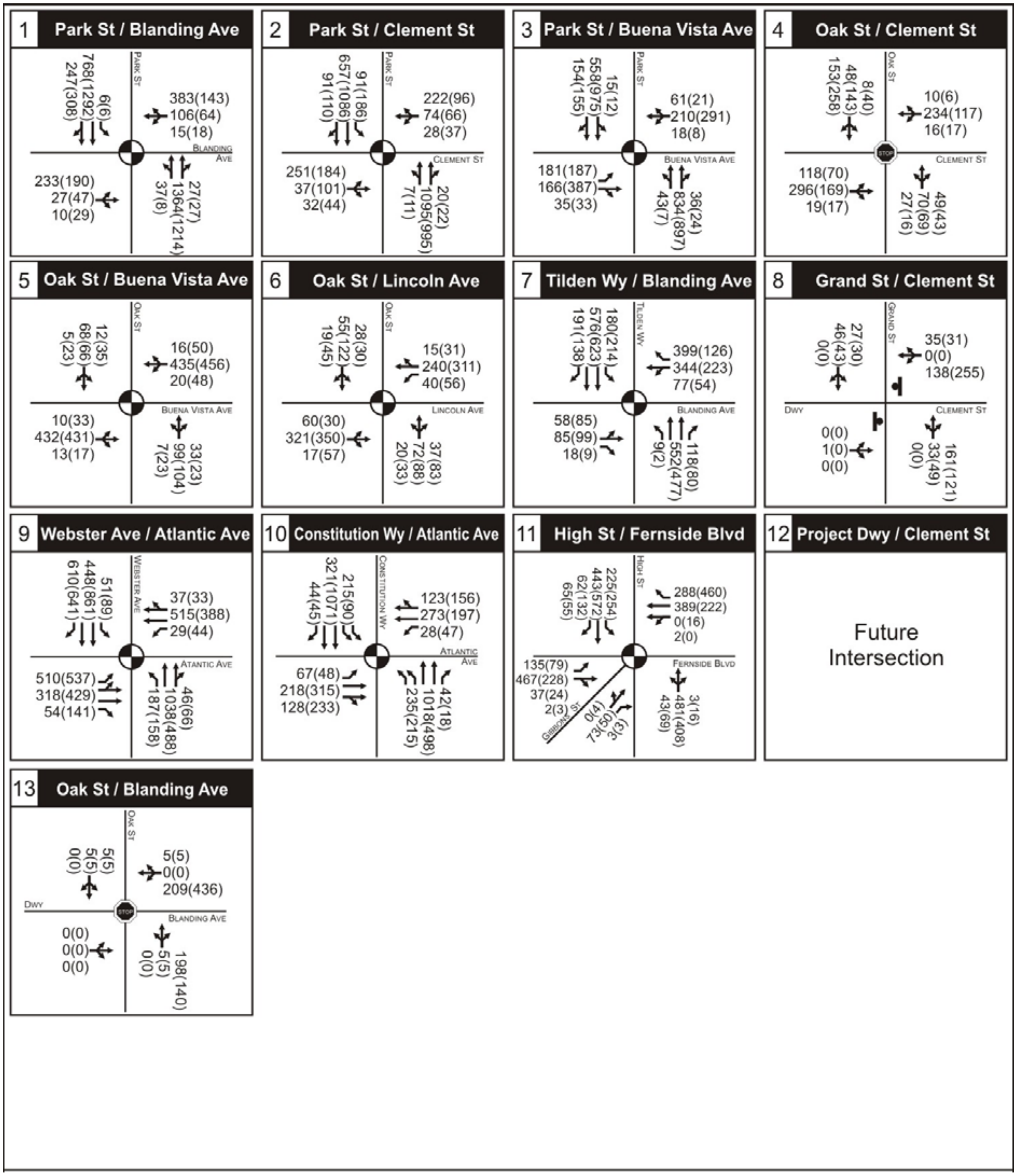
- **Grand Marina** – The project consists of 40 Single-Family units. Trip distribution assumptions were obtained from the project's Initial Study / Mitigated Negative Declaration, April 2006.
- **Del Monte Rehabilitation –** The project description and trip assignment were obtained from the *Alameda Northern Waterfront General Plan Amendment EIR*, approved 2008. The Del Monte project trip generation was compared to the Northern Waterfront project trip generation. Based on this comparison, trips from the Del Monte project were obtained by applying a factor of 30 percent to the trips from the Northern Waterfront project.
- **Alameda Landing –** The trip assignment for this mixed-use development was obtained from the project's Supplemental EIR, certified May 2006.
- **Alameda Town Center Expansion –** The trip assignment for this 100,000 square-foot retail expansion project was obtained from the project's EIR, approved May 2008.
- **Perforce Expansion –** This project consists of 110,000 square feet of office space and is located at the northeast corner of the intersection of Oak Street and Blanding Avenue. Because the Perforce Expansion project is located in the vicinity of the proposed Boatworks Residential Project, it was assumed that the trip distribution for this project is similar to the trip distribution presented on page 4.B-17 below.

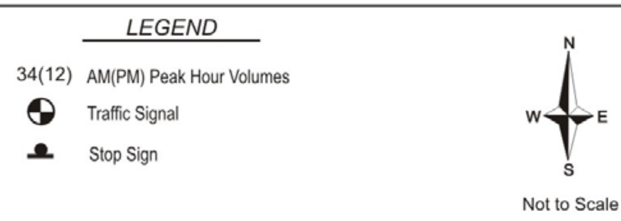
The 2013 Baseline volumes were derived by applying a growth factor of 1.5 percent (i.e., 0.25 percent per year from 2007 to 2013) to the existing counts. The trips from the above-described approved projects were then added to these factored counts to obtain the 2013 Baseline volumes. Some of the study intersections were not included in the study areas for the approved projects, and in those cases, the approved project volumes at these study intersections were derived using arriving and departing volumes from adjacent intersections. **Figure 4.B-3** shows the Baseline peak-hour volumes at the study intersections.

Baseline Plus Project Conditions

Project Vehicle Trip Generation

Project trip generation was estimated on the basis of information published by the Institute of Transportation Engineers (ITE, 2008). The proposed project consists of duplexes and detached houses. While this suggests using trip generation for multi-family residential units, it is believed that the trip-making characteristics of the project would be more conservatively estimated using the single-family detached data from ITE. **Table 4.B-3** shows the trip generation rates and vehicle trips for the proposed project. The project would generate about 2,316 daily trips, of which about 182 and 245 trips would occur during the a.m. and p.m. peak hours, respectively.





SOURCE: Dowling Associates, Inc

Boatworks Residential Project . 208559

Figure 4.B-3
Baseline (2010) Peak-Hour Volumes

TABLE 4.B-3
VEHICLE TRIP GENERATION FOR PROPOSED PROJECT[a]

Land Use	Size [b]	Daily	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
Proposed Project	242 du							
• *Trip Rates*		*9.57*	*0.75*	*25%*	*75%*	*1.01*	*63%*	*37%*
• Vehicle Trips		2,316	182	46	136	245	155	90

[a] The proposed project consists of a 50/50 split of duplexes and detached homes. While this suggests using trip generation for multi-family residential units, it is believed that the trip-making characteristics of the project would be more accurately estimated using trip rates for single family detached houses, which also provides a degree of conservatism to the analysis.
[b] DU = Dwelling units

SOURCE: Dowling Associates, Inc., using data from ITE, *Trip Generation*, 8th Edition, 2008

Project Vehicle Trip Distribution and Assignment

The trip distribution percentages were derived from the Alameda citywide model that was developed and used for the General Plan Amendment (GPA) for the Transportation Element:

- Park Street Bridge: 56%
- Fruitvale Avenue Bridge: 10%
- Park Street South: 13%
- Webster/Posey Tubes (north): 3%
- Alameda Point Area (west of Webster Avenue): 4%
- Webster Street (south of Buena Vista Avenue): 14%

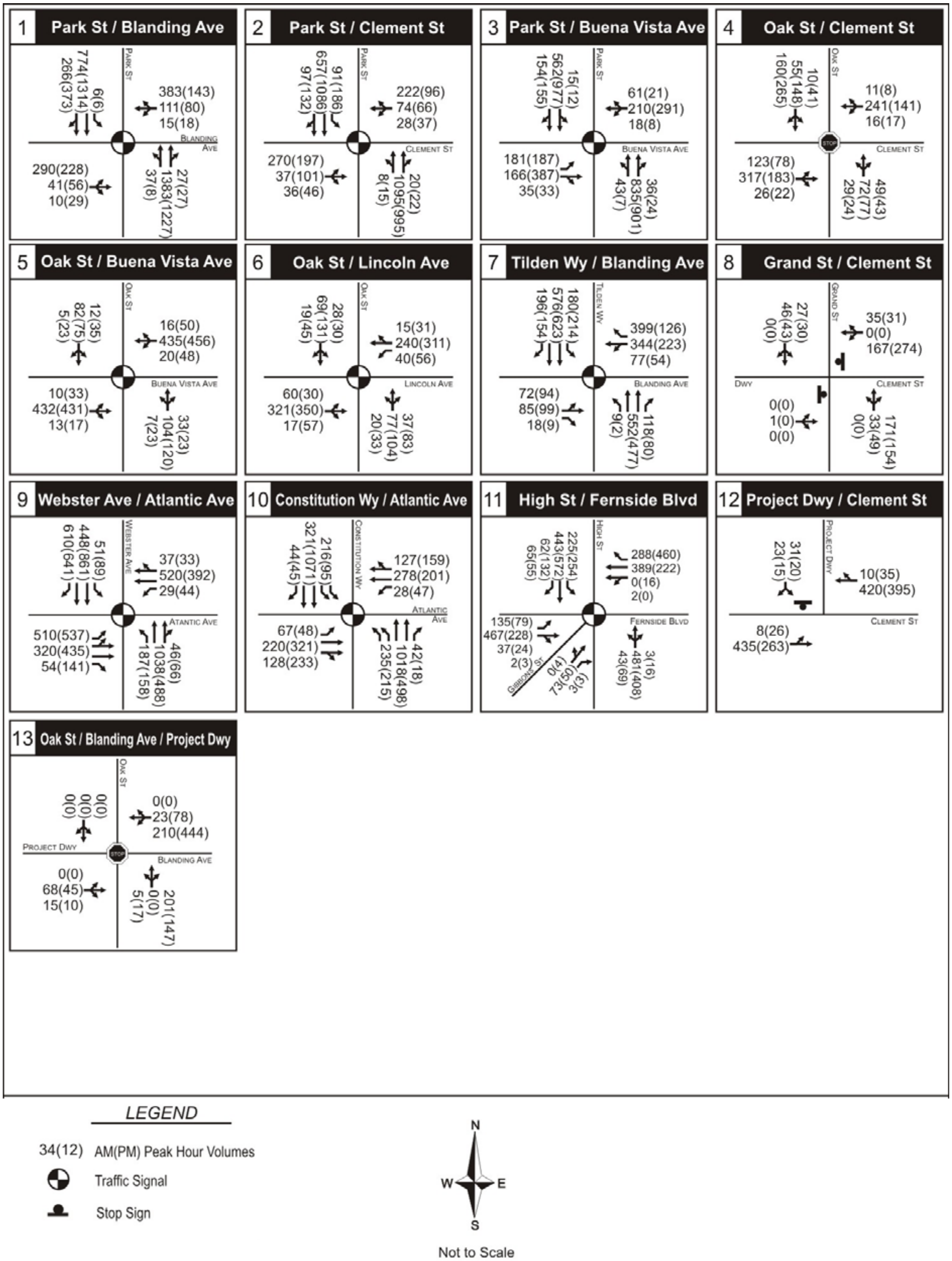
Trips were assigned to the roadway network based on logical paths to and from the various areas. **Figure 4.B-4** shows the Baseline plus project peak-hour volumes at the study intersections.

Multimodal Analysis

Because traffic operations at key intersections do not fully cover the effects of new development on transportation, a multimodal analysis covering the effects on pedestrians, bicyclists, and transit service was conducted.

Because of the flat terrain of Alameda, the bicycle and pedestrian travel modes are particularly feasible for able-bodied travelers. The Park Street and Miller-Sweeney Bridges provide good connections for cyclists traveling to Oakland and/or to the Fruitvale BART station. The nearby AC Transit routes offer reasonable travel opportunities for future residents of the proposed project. Sidewalks should be provided along the project frontages along Oak Street and Clement Avenue to improve pedestrian access and circulation in the vicinity of the project.

Procedures for prioritizing improvements to different (potentially competing) modes of travel were recommended to the City’s Transportation Commission in April 2009. 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



SOURCE: Dowling Associates, Inc

Boatworks Residential Project . 208559

Figure 4.B-4
Baseline (2010) Plus Project Peak-Hour Volumes

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

LOS	Pedestrian Delay
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

Impact 4.B-1: Operation of the proposed project would increase pedestrian traffic in the project area. (Less than Significant)

Table 4.B-5 shows the existing pedestrian delay and LOS conditions at signalized study intersections. The pedestrian crosswalks currently operate at an acceptable LOS B or better during both the a.m. and p.m. peak hours at six of the nine signalized study intersections. All of the crosswalks at the intersections of Atlantic Avenue / Webster Street and Atlantic Avenue / Constitution Way operate at an unacceptable LOS C or worse during both the a.m. and p.m. peak hours. The east crosswalk (carrying north-south pedestrian flow) across Fernside Boulevard at High Street operates at an unacceptable LOS C during the a.m. peak hour, and the north crosswalk (carrying east-west pedestrian flow) across High Street at Fernside Boulevard operates at an unacceptable LOS C during the p.m. peak hour.

The proposed project would increase vehicular and pedestrian traffic in the project area, but would not change the signal phasing and timing configurations at area intersections. As shown in

TABLE 4.B-5
EXISTING PEDESTRIAN LEVEL OF SERVICE (LOS) AND DELAY (seconds/person) BY CROSSWALK

No.	Intersection	Peak Hour	South[a]		North[a]		East[a]		West[a]	
			LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
#1	Park Street and Blanding Avenue	AM PM	B B	16 16	B B	16 16	A A	8 8	A A	8 8
#2	Park Street and Clement Avenue	AM PM	B B	15 16	B B	15 16	B B	10 10	A A	6 5
#3	Park Street and Buena Vista Avenue	AM PM	B B	12 12	B B	12 12	A A	8 8	A A	8 8
#5	Oak Street and Buena Vista Avenue	AM PM	A A	4 4	A A	4 4	B B	17 17	B B	17 17
#6	Oak Street and Lincoln Avenue	AM PM	A A	6 6	A A	6 6	B B	14 14	B B	14 14
#7	Tilden Way and Blanding Avenue	AM PM	B B	11 13	B B	11 13	B B	12 10	A A	7 5
#9	Atlantic Avenue and Webster Avenue	AM PM	D D	32 33	D D	36 39	C C	24 24	C C	29 26
#10	Atlantic Avenue and Constitution Way	AM PM	C C	30 27	C C	27 25	C C	24 22	C C	21 21
#11	High Street and Fernside Boulevard	AM PM	A A	6 6	B C	20 22	B B	22 16	B A	13 7

[a] The crosswalk name signifies its location relative the intersection (e.g., the South Crosswalk is located on the south side of the intersection, and is used by pedestrians crossing eastbound or westbound).

SOURCE: Dowling Associates, Inc. 2009

Table 4.B-6, the pedestrian delay and LOS conditions at signalized study intersections would remain the same under baseline and baseline-plus-project conditions, and the project would have a less-than-significant pedestrian impact.

The project would not cause a marked or unmarked crosswalk to be removed, and would add a sidewalk on the western side of Oak Street from Clement Avenue to the Estuary, and would provide pedestrian access along the waterfront where none currently exists.

Mitigation: None required.

Bicycle Travel

The Florida Department of Transportation (DOT) method for computing bicycle levels of service was used to calculate the LOS for the following three segments (FDOT, 2002).

- Clement Avenue between Grand Avenue and Park Street
- Oak Street between Blanding Avenue and Buena Vista Avenue
- Blanding Avenue between Oak Street and Park Street

TABLE 4.B-6
BASELINE AND BASE PLUS PROJECT PEDESTRIAN LEVELS OF SERVICE (LOS) BY CROSSWALK

		AM Peak Hour				PM Peak Hour			
		Baseline		Base Plus Project		Baseline		Base Plus Project	
Intersection	Crosswalk[a]	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Park St. and Blanding Ave.	South	22	C	22	C	16	B	16	B
	North	22	C	22	C	16	B	16	B
	East	17	B	17	B	8	A	8	A
	West	17	B	17	B	8	A	8	A
Park St. and Clement Ave.	South	15	B	15	B	15	B	15	B
	North	15	B	15	B	15	B	15	B
	East	10	B	10	B	11	B	11	B
	West	6	A	6	A	5	A	5	A
Park St. and Buena Vista Ave.	South	12	B	12	B	12	B	12	B
	North	12	B	12	B	12	B	12	B
	East	8	A	8	A	8	A	8	A
	West	8	A	8	A	8	A	8	A
Oak St. and Buena Vista Ave.	South	4	A	4	A	4	A	4	A
	North	4	A	4	A	4	A	4	A
	East	17	B	17	B	17	B	17	B
	West	17	B	17	B	17	B	17	B
Oak St. and Lincoln Ave.	South	6	A	6	A	6	A	6	A
	North	6	A	6	A	6	A	6	A
	East	14	B	14	B	14	B	14	B
	West	14	B	14	B	14	B	14	B
Tilden Way and Blanding Ave.	South	11	B	11	B	13	B	13	B
	North	11	B	11	B	13	B	13	B
	East	13	B	13	B	10	B	10	B
	West	8	A	8	A	5	A	5	A
Atlantic Ave. and Webster Ave.	South	37	D	37	D	34	D	34	D
	North	41	E	41	E	43	E	43	E
	East	22	C	22	C	29	C	29	C
	West	30	C	30	C	30	C	30	C
Atlantic Ave. and Constitution Way	South	31	D	31	D	32	D	32	D
	North	33	D	33	D	36	D	36	D
	East	26	C	26	C	26	C	26	C
	West	25	C	25	C	23	C	23	C
High St. and Fernside Blvd.	South	6	A	6	A	6	A	6	A
	North	22	C	22	C	22	C	22	C
	East	19	B	19	B	16	B	16	B
	West	11	B	11	B	8	A	8	A

[a] The crosswalk name signifies its location relative the intersection (e.g., the South Crosswalk is located on the south side of the intersection, and is used by pedestrians crossing eastbound or westbound).

SOURCE: Dowling Associates, Inc., 2009.

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.B-7**), 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.B-7
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, *2002 Quality/Level of Service Handbook*, 2002

Impact 4.B-2: The addition of project-generated traffic would affect bicycle level of service on area road segments. (Less than Significant)

As shown in **Table 4.B-8**, changes to bicycle score caused by addition of project-generated traffic would be less than the 10-percent threshold of significance. Thus, the project would have a less-than-significant affect on bicycle level of service.

Mitigation: None required.

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 two transit corridors (TRB, 2000).

- Park Street between Blanding Avenue and Buena Vista Avenue
- Buena Vista Avenue between Grand Street and Tilden Way

TABLE 4.B-8
BASELINE AND BASE PLUS PROJECT BICYCLE LEVEL OF SERVICE (LOS)

Scenario	Corridor	AM Peak Hour		PM Peak Hour	
		LOS	Score	LOS	Score
Existing	Clement Avenue: Grand Street – Park Street	D	3.9	D	3.8
	Oak Street: Blanding Avenue – Buena Vista Avenue	C	3.3	D	3.6
	Blanding Avenue: Oak Street – Park Street	D	3.7	D	3.7
Baseline	Clement Avenue: Grand Street – Park Street	D	4.0	D	3.8
	Oak Street: Blanding Avenue – Buena Vista Avenue	C	3.4	D	3.6
	Blanding Avenue: Oak Street – Park Street	D	3.7	D	3.8
Baseline Plus Project	Clement Avenue: Grand Street – Park Street	D	4.0	D	3.8
	Oak Street: Blanding Avenue – Buena Vista Avenue	C	3.4	D	3.7
	Blanding Avenue: Oak Street – Park Street	D	3.8	D	3.9

SOURCE: Dowling Associates, Inc.

Table 4.B-9 shows the results of the transit level of service analysis. All but one change to travel speeds caused by addition of project-generated traffic would be less than the 10-percent threshold of significance.

TABLE 4.B-9
BASELINE AND BASE PLUS PROJECT TRANSIT LEVEL OF SERVICE (LOS)

Scenario	Corridor	Direction	AM Peak Hour		PM Peak Hour	
			LOS	Arterial Speed	LOS	Arterial Speed
Existing	Park Street: Blanding Ave. – Buena Vista Ave.	NB SB	D C	9.5 14.2	D D	11.0 12.6
	Buena Vista Ave: Grand St. – Tilden Way	EB WB	C C	18.7 18.4	C B	18.7 19.3
Baseline	Park Street: Blanding Ave. – Buena Vista Ave.	NB SB	F C	4.7 14.8	E C	8.7 15.6
	Buena Vista Ave: Grand St. – Tilden Way	EB WB	C C	18.6 17.8	C B	18.6 19.0
Baseline Plus Project	Park Street: Blanding Ave. – Buena Vista Ave.	NB SB	F C	4.4 14.7	***E*** C	***7.5*** 15.7
	Buena Vista Ave: Grand St. – Tilden Way	EB WB	C C	18.6 17.8	C B	18.6 19.0

Bold signifies significant impacts

SOURCE: Dowling Associates, Inc.

Impact 4.B-3: The addition of project-generated traffic would cause the p.m. peak-hour arterial speed on northbound Park Street between Buena Vista Avenue and Blanding Avenue to degrade by about 1.2 mph, a 14 percent decrease, from Baseline conditions. (Significant)

Mitigation Measure 4.B-3a (TDM): Prior to project occupancy, the project applicant shall put into place a City-approved Transportation Demand Management program with the goal of reducing the number of peak hour trips by 10 percent. This will include the following measures:

- Establish a Boatworks Home Owners Association (HOA) and CCRs for the project;
- Assess the HOA an annual fee in an amount necessary to provide the following on-going programs:
  - EasyPass program (unlimited transit pass, usable on AC Transit buses), two passes per unit, additional passes per unit for residents may be purchased at cost;
  - Bicycle facilities in each unit;
  - One car-share membership per residential unit; and
  - Provide annual funding for transportation coordination services including, but not limited to, promotional information packages and planning services regarding available transportation options, and annual monitoring reports to City regarding effectiveness of programs and recommended enhancements to meet 10% reduction goal.

Mitigation Measure 4.B-3b: Where feasible, restripe the Park Street intersection approaches between Buena Vista Avenue and Blanding Avenue to provide transit queue jump lanes during the p.m. peak period (southbound) and a.m. peak period (northbound). Regardless of the feasibility of queue jump lanes, modify the traffic signals, controllers, signage, and signal timing at the Park Street intersections at Blanding, Clement, and Buena Vista Avenues to allow for transit signal priority to improve transit flow. Restriping would require the prohibition of on-street parking on the northbound side of the street during the a.m. peak period, and on the southbound side during the p.m. peak period to accommodate the transit queue jump lanes.

Implementation of Mitigation Measure 4.B-3b would increase peak-hour arterial speed on Park Street, mitigating the project transit impact. Implementation of this measure would have a less-than-significant secondary impact on bicycle travel LOS, but would have a significant secondary impact on pedestrian travel LOS on the south and north crosswalks (carrying east-west pedestrian flow) across Park Street at the intersections of Blanding, Clement, and Buena Vista Avenues. However, as discussed above, procedures for prioritizing improvements to the different (potentially competing) travel modes were recommended to the City's Transportation Commission, and for Park Street (Regional Arterial), the modal preference would be in the following order: transit, pedestrians, bicycles and automobiles. Because Mitigation Measure 4.B-3b would mitigate the highest priority mode (transit), its implementation would outrank the pedestrian travel mode, and therefore the transit impact would be mitigated to a less-than-significant level, and the secondary pedestrian impact would be significant and unavoidable. The proposed signal timing and transit priority signals would also increase congestion for automobiles traveling on the cross streets.

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.

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

Vehicular Travel

As shown in **Table 4.B-10**, all except one of the study intersections would operate at acceptable levels of service during both the a.m. and p.m. peak hours. The peak-hour service levels at the Park Street / Blanding Avenue intersection would worsen significantly with the addition of project-generated traffic (as described below). LOS calculation reports are provided in **Appendix D**.

Impact 4.B-4: The addition of project-generated traffic would cause level of service at the signalized intersection of Park Street and Blanding Avenue (#1) to degrade from LOS E to LOS F during the a.m. peak hour, and from LOS D to LOS E during the p.m. peak hour. (Significant)

> **Mitigation Measure 4.B-4:** The project applicant shall provide full funding to restripe the Blanding Avenue approaches (eastbound and westbound) at Park Street to provide left turn pockets, modify the traffic signal to be fully actuated, provide protected left-turn phasing, modify the traffic control at the private driveway of the Waters Edge Nursing Home to stop-sign control, include audible pedestrian push buttons and pedestrian count down heads, and optimize the signal timing to improve the flow of traffic without causing a significant impact to pedestrian or transit level of service. The restriping would require the removal of 12 on-street parking spaces.

Implementation of Mitigation Measure 4.B-4 would improve vehicular operating conditions at the intersection of Park Street and Blanding Avenue by reducing average delay at the intersection by about 28 percent in the a.m. peak hour and by about 45 percent in the p.m. peak hour (improving the service level in each case from LOS F to LOS E). However, as discussed above, procedures for prioritizing improvements to the different (potentially competing) travel modes were recommended by the City's Transportation Commission, and for Park Street (Regional Arterial), the modal preference would be in the following order: transit, pedestrians, bicycles and automobiles. Therefore, the suitability of implementing Mitigation Measure 4.B-4 was judged in the context of impacts to travel modes ranked higher than automobiles.

TABLE 4.B-10
BASELINE AND BASE PLUS PROJECT PEAK-HOUR INTERSECTION LEVELS OF SERVICE (LOS)

Intersection	Traffic Control	AM Peak Hour				PM Peak Hour			
		Baseline		Base Plus Project		Baseline		Base Plus Project	
		Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS
1. Park Street and Blanding Avenue	Signal	70.4	E	***91.8***	***F***	35.1	D	***56.7***	***E***
2. Park Street and Clement Avenue	Signal	42.2	D	49.6	D	17.6	B	18.1	B
3. Park Street and Buena Vista Avenue	Signal	9.2	A	9.3	B	11.2	B	11.2	B
4. Oak Street and Clement Avenue	AWSC	17.9	C	22.0	C	15.4	C	18.4	C
5. Oak Street and Buena Vista Avenue	Signal	8.3	A	8.5	A	9.6	A	10.1	B
6. Oak Street and Lincoln Avenue	Signal	10.9	B	10.9	B	9.1	A	9.4	A
7. Tilden Way and Blanding Avenue	Signal	15.4	B	15.4	B	12.4	B	12.5	B
8. Grand Street and Clement Avenue	SSSC	11.5	B	12.0	B	13.5	B	14.5	B
9. Atlantic Avenue and Webster Avenue	Signal	52.2	D	52.5	D	47.3	D	47.5	D
10. Atlantic Avenue and Constitution Way	Signal	48.8	D	49.3	D	41.2	D	41.4	D
11. High Street and Fernside Boulevard	Signal	42.0	D	42.0	D	25.2	C	25.2	D
12. Clement Avenue and Project Access	SSSC	N/A	N/A	16.6	C	N/A	N/A	14.2	B
13. Oak Street – Blanding Avenue and Project Access	SSSC	N/A	N/A	13.3	B	N/A	N/A	16.5	C

[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.

Bold signifies significant impacts

SOURCE: Dowling Associates, Inc., 2009.

As described above, Mitigation Measure 4.B-4 is recommended to mitigate impacts to the vehicular transportation mode. To reduce delays to pedestrians or transit, in accordance with the Transportation Commission's priority order for thresholds of significance, the mitigation also proposes to modify the traffic control at the private driveway of the Waters Edge Nursing Home. While the transportation impacts for all transportation modes at the intersection of Park Street and Blanding Avenue would be lessened (in priority order), they might not all be reduced to a less-than-significant level. Transportation Policy 4.4.2.g recognizes this possibility and states "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."

Vehicular Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Automobile Mitigation: Less than Significant

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

Transit Travel Secondary Impact after Automobile Mitigation Less than Significant.

Project Construction Impacts

Impact 4.B-5: The construction of the proposed project would generate temporary increases in traffic volumes on area roadways. (Potentially 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.B-5: The project applicant 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.

Access and Circulation

Access to and from the proposed project would be located at two intersections, one new and one modified. The new intersection would be on Clement Avenue about halfway between Oak Street and Elm Street. Traffic leaving the project site at this intersection would be controlled by a stop sign; traffic on Clement Avenue would be uncontrolled. The modified intersection would be at the existing intersection of Oak Street and Blanding Avenue. This “intersection” is essentially a right angle turn on a continuous roadway, with a driveway that serves the back of a commercial center aligned with Oak Street. Under project conditions, the project access driveway would form a fourth leg of the intersection, and it is assumed that traffic leaving the project site at this intersection would be controlled by a stop signs; traffic on Oak Street would be uncontrolled.

Providing two access points is a favorable access configuration because it provides route alternatives for users. Based on the assignment of project vehicle trips, neither access point would experience a high enough traffic volume during peak periods to require an additional access point.

Based on the preliminary layout of the proposed project, no significant impacts are evident with respect to the onsite circulation. Using truck and bus turning templates, it appears that large vehicles would be able to maneuver sufficiently within the site, although by using the full widths of the circulation roadways as is typical for a development of this size. The detailed plans that are provided during later phases of project development will be reviewed for compatibility with large vehicles.

Cumulative Impacts (Year 2030)

Traffic Forecasts and Assumptions

This scenario is often called the “cumulative” scenario, as it is intended to incorporate all reasonably foreseeable future growth, even if specific projects are not known at this time. Cumulative scenario forecasts (and specifically cumulative volumes at the study intersections) were obtained from the 2030 Cumulative City of Alameda travel demand model developed during the update of the Transportation Element. The cumulative volumes at the unsignalized study intersections (not analyzed in the GPA work) were estimated using a combination of volumes obtained from the adjacent signalized intersections and the link volume model forecasts from the GPA work. For the Cumulative conditions analysis without and with the project, it is assumed that Clement Avenue will be extended from Grand Street to the intersection of Sherman Street / Atlantic Avenue, and from Broadway to Tilden Way. **Figures 4.B-5** and **4.B-6** show the Cumulative Baseline (2030) and the Cumulative Baseline Plus Project peak-hour volumes at the study intersections, respectively.

Multimodal Analysis

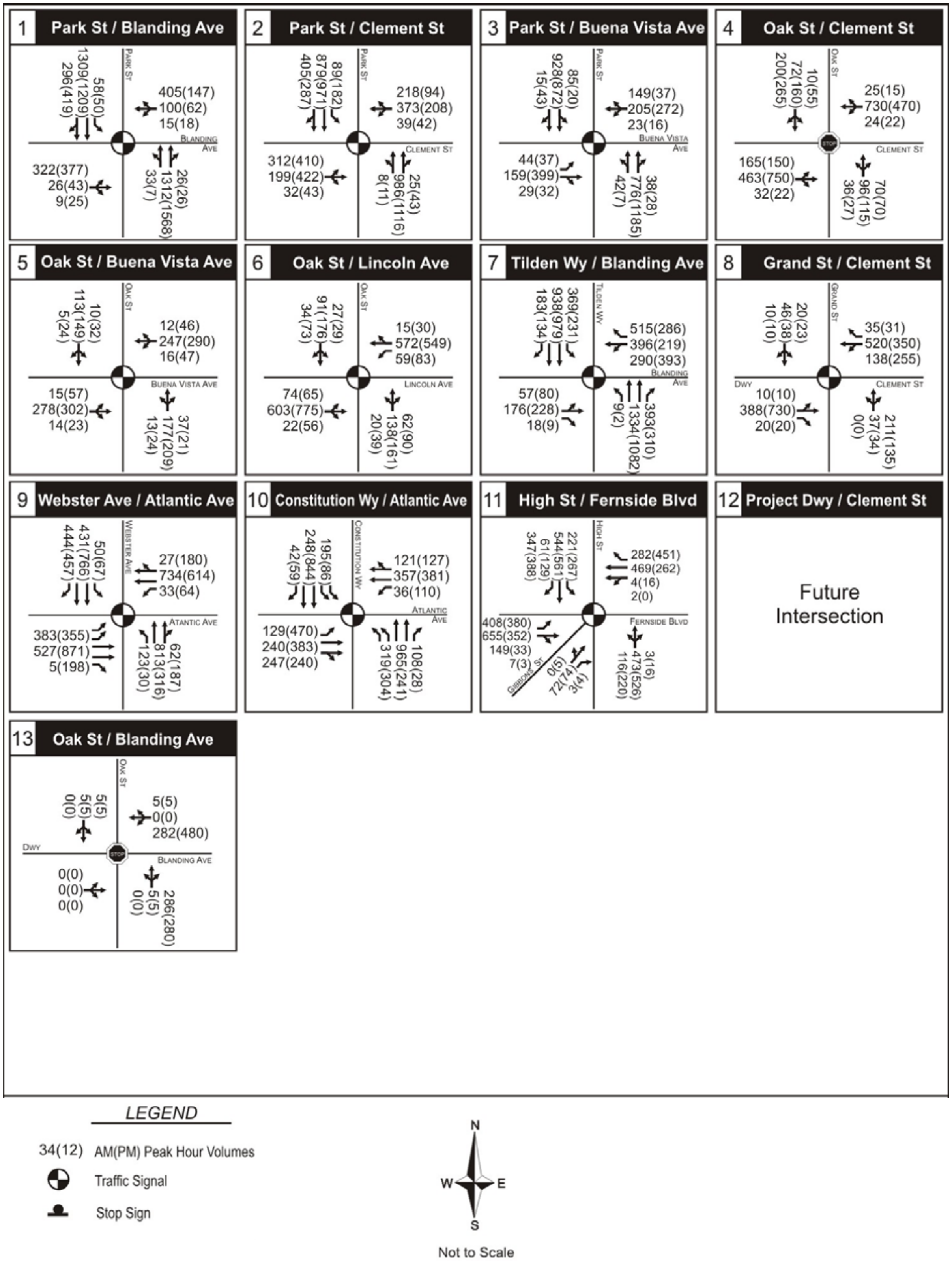
As described above, traffic operations at key intersections do not fully cover the effects of new development on transportation. The following discussion presents multimodal analyses of the cumulative effects on transit service, bicyclists, and pedestrians.

Pedestrian Travel

The same analysis method described on page 4.B-19 for Baseline conditions was used for cumulative analysis of the signalized study intersections. **Table 4.B-11** shows the Cumulative (2030) Baseline and Base Plus Project pedestrian delay and LOS conditions.

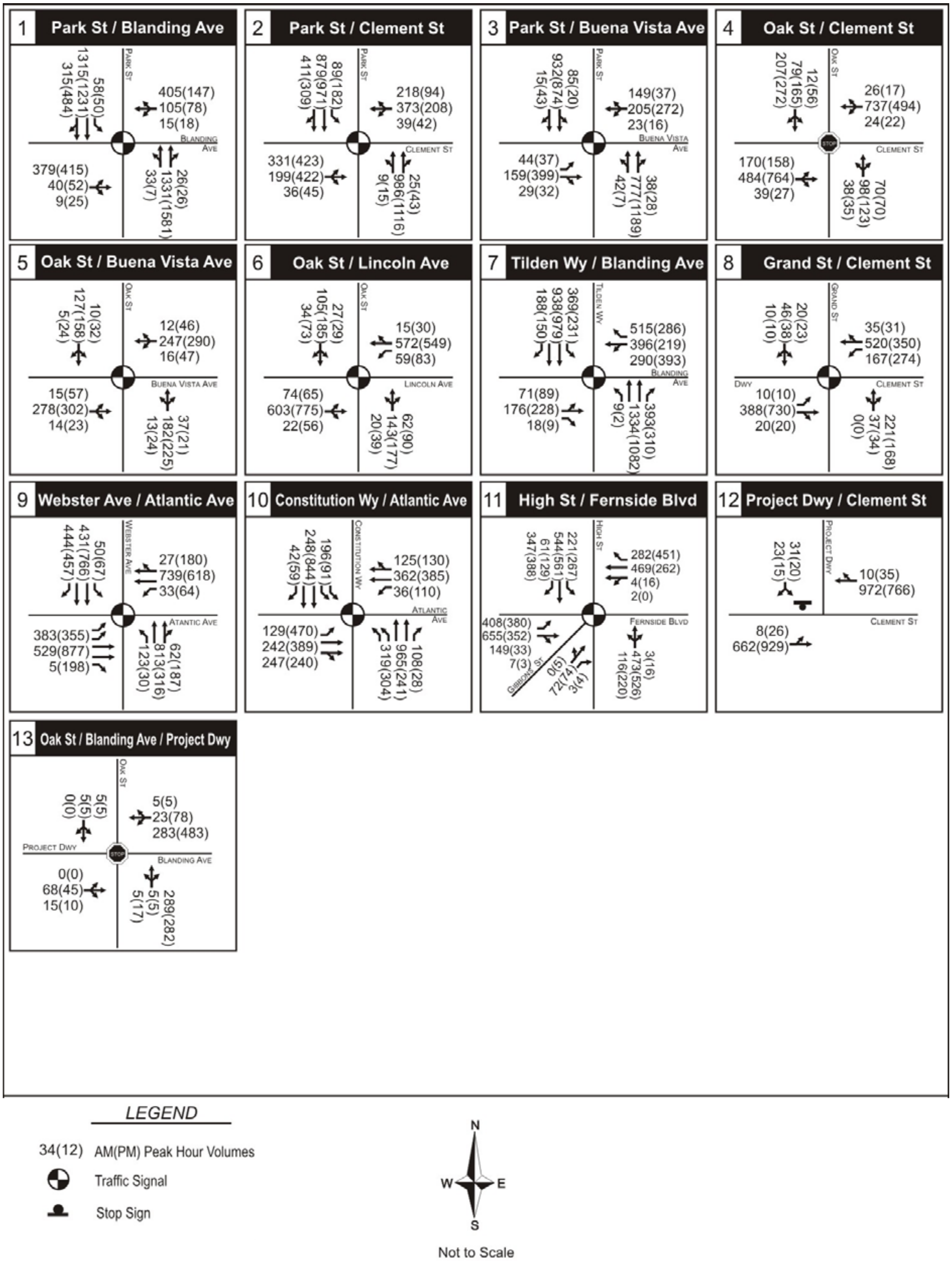
Impact 4.B-6: Operation of the proposed project would contribute to increased pedestrian traffic in the project area under cumulative conditions. (Less than Significant)

The pedestrian crosswalks are projected to operate at an acceptable LOS B or better during both the a.m. and p.m. peak hours at three of the nine signalized study intersections under Cumulative Baseline conditions. All of the crosswalks at the intersections of Atlantic Avenue / Webster Street and Atlantic Avenue / Constitution Way would operate at an unacceptable LOS C or worse during both the a.m. and p.m. peak hours. The crosswalks at the other four signalized study intersections generally would operate at an acceptable LOS B during both the a.m. and p.m. peak hours, but individual crosswalks would operate at an unacceptable LOS C or worse. The proposed project would increase pedestrian traffic in the project area, but would not change the signal phasing and timing configurations at area intersections. As shown in Table 4.B-11, the pedestrian



SOURCE: Dowling Associates, Inc

Figure 4.B-5
Cumulative Baseline (2030) Peak-Hour Volumes



SOURCE: Dowling Associates, Inc

Figure 4.B-6
Cumulative Baseline (2030) Plus Project Peak-Hour Volumes

TABLE 4.B-11
CUMULATIVE (2030) BASE PLUS PROJECT PEDESTRIAN LEVELS OF SERVICE (LOS) BY CROSSWALK

		AM Peak Hour				PM Peak Hour			
		Cumulative (2030) Baseline		Cumulative Base Plus Project		Cumulative (2030) Baseline		Cumulative Base Plus Project	
Intersection	**Crosswalk**[a]	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
Park St. and Blanding Ave.	South	21	C	21	C	23	C	23	C
	North	21	C	21	C	23	C	23	C
	East	18	B	18	B	16	B	16	B
	West	18	B	18	B	16	B	16	B
Park St. and Clement Ave.	South	14	B	14	B	15	B	15	B
	North	14	B	14	B	15	B	15	B
	East	26	C	26	C	27	C	27	C
	West	20	B	20	B	20	B	20	B
Park St. and Buena Vista Ave.	South	12	B	12	B	12	B	12	B
	North	12	B	12	B	12	B	12	B
	East	8	A	8	A	8	A	8	A
	West	8	A	8	A	8	A	8	A
Oak St. and Buena Vista Ave.	South	4	A	4	A	4	A	4	A
	North	4	A	4	A	4	A	4	A
	East	17	B	17	B	17	B	17	B
	West	17	B	17	B	17	B	17	B
Oak St. and Lincoln Ave.	South	6	A	6	A	6	A	6	A
	North	6	A	6	A	6	A	6	A
	East	14	B	14	B	14	B	14	B
	West	14	B	14	B	14	B	14	B
Tilden Way and Blanding Ave.	South	18	B	18	B	11	B	11	B
	North	18	B	18	B	11	B	11	B
	East	27	C	27	C	20	B	20	B
	West	15	B	15	B	14	B	14	B
Atlantic Ave. and Webster Ave.	South	26	C	26	C	23	C	23	C
	North	29	C	29	C	25	C	25	C
	East	27	C	27	C	31	D	31	D
	West	34	D	34	D	29	C	29	C
Atlantic Ave. and Constitution Way	South	31	D	31	D	29	C	29	C
	North	33	D	33	D	37	D	37	D
	East	24	C	24	C	27	C	27	C
	West	27	C	27	C	31	D	31	D
High St. and Fernside Blvd.	South	6	A	6	A	4	A	4	A
	North	19	B	19	B	31	D	31	D
	East	23	C	23	C	17	B	17	B
	West	13	B	13	B	11	B	11	D

[a] The crosswalk name signifies its location relative the intersection (e.g., the South Crosswalk is located on the south side of the intersection, and is used by pedestrians crossing eastbound or westbound).

SOURCE: Dowling Associates, Inc., 2009.

delay and LOS conditions at signalized study intersections would remain the same under Cumulative Base Plus Project conditions as under Cumulative Baseline conditions, and the project would have a less-than-significant cumulative pedestrian impact. In addition, the project would not cause a marked or unmarked crosswalk to be removed. To ensure pedestrian facilities are provided consistent with the Pedestrian Plan, all sidewalks shall be five feet wide without reducing existing curb-to-curb width of Clement Avenue and providing 36-foot curb-to-curb width for Oak Street.

Mitigation: None required.

Bicycle Travel

The same analysis method described on page 4.B-20 for Baseline conditions was used for cumulative analysis of the same three segments.

Impact 4.B-7: The addition of project-generated traffic would contribute to cumulative effects on bicycle level of service on area road segments. (Less than Significant)

As shown in **Table 4.B-12**, changes to bicycle score caused by the addition of project-generated traffic under cumulative conditions would be less than the 10-percent threshold of significance. To ensure bicycle facilities can be provided consistent with the Bicycle Plan, Oak Street shall be maintained with a 36-foot curb-to-curb width

Mitigation: None required.

Transit Travel

The same analysis method described on page 4.B-12 for Baseline conditions was used for cumulative analysis of project impacts on transit travel. **Table 4.B-13** shows the results of the transit level of service analysis. All but one change to travel speeds caused by the addition of project-generated traffic would be less than the 10-percent threshold of significance.

Impact 4.B-8: The addition of project-generated traffic would cause the p.m. peak-hour arterial speed on northbound Park Street between Buena Vista Avenue and Blanding Avenue to degrade by about 0.3 mph, which is a 14 percent decrease from Cumulative Baseline conditions. (Significant)

> **Mitigation Measure 4.B-8a:** Implement Mitigation Measure 4.B-3a (TDM)
>
> **Mitigation Measure 4.B-8b:** Implement Mitigation Measure 4.B-3b (restripe Park Street between Buena Vista and Blanding Avenues to accommodate transit queue jump lanes, and modify the traffic signals and signal timing at the Park Street intersections at Blanding, Clement, and Buena Vista Avenues).

TABLE 4.B-12
CUMULATIVE (2030) BASE PLUS PROJECT BICYCLE LEVEL OF SERVICE (LOS)

Scenario	Corridor	AM Peak Hour		PM Peak Hour	
		LOS	Score	LOS	Score
Existing	Clement Avenue: Grand Street – Park Street	D	3.9	D	3.8
	Oak Street: Blanding Avenue – Buena Vista Avenue	C	3.3	D	3.6
	Blanding Avenue: Oak Street – Park Street	D	3.7	D	3.7
Cumulative (2030)	Clement Avenue: Grand Street – Park Street	D	4.1	D	4.2
	Oak Street: Blanding Avenue – Buena Vista Avenue	D	3.6	D	3.7
	Blanding Avenue: Oak Street – Park Street	D	3.8	D	3.8
Cumulative (2030) Plus Project	Clement Avenue: Grand Street – Park Street	D	4.2	D	4.2
	Oak Street: Blanding Avenue – Buena Vista Avenue	D	3.6	D	3.8
	Blanding Avenue: Oak Street – Park Street	D	3.8	D	3.9

SOURCE: Dowling Associates, Inc.

TABLE 4.B-13
CUMULATIVE (2030) BASE PLUS PROJECT TRANSIT LEVEL OF SERVICE (LOS)

Scenario	Corridor	Direction	AM Peak Hour		PM Peak Hour	
			LOS	Arterial Speed	LOS	Arterial Speed
Existing	Park Street: Blanding Ave. – Buena Vista Ave.	NB	D	9.5	D	11.0
		SB	C	14.2	D	12.6
	Buena Vista Ave: Grand St. – Tilden Way	EB	C	18.7	C	18.7
		WB	C	18.4	B	19.3
Cumulative (2030)	Park Street: Blanding Ave. – Buena Vista Ave.	NB	F	1.7	F	2.2
		SB	D	9.5	E	7.7
	Buena Vista Ave: Grand St. – Tilden Way	EB	C	18.3	C	18.4
		WB	C	18.8	B	19.4
Cumulative (2030) Plus Project	Park Street: Blanding Ave. – Buena Vista Ave.	NB	F	1.7	***F***	***1.9***
		SB	D	9.4	E	7.6
	Buena Vista Ave: Grand St. – Tilden Way	EB	C	18.3	C	18.4
		WB	C	18.8	B	19.4

Bold signifies significant impacts

SOURCE: Dowling Associates, Inc.

As described under Impact 4-B-3b, this mitigation measure would result in the following impacts:

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.

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

Vehicular Travel

As shown in **Table 4.B-14**, six of the 13 study intersections would operate at unacceptable levels of service during both the a.m. and p.m. peak hours as a result of assumed local and regional growth over the next 20 years. The peak-hour service levels at the intersections of Park Street / Blanding Avenue, Park Street / Clement Avenue, and Oak Street / Clement Avenue would worsen significantly with the addition of project-generated traffic (as described in Impact statements 4.B-9 through 4.B-11).

Also, the stop-controlled side-street approach at the unsignalized Clement Avenue / Project Access intersection (created as part of the project) would operate unacceptably (as described in Impact statement 4.B-12). The signalized intersection of High Street / Fernside Boulevard would operate at an unacceptable LOS F under both Cumulative Baseline and Cumulative Base-plus-Project conditions during both peak hours, but project traffic would contribute less than three percent to the growth of intersection traffic volume from Existing to Cumulative Plus Project conditions (i.e., a less-than-significant impact). LOS calculation reports are provided in **Appendix D**.

Impact 4.B-9: The signalized intersection of Park Street and Blanding Avenue (#1) would operate at an unacceptable LOS F during both the a.m. and p.m. peak hours under Cumulative Baseline conditions. The project-generated traffic would contribute more than three percent to the growth of intersection traffic volume from Existing to Cumulative Plus Project conditions during both peak hours. (Significant)

Mitigation Measure 4.B-9: Implement Mitigation Measure 4.B-4.

As described above, Mitigation Measure 4.B-4 is recommended to mitigate the vehicular transportation mode. To reduce delays to pedestrians or transit, in accordance with the Transportation Commission’s priority order for thresholds of significance, the mitigation also proposes to modify the traffic control at the private driveway of the Waters Edge Nursing Home. While the transportation impacts for all transportation modes at the intersection of Park Street and Blanding Avenue would be lessened (in priority order), they might not all be reduced to a less-than-significant level. Transportation Policy 4.4.2.g recognizes this possibility and states, “some congestion may be identified in an EIR process as not possible to mitigate. This

TABLE 4.B-14
CUMULATIVE (2030) BASE PLUS PROJECT PEAK-HOUR INTERSECTION LEVELS OF SERVICE (LOS)

Intersection	Traffic Control	AM Peak Hour				PM Peak Hour			
		Cumulative (2030) Baseline		Cumulative Base Plus Project		Cumulative (2030) Baseline		Cumulative Base Plus Project	
		Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS	Delay[a]	LOS
1. Park Street and Blanding Avenue	Signal	>120.0	F	***>120.0***	***F***	101.6	F	***>120.0***	***F***
2. Park Street and Clement Avenue	Signal	100.0	F	***109.1***	***F***	>120.0	F	***>120.0***	***F***
3. Park Street and Buena Vista Avenue	Signal	13.0	B	13.0	B	19.3	B	19.3	B
4. Oak Street and Clement Avenue	AWSC	>80	F	***>80***	***F***	>80	F	***>80***	***F***
5. Oak Street and Buena Vista Avenue	Signal	10.6	B	10.9	B	12.7	B	13.5	B
6. Oak Street and Lincoln Avenue	Signal	14.2	B	14.2	B	163.7	B	16.9	B
7. Tilden Way and Blanding Avenue	Signal	119.5	F	>120.0	F	80.3	F	81.9	F
8. Grand Street and Clement Avenue	SSSC	12.5	B	13.3	B	32.5	C	34.3	C
9. Atlantic Avenue and Webster Avenue	Signal	45.9	D	46.1	D	41.1	D	41.2	D
10. Atlantic Avenue and Constitution Way	Signal	41.5	D	41.6	D	53.7	D	54.0	D
11. High Street and Fernside Boulevard	Signal	>120.0	F	>120.0	F	>120.0	F	>120.0	F
12. Clement Avenue and Project Access	SSSC	N/A	N/A	***59.1***	***F***	N/A	N/A	***55.0***	***F***
13. Oak Street – Blanding Avenue and Project Access	SSSC	N/A	N/A	16.1	C	N/A	N/A	20.7	C

[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.

Bold signifies significant impacts

SOURCE: Dowling Associates, Inc., 2009.

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." As proposed, implementation of Mitigation Measure 4.B-4 would improve vehicular operating conditions at the intersection of Park Street and Blanding Avenue under cumulative conditions by reducing average delay at the intersection by about 21 percent in the a.m. peak hour and by about 46 percent in the p.m. peak hour (improving the service level in each case from LOS F to LOS E).

Vehicular Travel Impact Significance after Mitigation: Significant and Unavoidable.

Pedestrian Travel Secondary Impact after Automobile Mitigation: Less than Significant

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

Transit Travel Secondary Impact after Automobile Mitigation Less than Significant.

Impact 4.B-10: The signalized intersection of Park Street and Clement Avenue (#2) would operate at an unacceptable LOS F during both the a.m. and p.m. peak hours under Cumulative Baseline conditions. The project-generated traffic would contribute more than three percent to the growth of intersection traffic volume from Existing to Cumulative Plus Project conditions during the p.m. peak hour. (Significant)

> **Mitigation Measure 4.B-10:** The project applicant shall fund a fair share contribution to reconfigure and restripe the intersection of Park Street and Clement Avenue to add dedicated left turn lanes on the eastbound and westbound approaches of Clement Avenue, and a northbound dedicated left turn lane on Park Street, and to modify the traffic signals to include protected left turn phasing for all approaches, fully actuated traffic signal, and audible pedestrian push buttons and pedestrian count down heads. The reconfiguration would require acquisition of property from the northeast and southwest corners and the removal of approximately eight parking spaces.

This mitigation measure would reduce the average vehicle delay by about 10 percent during the a.m. peak hour and about 41 percent during the p.m. peak hour. The overall intersection level of service would remain at an unacceptable LOS F. Because the General Plan identifies Clement Avenue as an exclusive transit corridor, improvements made to these approaches would provide significant benefits to transit service levels in the cumulative condition, the City's highest transportation mode priority. Furthermore, to reduce the project's contribution to the cumulative growth of intersection traffic volumes, Mitigation Measure 4-B-3a would require the project to reduce the number of peak-hour vehicle trips generated by the project by 10 percent; however, the level of that reduction cannot be guaranteed. Therefore, with implementation of the proposed mitigation measures, the project traffic volume would exceed the three-percent threshold of significance, and the traffic impact would be significant and unavoidable. Transportation Policy 4.4.2.g recognizes this possibility and states, "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."

Although implementation of Mitigation Measure 4.B-3a (TDM) is expected to reduce the number of vehicle trips generated by the project, the level of that reduction can not be guaranteed, and the impact is considered to remain significant and unavoidable.

Vehicular Travel Impact Significance after Mitigation: Significant and Unavoidable.

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

Impact 4.B-11: The all-way stop-control unsignalized intersection of Oak Street and Clement Avenue (#4) would operate at an unacceptable LOS F during both the a.m. and p.m. peak hours under Cumulative Baseline conditions. The project-generated traffic would contribute more than three percent to the growth of intersection traffic volume from Existing to Cumulative Plus Project conditions during both peak hours. (Significant)

> **Mitigation Measure 4.B-11:** The project applicant shall fund a fair share contribution to the installation of traffic signals at the intersection of Oak Street and Clement Avenue, and the restriping of the eastbound Clement Avenue approach to provide an exclusive left-turn lane and a shared through/right-turn lane. Because of potential safety concerns with vehicles and bicyclists in the left turn lane driving/riding parallel to the existing railroad tracks, this mitigation also would require that the railroad tracks within the left-turn lane be removed. This mitigation also would require acquisition of the necessary right-of-way from the project at the northwest corner of Park Street and Clement Avenue to install the traffic signal poles, while maintaining ADA access.

The intersection would satisfy the Caltrans peak-hour signal warrants under Cumulative conditions without and with the proposed project.

Implementation of Mitigation Measure 4.B-11 would improve the peak-hour levels of service to an acceptable LOS C during both a.m. and p.m. peak hours.

Significance after Mitigation: Less than Significant.

Impact 4.B-12: The Clement Avenue Project Driveway (#12), created as part of the project, would operate at an unacceptable LOS F during both the a.m. and p.m. peak hours under Cumulative Base Plus Project conditions. (Significant)

> **Mitigation Measure 4.B-12:** The project applicant shall fund a fair share contribution to the reconfiguration and restriping of Clement Avenue in front of the project site to include an eastbound left turn lane (into the project) and an eastbound center refuge/merge lane (for traffic exiting the project). Because of potential safety concerns with vehicles and bicyclists

in the lanes driving/riding parallel to the existing railroad tracks, this mitigation also would require that the railroad tracks within the left-turn lane be removed.

As described on pages 4.B-3 and 4.B-29, the City plans to extend Clement Avenue from Sherman Street to Tilden Way. Mitigation Measure 4.B-12 would be required when the Clement Avenue extension is being constructed.

Significance after Mitigation: Less than Significant.

Congestion Management Program Evaluation

The proposed project would generate more than 100 p.m. peak hour trips (see Table 4.B-3, page 4.B-17). Pursuant to the request of the ACCMA in a letter dated April 1, 2009 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 latest version of the ACCMA Countywide Travel Demand Model (ACCMA Model), which uses Association of Bay Area Government's (ABAG) *Projections 2007* socio-economic forecasts. For the roadway analysis, the 2015 No Project and 2035 No Project forecasts were obtained from the ACCMA Model. The "with project" forecasts at the roadway segments were obtained by manually adding the proposed project trips to the "No Project" forecasts.

The land use for the project was added into the ACCMA Model in the form of socio-demographic data for the 2015 and 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 impact analysis for roadways includes all Metropolitan Transportation System (MTS) roadways and CMP designated roadways, plus several local MTS roadways and transit corridors in the project vicinity. Detailed tables are on-file and available for review at the City of Alameda Planning and Building Department and include all data for 2015 and 2035 forecast years.

Significance Criteria

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 level of service 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 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.

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.

Congestion Management Program Land Use Analysis

The traffic forecasts were based on the updated ACCMA Model for Projection 2007 for base years 2015 and 2035. The land use changes for the proposed project were added into the model for the 2015 and 2030 forecasts for traffic analysis zone “528” within the project area. Because the project includes housing, the land use changes were made to the number of residential units. See **Table D-1** in **Appendix D**, which summarizes the project land uses in terms of housing that were added to the Countywide model for the 2015 and 2035 project analysis for the transit impacts.

Transit impacts were addressed for AC Transit bus routes servicing the study area and Bay Area Rapid Transit (BART) at the Fruitvale BART station. Highway impacts were summarized for the designated link locations based on the ACCMA’s comments on the NOP for the project. The roadway links include selected segments of I-880, Park Street, 29th Avenue, 23rd Avenue (I-880 freeway entrance), Fruitvale Avenue, Encinal Avenue and International Boulevard.

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 ACCMA Model, which predicts transit ridership for all transit operators. The transit ridership for AC Transit for current and future conditions is summarized in tables in **Appendix D**. The model generates daily home-based work and non-work transit trips, but does not split these into peak hour transit trips. Therefore, to estimate the number of transit trips occurring during the peak period, a review of existing transit ridership data within the study area indicated peak hour transit trips can be conservatively assumed as 25 percent of daily transit trips.

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 ACCMA Model. AC transit routes 19, 50, OX, 51 and O were analyzed as they directly 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 existing load factor of 25 passengers per bus for all AC transit routes (see tables in **Appendix D**). Capacity is reached at a load factor of 40 passengers per bus.

Baseline Plus Project Conditions

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

With the addition of the project on the AC transit buses in the study area, no bus route would operate over capacity. As a result, the project impact to peak-hour bus service in terms of the 15-30 minute headway standard would be less than significant.

Mitigation: None required.

Cumulative Base Plus Project Conditions

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

With the addition of the project on the AC transit buses in the study area, no bus route would operate over capacity. As a result, the project impact the peak-hour bus service in terms of the 15-30 minute headway standard would be 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 impact of the project on the BART system were assessed based on the ridership derived from the ACCMA Model. The project site is served by BART via the Fruitvale BART station, which can be accessed by walking, bicycle or AC Transit bus lines. BART has three lines that stop at the Fruitvale station (Fremont-to–San Francisco, Fremont-to–Richmond and Dublin/Pleasanton-to–San Francisco), and in 2030 some lines may be extended to serve that station. The ACCMA Model was used to quantify the change in transit trips associated with the project on these BART routes at the Fruitvale station, and impacts are assessed based on an assumed existing load factor of 100 percent occupied seats (see table in **Appendix D**).

Baseline Plus Project Conditions

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

Under Baseline Plus Project conditions, the project has the potential to generate an increase in overall daily BART ridership at the Fruitvale station of 78 daily trips, or 20 peak-hour trips. The existing BART frequency of 15 minutes on the three lines equates to 24 trains per hour (both directions); therefore, the project-generated increase would average about one new rider per train. Conservatively assuming a 100 percent load factor, the 0.1 percent increase in trips per train would not be a significant impact on BART service, because there would be no exceedance of the 3.75- to 15-minute peak headway standard. Therefore, this impact is considered less than significant.

Mitigation: None required.

Cumulative Plus Project Conditions

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

Under Cumulative Base Plus Project conditions, the project has the potential to generate an increase in overall daily BART ridership at the Fruitvale station of 103 daily trips, or 26 peak-hour trips. The existing BART frequency of 15 minutes on the three lines equates to 24 trains per hour (both directions); therefore, the project-generated increase would average about one new rider per train. Conservatively assuming a load factor approaching capacity, the 0.2 percent increase in trips per train would not be a significant cumulative impact on BART service, because there would be no exceedance of the 3.75- to 15-minute peak headway standard. Therefore, this impact is considered less than significant.

Mitigation: None required.

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 1985 *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 ACCMA Model, and also confirmed through aerial and field observations.

The traffic baseline forecasts for 2015 and 2035 were extracted at the required CMP and MTS highway segments from the ACCMA Model for both the a.m. and p.m. peak hours. 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.

The peak hour operations were evaluated in compliance with ACCMA requirements. The tables 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 represent both directions of flow.

Baseline Plus Project Conditions

Impact 4.B-17: The addition of project-generated traffic would increase traffic volumes on Park Street (regional arterial) at the Park Street bridge above that under Baseline Conditions. (Significant)

With the addition of the project, most of the MTS roadways would experience increases in volume from baseline conditions, but no change in the level of service (see tables in **Appendix D**). The following MTS roadways would result in significant impacts:

- At the Park Street bridge, the a.m. peak-hour service level in northbound direction would be LOS F under Baseline No-Project conditions, and the project-generated increase in traffic volume would be about 3.6 percent. This would be considered a significant impact.
- At the Park Street bridge, the p.m. peak-hour service level in southbound direction would be LOS F under Baseline No-Project conditions, and the project-generated increase in traffic volume would be about 4.2 percent. This would be considered a significant impact.

> **Mitigation Measure 4.B-17a:** Widen Park Street bridge to add an additional lane in each direction.

Implementation of Mitigation Measure 4.B-17a would mitigate the project impacts to less than significant levels. However, this measure is considered infeasible due to cost and inconsistency with Alameda General Plan Amendment policy EIR-1, which states: "*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*".

> **Mitigation Measure 4.B-17b:** Implement Mitigation Measures 4.B-3a (TDM Program) and 4.B-3b (Park Street Transit Signal Prioritization).

Although implementation of Mitigation Measure 4.B-3a is expected to reduce the number of vehicle trips generated by the project, the level of that reduction cannot be guaranteed, and the impact is considered to remain significant and unavoidable.

Significance after Mitigation: Significant and Unavoidable.

Cumulative Plus Project Conditions

Impact 4.B-18: The addition of project-generated traffic would increase traffic volumes in the southbound direction on Park Street (regional arterial) at the Park Street bridge above that under Cumulative Baseline Conditions. (Significant)

With the addition of the project, most of the MTS roadways would experience increases in volume from cumulative baseline conditions, but no change in the level of service (see tables in **Appendix D**). The following MTS roadway would result in a significant impact:

- At the Park Street bridge, the p.m. peak-hour service level in southbound direction would be LOS F under Baseline No-Project conditions, and the project-generated increase in traffic volume would be about 3.4 percent. This would be considered a significant impact.

Mitigation Measure 4.B-18a: Widen Park Street bridge to add an additional lane in the southbound direction.

Implementation of Mitigation Measure 4.B-18a would mitigate the project impact to a less than significant level. However, this measure is considered infeasible due to cost and inconsistency with Alameda General Plan Amendment policy EIR-1, which states: "*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*".

Mitigation Measure 4.B-18b: Implement Mitigation Measures 4.B-3a (TDM Program) and 4.B-3b (Park Street Transit Signal Prioritization).

Although implementation of Mitigation Measure 4.B-3a is expected to reduce the number of vehicle trips generated by the project, the level of that reduction cannot be guaranteed, and the impact is considered to remain significant and unavoidable.

Significance after Mitigation: Significant and Unavoidable.

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