

## **2.2 HUMAN ENVIRONMENT**

### **2.2.1 Parks and Recreational Facilities**

#### **2.2.1.1 Affected Environment**

Impacts to recreational facilities are analyzed under two different regulations (NEPA/CEQA and Section 4(f)). The inclusion of a parks and recreational facilities section is included in the preparation of the environmental document to satisfy the NEPA/CEQA requirement, and is also analyzed under Section 4(f) of the Department of Transportation Act of 1966, and in accordance with Federal Highway Administration (FHWA) regulations.

#### ***Recreational Section 4(f) Properties***

The Lazear School Playground is a publicly owned school playground/playing field that is located within the boundaries of the Lazear School property and qualifies as recreational Section 4(f) property. The playground is used by the public on evenings and weekends for soccer matches and other group sports. The playing field is neither part of a public park or wildlife/waterfowl refuge area, nor occurs within the boundaries of an extant historic property.

The Kennedy Tract Park, a recreational Section 4(f) property is a 0.09-acre vest pocket park located on the cul-de-sac end of East 9th Street. It is bounded by the 29th Avenue overcrossing on the south, the Portwood Shell gas station on the west (rear), and 2857 East 9th Street on the north. Infrequently used by the public for passive recreation purposes, Kennedy Tract Park contains one bench for seating and does not support programmed Oakland Parks and Recreation Department activities.

#### ***Lazear School Playground***

Located along 29th Avenue in the southeastern half of the APE, and abutting Lazear School (824 29th Avenue) on the school's property, Lazear Playground occupies approximately the easternmost 200 feet of the parcel, consisting of a nearly 1-acre sized ball field on flat terrain planted with grass turf. Although occupying land that was historically associated with the Del Monte cannery facility (the adjoining Fruitvale Station Shopping Center, built in 1997, also occupies a large portion of the land formerly occupied by the cannery), the playground is a new feature dating from approximately 15 years ago. The playground is extensively used by the community athletic groups for soccer matches and other group sports activities during evenings and on weekends.

The recommended soundwall at Lazear Elementary is Option 3, as described in the NSR. Under this option, NB-5 would be constructed 8 feet in height to provide abatement at the lunch tables, which are areas considered to be of frequent human use. In addition, NB-3 would be constructed 10 feet in height to provide noise abatement to outdoor areas along the south of the school property and to lower interior noise levels at classrooms facing south as well as to recreation areas on the east play yard areas of the school. Although the construction of proposed soundwalls NB-3 and NB-5 would potentially occur within the boundaries of the Lazear School, the placement would not occur within the Playground area, nor does it call for the removal of any playground features within the boundaries of that property. All Proposed Project improvements adjoining the

playground would occur within the public right-of-way. No attributes that qualify the subject property as a Section 4(f) resource would be adversely affected. Temporary construction easements and construction staging are proposed to occur either on vacant land across 29th Street from Lazear playground or within the I-880 rights-of-way, and would not adversely affect the attributes that qualify this property as a Section 4(f) resource.

No constructive use of properties would occur because the Project would not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f); nor is temporary occupancy of the property proposed. The playground would continue to be accessible during the construction process from all directions via Fruitvale Avenue-International Boulevard and the Kennedy Tract/Jingletown neighborhood to the north. The Project is expected to facilitate, rather than hamper, safer access to the subject resource upon completion.

### ***Kennedy Tract Park***

Kennedy Tract Park is a 0.09-acre vest pocket park located on the cul-de-sac end of East 9th Street. It is bounded by the 29th Avenue overcrossing on the south, the Portwood Shell gas station on the west (rear), and 2857 East 9th Street on the north, within the southwestern half of the APE, and abutting the Kennedy Tract/Jingletown historic district. The referenced vest pocket park, owned by the City of Oakland Parks and Recreation Department, consists of a parcel on flat terrain planted with grass turf and one shade tree. The property is fully open to the street along East 9th Street (i.e., no fencing separates it from the public sidewalk). Although occupying land that was historically associated with the Kennedy Tract, and formerly developed with residential buildings, the park is a new feature dating from approximately 10 years ago. The park is only infrequently used by the community.

All proposed Project improvements adjoining the park would occur in the curb line/sidewalk area adjoining the park; no take of land from the park is proposed, and no attributes that qualify the subject property as a Section 4(f) resource would be adversely affected.

Temporary construction easements and construction staging are proposed to occur either on vacant land adjacent to but not on the subject property along 29th Street, or alternatively, within the I-880 rights-of-way; hence, the Project would not adversely affect the attributes that qualify this property as a Section 4(f) resource.

No constructive use of properties would occur because the Project would not adversely affect the activities, features, and attributes that qualify the property for protection under Section 4(f); nor is temporary occupancy of the property proposed. Kennedy Tract Park would continue to be accessible both during and following the construction process from the Kennedy Tract/Jingletown neighborhood to the north via East 9th Street.

## **2.2.1.2 Avoidance, Minimization, and/or Mitigation Measures**

### ***Avoidance***

Consultation with cooperating agencies and officials with jurisdiction over Section 4(f) properties shall occur to identify specific best management measures that can be implemented to ensure that no harm to Section 4(f) resources results from the Project.

The Project includes several cooperating agencies, including the Alameda County Congestion Management Agency, California Department of Transportation District 4, City of Oakland, and City of Alameda, with the Department serving as the lead agency for CEQA purposes and for NEPA, per FHWA NEPA delegation. Consultation with local experts on historic resources included Betty Marvin, Historic Preservation Planner with the City of Oakland Cultural Heritage Survey (part of the Community and Economic Development Agency) and Susana Villarreal (City of Oakland, Community and Economic Development Agency)--a knowledgeable former resident of the Kennedy Tract/Jingletown neighborhood. Consultation occurred both during and following a building-by-building intensive survey of the properties within the APE.

### ***Minimization***

Outreach to the public occurred through a series of public meetings with community residents and stakeholders beginning in 1999. A Neighborhood Action meeting was held on February 25, 2000 by the Mary Help of Christians Catholic Church Organizing Committee – an affiliate of Oakland Community Organizations. Since that time, this group has held meetings every few months to monitor Project progress and identify community concerns. No concerns have been identified that affect the Project.

## **2.2.2 Community Impacts**

### **2.2.2.1 Community Character and Cohesion**

#### ***Regulatory Setting***

The National Environmental Policy Act of 1969 as amended (NEPA), established that the federal government shall use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 USC 4331[b][2]). The Federal Highway Administration in its implementation of NEPA (23 USC 109[h]) directs that final decisions regarding projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under the California Environmental Quality Act, an economic or social change by itself is not to be considered an adverse effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is adverse. Since this Project would result in a physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the Project's effects.

#### ***Affected Environment***

A *Community Impact Assessment* was prepared for the Proposed Project in October 2006, revised February 2009. The information contained in this section is based on the analysis conducted for the *Community Impact Assessment* report.

This description of the affected environment is based on data from the U.S. Census Bureau and State and County sources. County, City, and tract-level data are primarily available from the 2000 census. This section describes demographic characteristics of

Alameda County, the City of Oakland, and when detailed data are available, the census tracts within which the study area is located.

The Proposed Project is located entirely within the City of Oakland, and adjacent to the City of Alameda, in northwestern Alameda County. The Project study area, as shown in Exhibit 2.2-1, *Study Area*, is defined to include areas anticipated to be directly, indirectly, or and/or cumulatively impacted by the Proposed Project. The Project study area as identified on Exhibit 2.2-1 includes the grading limits and areas of potential permanent and temporary right-of-way acquisition, and is within the boundaries of two census tracts (Census Tracts 4060 and 4061) from the 2000 Census; refer to Exhibit 2.2-2, *Study Area Census Tracts*. The census tracts include residential, industrial, institutional, and commercial land uses, community services and facilities, and other neighborhood features that may be indirectly or cumulatively impacted by the Proposed Project. The study area census tracts include an area much larger than that directly affected by Project construction and right-of-way acquisition, but it provides a more focused picture of the area affected by the Project than the City and County demographics can provide. Census tracts were used because they are the most complete data set for the level of detail required for this analysis. Census tracts are also used to incorporate populations that may not be directly impacted by the Project, but may be indirectly affected by Project construction and operation. Data boundaries with finer level of detail such as census blocks were not selected due to incomplete data in some of the required demographic categories necessary for the community impact analysis. Detailed information concerning the affected environment is provided at City and County levels for certain topics.

The Project study area is located in the Jingletown neighborhood, which is a mixed-use neighborhood, with a long history of industrial as well as residential uses. Oakland has identified the Jingletown neighborhood as a potential Historic District, although the area is not yet a designated Historic District. Jingletown, located in the East Side of Oakland, acquired its name in the early 20th century when it was occupied by Portuguese immigrants. Portuguese men, when socializing in groups after work at the local canneries in Fruitvale, hands thrust in their pockets, would jingle their coins as a sign that they were prosperous. Today it is principally a Latino-populated area and is currently thriving as one of the fastest growing arts districts in the San Francisco Bay area. Among other notable artistic enterprises, Jingletown is the location of the only Institute of Mosaic Art in the United States. There are a large number of residential artists living in the lofts that are situated between the Park and the Fruitvale Street bridges, and a plethora of new residential lofts now line the banks of the estuary that separates Oakland from the island of Alameda.<sup>1</sup> In addition, Studio 880 is located within the Project study area at 829 27th Avenue, approximately 0.3 miles northeast of the Lazear Elementary School. Studio 880, once a one-room recording facility, is now an entire entertainment complex, housing three world-class recording studios, a handful of audio and film/video postproduction suites, and 20 professional offices for music and

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1 Retrieved from <http://www.jingletown.org/history.html> on July 27, 2006.





INTERSTATE 880 OPERATIONAL AND SAFETY IMPROVEMENTS  
AT 29TH AVENUE AND 23RD AVENUE OVERCROSSING IS/EA

## Study Area

Exhibit 2.2-1

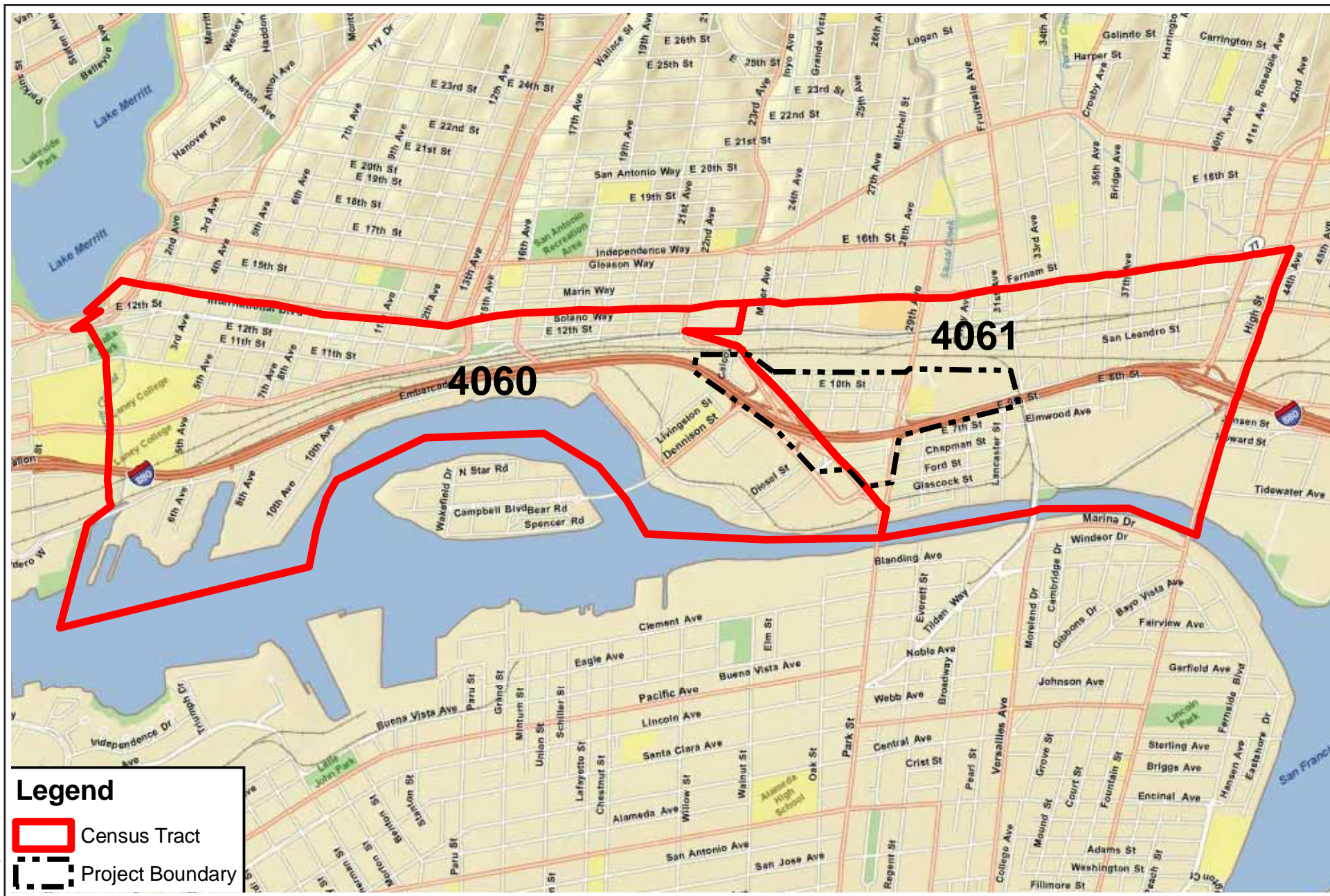
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## Legend

- Census Tract
- Project Boundary

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film-related companies. Studio 880 has worked with a variety of great musicians and filmmakers in its eight years of operation.<sup>2</sup>

Jingletown residents have a strong sense of pride in their community, and have joined together to improve their neighborhood. In the early 1990s, the community came together to re-zone parts of their neighborhood from industrial to residential in an effort to clean up the neighborhood when industries relocated out of Oakland. The community initiated the Jingletown Homes Project, a 53-unit affordable housing development that received the State Housing Director's Award for Housing Development Excellence. The Project's design resulted from a series of workshops conducted by the Project architect (Pyatek Associates), involving the Oakland Community Housing, Inc., the Mary Help of Christian Church, the Oakland Community Organization, and the residents of the community.<sup>3</sup> The community has come together again with the facilitation of the Mary Help of Christian Church's Local Organizing Committee, an affiliate of Oakland Community Organizations, to initiate and support the installation of a sound wall to shelter residents from the noise of I-880 and the modifications of the I-880 exit and entrance ramps around the Lazear Elementary School to increase pedestrian safety.

The U.S. Census Bureau reports that the population in Alameda County totaled 1,105,379 in 1980. In the 20 years that followed, the population grew to 1,443,741 (30 percent). The California Department of Finance projects that this growth will continue for the next three decades and that population in Alameda County will rise over 40 percent to 2,038,482 by 2030. ABAG projects that population in Alameda County will rise 24 percent to 1,884,600 by 2030.

Oakland has experienced a slower rate of population growth as compared to Alameda County since 1980. According to the Census Bureau, Oakland's population totaled 339,337 in 1980. The population grew by nearly 18 percent to 399,484 in 2000. According to the *City of Oakland General Plan Housing Element*, the population totaled 408,807 in 2002, which indicates a 2.3 percent growth rate in two years. ABAG projects that Oakland's population will rise 29 percent to 516,900 by 2030.

The total combined population within both study area census tracts (4060 and 4061) totaled 7,956 in 2000, which represents 22% growth since 1990 (6,521), and represents a 2.19 percent annual growth rate.

Table 2.2-1, *Age Distribution*, shows the distribution of the population by age within Alameda County, Oakland, and the study area census tracts. The distribution of the population by age within the study area census tracts is comparable to the distribution within Oakland. However, the number of persons under 18 years old is higher, and the number of seniors over 64 years old is lower, as compared to Oakland and Alameda County. According to the *City of Oakland General Plan Housing Element*, Oakland experienced a small increase in the percent of the population in their late 30s to early 50s and individuals 65 years of age or more from 1990 to 2000. If the population changes over the past decade continue during the next 10 to 20 years, Oakland may be home to a significantly larger number of older adults and retirees who are looking for housing

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2 Retrieved from [www.studio880.com](http://www.studio880.com) on July 27, 2006.

3 Retrieved from [www.hcd.ca.gov/feature/JingleTown.html](http://www.hcd.ca.gov/feature/JingleTown.html) on July 27, 2006.

suited to their changing lifestyles and physical needs.<sup>4</sup> Persons under 18 and over 64 comprise a large portion of the transit-dependent population. The existing transit-dependent population (age-related only) is identified in Table 2.2-1, *Age Distribution*. An increase in the population of persons under 18 and over 64 will place increased demands on the existing public transportation that utilizes roadways in the Project area.

**Table 2.2-1: Age Distribution**

	Percentage			Transit-Dependent Population*
	Population < 18	Population 18-64	Population > 64	
Alameda County	24.6%	65.2%	10.2%	34.8%
City of Oakland	25%	64.5%	10.5%	35.5%
Census Tract 4060	21.2%	68.8%	9.9%	35.5%
Census Tract 4061	29.3%	64.5%	6.2%	35.5%

Source: U.S. Census Bureau, Census 2000

\* Population under 18 and over 64.

Table 2.2-2, *Ethnic Composition*, shows the ethnic composition of Alameda County, Oakland, and the study area census tracts. Ethnicity in Oakland has gone through significant changes since 1990, with a decrease in the number and proportion of residents who identified themselves as White or as Black/African-American, and an increase in the number and proportion of residents who identified themselves as Asian/Pacific Islander or Hispanic/Latino. The White population decreased by 11 percent, and the Black population by 13 percent, while the Asian population increased by 16 percent and the Hispanic population increased by 78 percent. Oakland's population mix over the past 50 years has been influenced by economic and suburban development trends. The loss of many relatively well-paying "blue-collar" and military jobs, combined with rapid suburbanization in the Bay Area between 1950 and 1980, left Oakland with a higher percentage of lower-income and minority residents. Since the 1980s, increasing numbers of immigrants from Asian, Pacific Island, and Latin American/Hispanic countries have found homes in Oakland. According to the 2000 Census, nearly 12 percent of Oakland residents were foreign born, 90 percent of which were from Asia or Latin America, and came to the United States between 1990 and 2000. There are numerous areas in Oakland where more than 50 percent of residents belong to a single racial/ethnic group.

4 City of Oakland General Plan Housing Element, June 15, 2004, p. 3-9.

**Table 2.2-2: Ethnic Composition**

Percentage*						
White	Black	American Indian	Asian	Hawaiian/Other Pacific Islander	Other/Two or More Races	Hispanic
<b>Alameda County</b>						
48.8%	14.9%	0.6%	20.4%	0.6%	14.5%	19%
<b>City of Oakland</b>						
31.3%	35.7%	0.7%	15.2%	0.5%	16.7%	21.9%
<b>Census Tract 4060</b>						
19.7%	11.9%	0.6%	44%	0.2%	23.3%	30.2%
<b>Census Tract 4061</b>						
36.3%	12.9%	2%	9.8%	0.2%	38.7%	63.2%

Source: U.S. Census Bureau, Census 2000

\* Percentages do not add up to 100 percent because the White, Black, American, Indian, Hawaiian, and Other categories include persons identified with only one race; the Hispanic category overlaps with other categories.

Table 2.2-3, *Local and Regional Demographic Summary*, provides a snapshot of other demographic characteristics of Oakland and Alameda County, as reported in the last census survey. Oakland residents have shifted out of highly capitalized blue-collar manufacturing into low-wage jobs, or into unemployment. The poverty rate for Oakland (19.4 percent) is considerably higher than the Alameda County rate (11 percent). Between 1990 and 2000, Oakland's median household income increased from \$27,095 to \$40,055, an increase of nearly 48 percent. The median income for families increased from \$31,755 to \$44,384 (approximately 40 percent), while median income for non-family households increased from \$20,713 to \$34,075 (approximately 70 percent). Fifty-two percent of the City's households are considered to be very low or low income, substantially higher than the countywide average of approximately 38 percent. Oakland homeownership rate (41.4 percent) is below the Alameda County rate (54.7 percent). Homeownership rates are closely related to incomes. In 2000, White households had the highest median income and the highest ownership rates. However, even though Black households had the second highest median income, their homeownership rates lag behind those of Hispanic and Asian/Pacific Islander households. According to the U.S. Census 2000, 72.8 percent (3,030) of the total population of 4,301 within census tract 4061 are of low-to-moderate income, and 68.7 (2,510) of the total population of 3,655 within census tract 4060 are of low-to-moderate income.<sup>5</sup>

<sup>5</sup> [www.oaklandnet.com/government/hcd/policy/docs/census/lowmodtractdata.pdf](http://www.oaklandnet.com/government/hcd/policy/docs/census/lowmodtractdata.pdf).

**Table 2.2-3: Local and Regional Demographic Summary**

Characteristic	City of Oakland	Alameda County
Population Change (1990 to 2000)	7.3%	12.9%
Median Household Income	\$40,055	\$55,946
Persons Below Poverty	76,489 (19.4%)	156,804 (11%)
High School Graduates (over age 25)	46,164	181,668
College Graduates (over age 25)	47,077	202,586
Home Ownership Rate	41.4%	54.7%
Persons per Household	2.6	2.71

Source: U.S. Census Bureau, Census 2000 – Bay Area Census

### ***Environmental Consequences***

#### ***No Build***

The existing conditions of the freeway, off-ramp, and local streets within the Jingtletown community contribute to neighborhood disruptions by providing an unsafe transportation corridor resulting from inadequate ramp geometry and deceleration length, as well as from traffic and unsafe pedestrian crossings within the vicinity of the Lazear Elementary School. In addition, the community has joined together to demand mitigation for the substantial noise impacts on their community from the freeway. The No Build Alternative will maintain the existing conditions as is, which will continue to result in neighborhood disruptions related to safety and noise. The Jingtletown community is a well-organized community that is solidly united around getting a sound wall installed and improving the health and safety of their children. The No Build Alternative will maintain the reduced quality of life within the study area resulting from the aforementioned issues.

#### ***Proposed Project***

The Proposed Project would result in installation of a sound wall to protect the Jingtletown community from substantial noise impacts from the freeway, which would improve community cohesion and reduce neighborhood disruptions.

#### ***Construction Impacts***

Access to the area would be maintained through the duration of construction. Construction of the Proposed Project would result in temporary ramp closures, re-routing of traffic, an increase in truck traffic on neighborhood streets, and air quality and noise impacts. While the impacts would disrupt the residents and likely create traffic build-up, these impacts would be temporary and would cease at Project completion. However, because these improvements have been petitioned for and supported by a majority of Jingtletown residents for over five years, the end result would provide greater community cohesion and less neighborhood disruptions, as the community would be protected from noise by the sound wall barrier, and would enjoy increased pedestrian safety on local streets and vehicular safety at freeway intersections.



### ***Avoidance, Minimization, and/or Mitigation Measures***

Implementation of the following minimization measures related to community (COMM) impacts, COMM-1 through COMM-3, would reduce or eliminate the adverse community character and cohesion effects of the Proposed Project:

COMM-1 Pedestrian access points to businesses and facilities within the construction area will be maintained throughout the construction period. If usual access points are lost, provisions for alternative access to the affected parcels will be made.

COMM-2 Appropriate signage will be developed and displayed to direct both pedestrian and vehicular traffic to businesses via alternate routes.

COMM-3 Appropriate streetlights will be installed to reduce safety hazards to pedestrians.

#### **2.2.2.2 Relocations**

##### ***Regulatory Setting***

The Department's Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix D for a summary of the RAP.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 USC 2000d, et seq.). Please see Appendix C for a copy of the Department's Title VI Policy Statement.

##### ***Affected Environment***

The affected environment for relocations is the same Project area as described in Community Character and Cohesion, above.

##### ***Environmental Consequences***

Analysis of relocation impacts was conducted using aerial photographs of the Project study area, parcel boundaries, and the proposed right-of-way boundaries, and identifies properties and improvements affected by the Proposed Project. Two types of effects to properties are considered:

- Full acquisition of a property occurs if the entire parcel is within the footprint (right-of-way) of an alternative, or if the majority of the buildings lie within the footprint of the alternative.
- Partial acquisition of a property occurs if any part of a parcel is within the footprint (right-of-way) of the alternative, but does not require the displacement of the entire property. These impacts range from a sliver or edge of a parcel within the right-of-way preservation area to substantial portions that fall short of entire displacement.

Although one gas station access would be modified, which may displace or alter existing uses, based on the current configuration, implementation of the Proposed Project would not cause any residents or businesses to relocate and therefore no adverse impacts have been identified.

*No Build*

No partial or full acquisitions would occur, and existing land use would not be affected by the No Build Alternative.

*Proposed Project*

Construction of the Proposed Project would require partial and full acquisition of private properties. This includes the partial acquisition of parcels 019-082-005-1 and 019-082-006-1 on 27th Avenue, and the full acquisition of parcel 019-085-021 on the corner of East 10th Street and 29th Avenue. These properties are listed in Table 2.2-4, *Properties to be Acquired*, below, and are also shown in Exhibit 2.2-3, *Proposed Acquisitions*.

**Table 2.2-4: Properties to be Acquired**

Assessor Parcel Number (APN)	Existing Use	Land Use Designation	Building Area (ft <sup>2</sup> )	Lot Size (ft <sup>2</sup> )
<b>Full Acquisition</b>				
019-085-021	Vacant	Mixed Housing Type Residential	N/A	11,622
<b>Partial Acquisition</b>				
019-082-005-1	Institutional	Mixed Housing Type Residential	N/A	13,654
019-082-006-1	Institutional	Mixed Housing Type Residential	308	4,643
N/A	Commercial	Gas Station	N/A	N/A

Source: Nite Owl Plus Online Property Search



INTERSTATE 880 OPERATIONAL AND SAFETY IMPROVEMENTS  
AT 29TH AVENUE AND 23RD AVENUE OVERCROSSING I5/EA

## Proposed Acquisitions

Exhibit 2.2-3

AECOM

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Base Map: Google Earth Pro 2008

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The partial acquisition of parcel 019-082-005-1, located at the 23rd Avenue off-ramp west of the Mary Help of Christians Church, will be up to five percent (+/- 5%), and would result in the location adjustment to the existing on-site storage containers. The containers would need to be relocated to accommodate the proposed sound wall. The relocation of the storage containers would be on-site, and it is not anticipated that any employees would be displaced or that the business would be adversely impacted. In addition, the access location to the site would not be impacted by the partial acquisition. The parcel take would be acquired into Department right-of-way.

The partial acquisition of parcel 019-082-006-1, located at the end of 27th Avenue adjacent to I-880, will be up to thirteen percent (+/- 13%), and would result in the potential removal of a storage shed on-site. Currently, this parcel is on the market for sale. The access location to the site would not be impacted by the partial acquisition. The parcel take would be acquired into Department right-of-way.

The Proposed Project would result in the full acquisition of parcel 019-085-021 located at the northwest corner of 29th Avenue and East 10th Street. Currently, this parcel is a privately owned vacant dirt lot. The parcel would be acquired by the Department and conveyed to the City of Oakland.

In addition to the parcel acquisitions, the proposed Build Alternative would require the removal of the East 8th Street access driveway to the Shell Gas Station on parcel 019-084-035-1 on East 8th Street and Portwood Avenue. The removal would reduce circulation access to the gas station, which could result in impacts to the business's success. However, the Build Alternative -Roundabout- is identical to the Build Alternative except for the intersection of East 9th Street/ 29th Avenue/ northbound 29th Avenue on ramp. The Build Alternative identifies this intersection point as a tee configuration that would require all vehicles approaching the intersection to stop at the stop signs prior to proceeding through the intersection. The Build Alternative – Roundabout identifies the intersection point as a roundabout configuration.

Build Alternative – Roundabout provides a viable roundabout alternative to the Build Alternative tee intersection. The roundabout alternative maintains local access by providing a direct access to Lazear Elementary School from westbound 29th Avenue. Because this local access is provided, the Department access denial would not need to be adjusted further into the City of Oakland.

The Build Alternative (Roundabout) will provide operational benefits, especially in the off peak hours as traffic will not typically need to come to a complete stop. This will also result in decreased emissions, improving air quality in this area. The roundabout option will reduce total vehicle miles traveled (VMT) by providing direct access to Lazear Elementary School from westbound 29th Avenue. The roundabout has been placed at a location where the proposed overcrossing columns will not interfere with the site distance requirements. As reported by FHWA, roundabouts have demonstrated substantial safety and operational benefits compared to other forms of intersection control and should be considered as an alternative for all proposed new intersections on Federally funded projects.

### Proposed Nonstandard Features

The proposed nonstandard features are identical to those identified in the Build Alternative. An Exception to Mandatory Design Standards Fact Sheet was approved on 9/26/07 and an Exception to Advisory Design Standards Fact Sheet was approved on 6/04/07 for the several nonstandard features detailed in the Build Alternative section.

### ***Avoidance, Minimization, and/or Mitigation Measures***

Although the Proposed Project does not include the relocation of any persons or businesses, if the Project changed such that any resident or business would be relocated, then the Proposed Project would be subject to the Uniform Relocation Assistance and Real Property Acquisitions Policies Act (Uniform Act). If required, implementation of the following mitigation measure, related to relocation (REL) impacts would reduce or eliminate the adverse property acquisition effects of the Proposed Project:

- REL-1      The Uniform Relocation Assistance and Real Property Acquisitions Policies Act (Uniform Act) of 1970 (Public Law 91646, 84 Stat. 1894) mandates that certain relocation services and payments be made available to eligible residents, businesses, and nonprofit organizations displaced by its projects. The Uniform Act provides for uniform and equitable treatment by Federal or Federally-assisted programs of persons displaced from their homes, businesses, or farms, and establishes uniform and equitable land acquisition policies. Oakland will provide affected property owners with a copy of the Uniform Act.

### 2.2.3 Utilities/Emergency Services

The table below lists the utilities and emergency services that apply to the Project area.

**Table 2.2-5: Utilities / Emergency Service Providers**

FACILITY TYPES AND AGREEMENTS				
Utility Company/Owner	Utility Type	Agreement Required	Number of Pothole Verifications	Notes
East Bay Municipal Utilities District	Water	Yes	4	Protect and Relocate
Pacific Gas & Electric (OH 12KV)	Electrical	Yes	-	Protect and Relocate
Pacific Gas & Electric	Fiber Optic	Yes	2	Protect and Relocate
Pacific Gas & Electric (3", 4", & 24")	Gas	Yes	10	Protect and Relocate
Comcast Cable	Cable	Yes	-	Relocate w/ OH electrical
Pacific Bell (AT&T)	Telephone	Yes	-	Relocate w/ OH electrical
City of Oakland	Sewer	No	6	Reconstruction as necessary
AC Transit, Oakland Location 1600 Franklin Street, Oakland, CA 94612	Bus Service	No	--	--
Oakland Police Department 455 Seventh Street, Oakland, CA 94607	Police	No	--	--
Oakland Fire Department 150 Frank H. Ogawa Plaza, Ste. 3354 Oakland, CA 94612	Fire	No	--	--

#### 2.2.3.1 Affected Environment

Major transmission facilities for all service purveyors are shown on Exhibit 2.2-4, *Existing and Relocated Utilities*. There are six utility companies that own facilities within the limits of this Project. These companies include East Bay Municipal Utilities District, Pacific Gas and Electric (Electrical and Fiber Optic), Pacific Gas and Electric (Natural Gas), Comcast Cable, Pacific Bell, AT&T, and City of Oakland Sanitary Sewer. Utility agreements will be required as identified in the above table.

Many of the existing utilities located within the Project limits are proposed to be protected in place. These existing utilities will be located by physical potholing to determine line and grade during design development. Some of the existing utilities will need to be relocated to accommodate the proposed improvements.

#### 2.2.3.2 Environmental Consequences

The Build Alternative and Build Alternative- Roundabout would enhance the operation of I-880 through the Project area. As a result, the delivery of public services (bus service, waste disposal, police and fire protection, public transit and emergency medical response) is expected to improve, thus producing a positive effect. Both the Build

Alternative and Build Alternative -Roundabout would require the adjustment or relocation of some utilities described above during construction. Decisions regarding relocation of utilities will occur during final design.

The following types of temporary impacts are expected to occur relative to emergency services: an increase in the response times of emergency, public, and fire vehicles using the interchange.

While several existing utility service facilities would require adjustment or relocation during construction, any potential disruption in service would be short-term and cease upon Project completion. Potential impacts are not anticipated to be substantial and no temporary curtailment of utility services is expected to occur. Measures are provided to ensure that disruption to services and impacts to the facilities are minimized or avoided during the construction phase. Short-term congestion would be addressed with implementation of a TMP and serve to minimize disruption to emergency services.

No additional temporary impacts are expected with implementation of the proposed Build Alternatives.

### **2.2.3.3 Avoidance, Minimization, and/or Mitigation Measures**

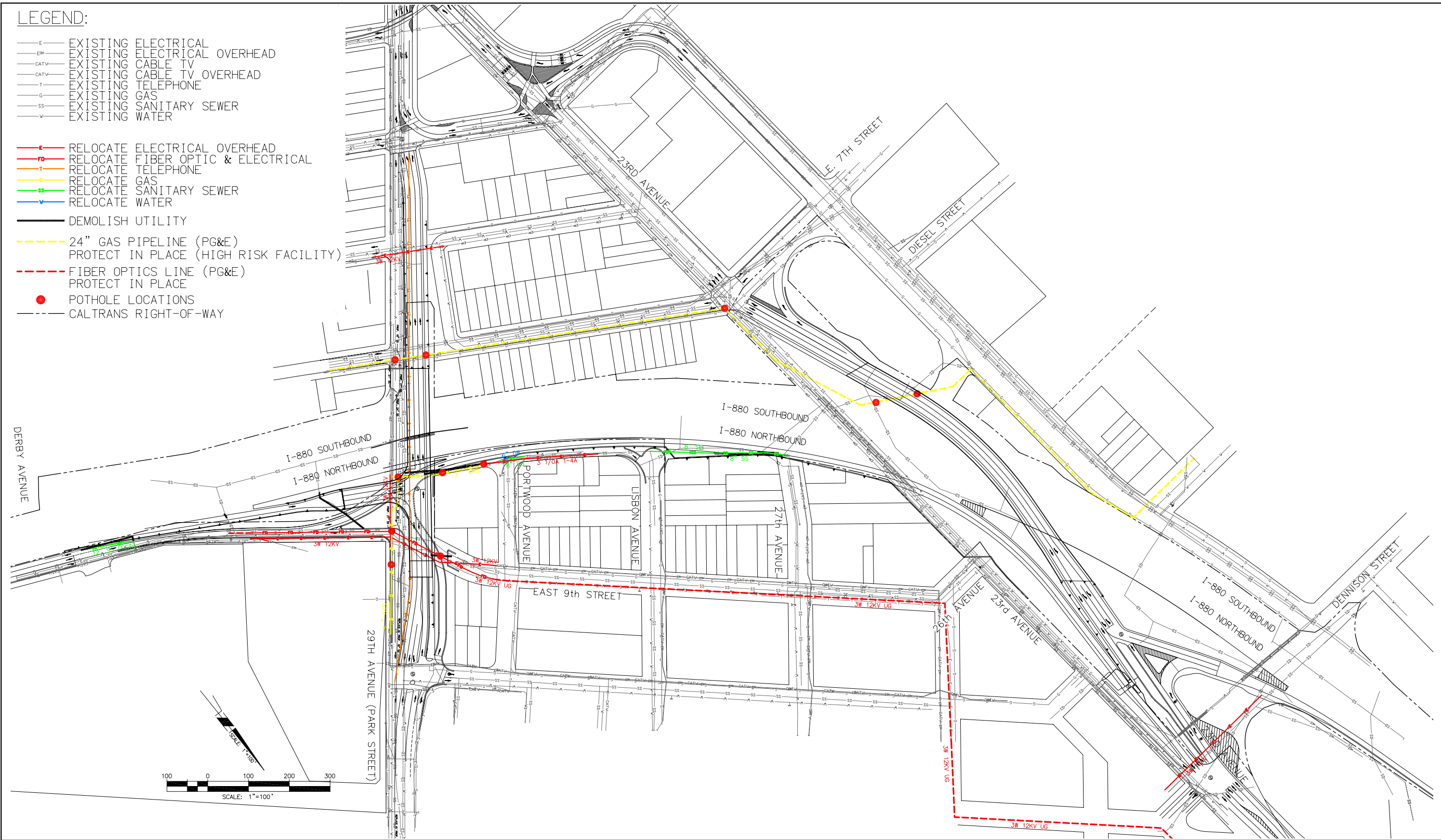
Implementation of the following minimization measures related to Utilities and Emergency Services (UE) would reduce or eliminate the adverse effects as related to utilities and emergency services associated with the Proposed Project:

- UE-1 Prior to commencement of construction, the Project Engineer shall coordinate with all affected utility purveys to establish exact procedures and specifications for all facilities to be relocated during construction. Additionally, the Project Engineer shall notify other service purveyors in the vicinity of the improvements to verify that the proposed activities will not disrupt services to the community.
- UE-2 If relocation of any utilities requires use of area(s) beyond the construction footprint currently associated with the Build Alternative studies will be reviewed or performed as appropriate and applicable measures will be implemented.
- UE-3 If any ramps are determined during final design to need to be closed for more than 10 consecutive days, a ramp closure study will be performed and the results, including determination of any warranted measures, will be implemented.



LEGEND:

- E— EXISTING ELECTRICAL
- E<sup>OH</sup>— EXISTING ELECTRICAL OVERHEAD
- CATV— EXISTING CABLE TV
- CATV— EXISTING CABLE TV OVERHEAD
- T— EXISTING TELEPHONE
- G— EXISTING GAS
- SS— EXISTING SANITARY SEWER
- W— EXISTING WATER
- E— RELOCATE ELECTRICAL OVERHEAD
- FO— RELOCATE FIBER OPTIC & ELECTRICAL
- T— RELOCATE TELEPHONE
- G— RELOCATE GAS
- SS— RELOCATE SANITARY SEWER
- W— RELOCATE WATER
- DEMOLISH UTILITY
- 24" GAS PIPELINE (PG&E)  
PROTECT IN PLACE (HIGH RISK FACILITY)
- FIBER OPTICS LINE (PG&E)  
PROTECT IN PLACE
- POTHOLE LOCATIONS
- CALTRANS RIGHT-OF-WAY



Source: Project Report, July 2009

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## **2.2.4 Traffic and Transportation/Pedestrian and Bicycle Facilities**

### **2.2.4.1 Regulatory Setting**

The Department, as assigned by FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

The Department is committed to carrying out the 1990 Americans with Disabilities Act (ADA) by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

### **2.2.4.2 Affected Environment**

The following section is primarily based on the Environmental Impact Transportation Analysis dated May 7, 2009 that was prepared for the I-880 Operational and Safety Improvements at 29th Avenue and 23rd Avenue Overcrossings Project. The Environmental Impact Transportation Analysis analyzes the traffic for the existing year, 2008, and the forecast year 2035 for the Build and No Build alternatives.

I-880 is a vital part of the Bay Area's transportation system. The Oakland segment of I-880 provides access to numerous intermodal facilities and attractions including the Port of Oakland, Oakland International Airport, the U.S. Mail and UPS distribution centers, downtown Oakland, and the Oakland/Alameda County Coliseum complex. With truck restrictions on I-580, the I-880 corridor is the primary regional roadway facility providing access to residents and businesses throughout the cities of Oakland and Alameda. I-880 is also a major commuter route, providing connections between centers in Alameda, Santa Clara, San Francisco, Contra Costa, and San Mateo counties.

#### ***Traffic Management Plans, Pedestrians and Bicycles***

Enhancements for pedestrians have particularly been provided at the 29th Avenue overcrossing; refer to Exhibit 2.2-5, *Pedestrian and Bicycle Access Exhibit*. Per the request of the City of Oakland, the Project now includes one eight foot sidewalk on the 29th Avenue overcrossing rather than two five foot sidewalks. The Build Alternative places the eight foot sidewalk on the north side of the overcrossing. The City of Oakland has requested to have the option to place the eight foot sidewalk on the south side of the overcrossing. Having the sidewalk on the south side of the overcrossing would reduce the number of overall crossings that pedestrians traveling from the area south of the overcrossing would have to cross; however, this would require having pedestrians crossing the higher speed off ramp traffic. In addition, pedestrians would touch down to the local street intersections in confined islands between two lanes of traffic. It has been determined that the final decision of which side the eight foot sidewalk is on is a design detail that may be worked out in the final design after public input has also been considered.

The Project is programmed in the Regional Transportation Plan (RTP ID 22769) and the State Transportation Improvement Program (TIP ID ALA050019) on the 2009 Transportation Improvement Program, and is described as follows: CTIPS ID #20600003326: Oakland: I-880 between 16th Avenue to 29th Avenue; reconfigure interchange, including new ramps. The Project is consistent with the City of Oakland General Plan Strategic Transportation Improvement Plan, which highlights the I-880 Improvement Corridor as an important implementation of the policies and goals of the City of Oakland General Plan. Because of the importance of the I-880 corridor in support of economic development and providing opportunities to reconnect the City's neighborhoods with the waterfront, improvements in the I-880 corridor from I-980 to 98th Avenue are the City's highest priority for improvement to the Regional Access system. Therefore, the Project is consistent with applicable transportation plans and programs.

### ***Regional Growth Plans***

The Association of Bay Area Governments (ABAG) projected a six percent population growth rate for Oakland between 2000 and 2010, and a four percent increase between 2010 and 2020. The ABAG population growth projection for Alameda County is ten percent between 2000 and 2010 and five percent between 2010 and 2020. The City of Oakland General Plan states that most of Oakland's population growth has come from immigration not necessarily related to development trends in the central city and major corridors.

The Project would add minimal roadway capacity at the intersections in order to accommodate the new profiles of the overcrossings, which includes the provision of auxiliary lanes and longer on- and off-ramps to allow for additional acceleration and deceleration lengths to provide additional storage length for queuing vehicles; however, capacity would not be increased on mainline I-880. Therefore, the Project would not encourage growth beyond that envisioned in ABAG's growth projections, and the proposed interchange improvements would be consistent with applicable regional growth plans.

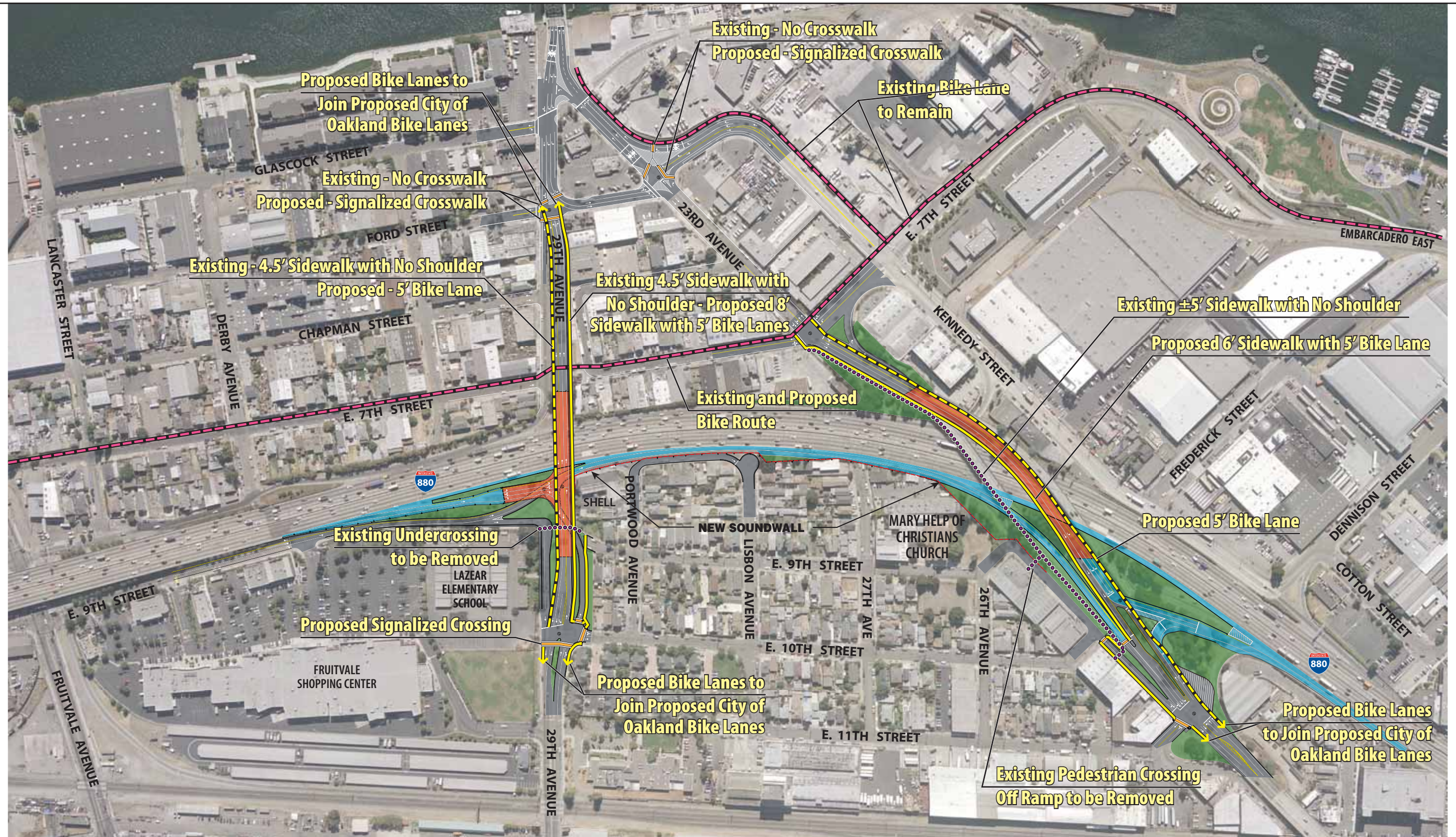
### ***City of Alameda Transportation Master Plan***

The Transportation Element Update is an update to the City of Alameda's existing Transportation Element, adopted as part of the 1991 City of Alameda General Plan. This update revises and supplements existing Transportation Element policies with policies that would facilitate the City of Alameda's future transportation decisions consistent with the goals for circulation, livability, transportation choice, and implementation. This document is herein referred to as the "Alameda Transportation Master Plan".<sup>6</sup>

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<sup>6</sup> City of Alameda Transportation Element Update, Final Environmental Impact Report. November 2008. Prepared for City of Alameda. Prepared by PMC. SCH No. 2007072075.





1rtho-photo flown September 2008

- |                            |                        |
|----------------------------|------------------------|
| LOCAL ROADWAY IMPROVEMENTS | OVERCROSSING STRUCTURE |
| RAMP IMPROVEMENTS          | PROPOSED LANDSCAPE     |

INTERSTATE 880 OPERATIONAL AND SAFETY IMPROVEMENTS  
AT 29TH AVENUE AND 23RD AVENUE OVERCROSSING IS/EA

## Pedestrian and Bicycle Access



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## ***Existing and Forecast Traffic***

### *Intersection Analysis*

The July 2009, Environmental Impact Transportation Analysis utilized data for existing conditions from the *I-880 Improvements at the 23rd Avenue and 29th Avenue Interchanges Traffic Data Collection Report* (Traffic Data Collection Report).<sup>7</sup> The forecast data utilized in this analysis is provided in the *I-880 Improvements at the 23rd Avenue and 29th Avenue Interchanges Traffic Forecast Report* (Traffic Forecast Report).<sup>8</sup>

The I-880 Improvements at the 23rd Avenue and 29th Avenue Interchanges analysis includes the existing (year 2008) conditions, no build (year 2035) conditions, and the build (year 2035) conditions.

### *Study Intersections*

The intersection locations presented in the Existing Conditions evaluation include 28 different locations. The study intersection locations are shown in Exhibit 2.2-6, *Existing Conditions Intersection Locations*. The intersection numbers correspond to those presented in the Traffic Data Collection Report.

### *Intersection Analysis Methodology*

#### Intersection Operations

LOS is commonly used as a qualitative description of intersection operation and is based on the capacity of the intersection and the volume of traffic using the intersection. The Highway Capacity Manual (HCM) analysis methodology for Signalized Intersections and Unsignalized Intersections was utilized to determine the operating LOS of the study intersections. Intersection LOS calculations have been prepared utilizing the Synchro software, which takes into account traffic volumes, distance between intersections, traffic signal phasing and cycle lengths, and vehicular traffic progression between and through intersections.

The HCM analysis methodology describes the operation of an intersection using a range of LOS from LOS A (free-flow conditions) to LOS F (severely congested conditions), based on corresponding stopped delay per vehicle ratios for signalized and unsignalized intersections shown in Table 2.2-6, *Intersection Level of Service Criteria*.

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<sup>7</sup> I-880 Improvements at the 23rd Avenue and 29th Avenue Interchanges Traffic Data Collection Report. December 22, 2008. Prepared for Alameda County Congestion Management Agency by AECOM.

<sup>8</sup> I-880 Improvements at the 23rd Avenue and 29th Avenue Interchanges Traffic Forecast Report. March 12, 2009. Prepared for Alameda County Congestion Management Agency by AECOM.

**Table 2.2-6: Intersection Level of Service Criteria**

LOS	Description	Intersection Delay <sup>(a)</sup>	
		Signalized	Unsignalized
A	Little or no delay	$\leq 10.0$	$\leq 10.0$
B	Short traffic delay	$> 10.0$ and $\leq 20.0$	$> 10.0$ and $\leq 15.0$
C	Average traffic delay	$> 20.0$ and $\leq 35.0$	$> 15.0$ and $\leq 25.0$
D	Long traffic delay	$> 35.0$ and $\leq 55.0$	$> 25.0$ and $\leq 35.0$
E	Very long traffic delay	$> 55.0$ and $\leq 80.0$	$> 35.0$ and $\leq 50.0$
F	Extreme traffic delay	$> 80.0$	$> 50.0$

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

(a) Intersection delay in terms of seconds per vehicle.

### Network Queuing

At all signalized and unsignalized two-way stop controlled intersections, the vehicle queue lengths were determined by utilizing the Synchro 7 software. This software incorporates the HCM methodology to determine the 95th percentile queue length; however, neither Synchro nor the HCM include a methodology for determining queue lengths at unsignalized all-way stop controlled intersections.

At all unsignalized all-way stop controlled intersection, the vehicle queue lengths were determined by utilizing Dowling Associate's Traffix 7.9 (Release 4) software. Although this queue length methodology is not provided in the HCM, estimated queue lengths provided from Traffix are typically considered reliable for design and planning purposes.

An assessment of vehicle queuing caused by ramp metering operations is included in the Ramp Meter Queuing section. An assessment of bridge operations is included in the Bridge Queuing section. A detailed discussion of the corresponding software and methodology is included in the Regional Freeway Analysis Methodology section.

### *Intersection Analysis – Existing Conditions*

The results of the existing conditions intersection LOS analysis for the weekday AM and PM peak hours is included in Table 2.2-7, *Intersection Operations – Existing Conditions*. As shown in Table 2.2-7, *Intersection Operations – Existing Conditions*, during the weekday AM peak hour, two study intersections operate at LOS E or worse; during the weekday PM peak hour, no study intersections operate at LOS E or worse.

**Table 2.2-7: Intersection Operations – Existing Conditions**

Intersection		Control Type	Weekday AM Peak Hour		Weekday PM Peak Hour	
			LOS	Delay	LOS	Delay
1	Park St. / Lincoln Av.	Signal	B	13.3	B	13.3
2	Park St. / Buena Vista Av.	Signal	B	12.0	B	14.0
3	Park St. / Clement Av.	Signal	D	41.2	B	18.4
4	Park St. / Blanding Av.	Signal	<b>F</b>	<b>&gt; 80.0</b>	D	38.2
5	29th Av. / 23rd Av.	TWSC	B	13.6	B	11.2
6	29th Av. / Glascock St.	TWSC	B	13.2	B	10.9
7	29th Av. / Ford St.	TWSC	D	28.7	D	25.1
8	29th Av. / Chapman St.	TWSC	B	11.1	B	11.8
9	29th Av. / E. 7th St.	TWSC	B	11.3	B	12.0
10	29th Av. / E. 9th St.	AWSC	<b>E</b>	<b>46.7</b>	C	17.3
11	29th Av. / E. 10th St.	TWSC	C	17.5	B	14.2
12	29th Av. / E. 12th St.	Signal	B	13.4	B	14.7
13	29th Av. / International Bl.	Signal	B	12.4	B	14.3
14	Lisbon Av. / E. 8th St.	TWSC	C	18.1	B	11.8
15	Lisbon Av. / E. 10th St.	AWSC	A	7.2	A	7.3
16	23rd Av. / Ford St.	Signal	B	11.9	C	21.6
17	23rd Av. / Chapman St.	TWSC	D	31.8	C	18.1
18	23rd Av. / E. 7th St.	Signal	C	26.5	B	12.7
19	23rd Av. / E. 11th St.	Signal	B	14.6	B	17.5

**Table 2.2-7: Intersection Operations – Existing Conditions, continued**

Intersection	Control Type	Weekday AM Peak Hour		Weekday PM Peak Hour	
		LOS	Delay	LOS	Delay
20	22nd Av. / E. 12th St.	Signal	C 26.6	C 26.2	
21	22nd Av. / International Bl.	Signal	B 12.1	B 12.2	
22	Kennedy St. / E. 7th St.	Signal	A 8.2	B 12.1	
23	Kennedy St. / Dennison St.	TWSC	C 16.6	D 27.9	
24	16th Av. / Embarcadero	TWSC	C 16.9	C 19.2	
25	Fruitvale Av. / E. 8th St.	Signal	B 12.7	B 14.2	
26	Fruitvale Av. / E. 9th St.	Signal	C 24.6	C 34.1	
27	Fruitvale Av. / E. 12th St.	Signal	C 25.8	B 14.5	
28	Fruitvale Av. / International Bl.	Signal	B 14.7	B 10.9	

Source: AECOM – July 2009

Notes: TWSC = Two-Way Stop Controlled; AWSC = All-Way Stop Controlled; Signal = Signalized; Weekday AM peak period = 6:30am to 9:30am; Weekday PM peak period = 3:30pm to 6:30pm; Delay in terms of seconds per vehicle. **Bold** denotes intersection operating at LOS E or worse.

### Intersection Queuing

Existing intersection queuing conditions were evaluated for the weekday AM and PM peak hours. The results of the existing conditions intersection queuing analysis for the weekday AM and PM peak hours are included in Table 2.2-8, *Intersection Queuing – Existing Conditions*. As shown in Table 2.2-8, *Intersection Queuing – Existing Conditions*, during the weekday AM peak hour, vehicle queuing from downstream roadway facilities frequently extend through the following intersections:

- Number 2, Park Street / Buena Vista Avenue (eastbound);
- Number 3, Park Street / Clement Avenue (eastbound);
- Number 7, 29th Avenue / Ford Street (eastbound);
- Number 9, 29th Avenue / East 7th Street (eastbound);
- Number 25, Fruitvale Avenue / East 8th Street (eastbound); and,
- Number 26, Fruitvale Avenue / East 9th Street (westbound).

**Table 2.2-8: Intersection Queuing – Existing Conditions**

Intersection		Peak Hour	Northbound			Southbound			Eastbound			Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
1	Park St. / Lincoln Av.	AM	75 <sup>(a)</sup>	75	75	125	100	25	125	125	125	175	175	175
		PM	100 <sup>(a)</sup>	75	75	100	75	25	150	150	150	275	275	275
2	Park St. / Buena Vista Av.	AM	175	175	175	<b>150</b>	125	125	150	150	150	75	75	75
		PM	125	125	125	125	150	150	175	175	175	275	275	275
3	Park St. / Clement Av.	AM	250	250	250	<b>300*</b>	<b>300*</b>	<b>300*</b>	175	175	175	75	175	175
		PM	75	75	75	250	250	250	250	250	250	100	25	25
4	Park St. / Blanding Av.	AM	<b>425*</b>	<b>425*</b>	<b>425*</b>	<b>325*</b>	<b>325*</b>	<b>325*</b>	-	<b>275</b>	<b>275</b>	-	<b>200</b>	<b>200</b>
		PM	225	225	225	225	225	225	-	<b>250</b>	<b>250</b>	-	<b>475*</b>	<b>475*</b>
5	29th Av. / 23rd Av.	AM	-	-	-	25	-	0	-	0	-	-	-	-
		PM	-	-	-	25	-	0	-	0	-	-	-	-
6	29th Av. / Glascock St.	AM	-	-	25	-	-	-	-	0	0	-	-	-
		PM	-	-	25	-	-	-	-	0	0	-	-	-
7	29th Av. / Ford St.	AM	-	50	50	-	-	-	0	0	0	25	-	0
		PM	-	25	25	-	-	-	0	0	0	25	-	0
8	29th Av. / Chapman St.	AM	-	-	25	-	-	-	-	0	0	25	-	-
		PM	-	-	25	-	-	-	-	0	0	25	-	-
9	29th Av. / E. 7th St.	AM	25	-	25	-	-	-	-	0	0	-	-	-
		PM	25	-	25	-	-	-	-	0	0	-	-	-
10	29th Av. / E. 9th St.	AM	-	450	450	50	50	-	75	75	75	-	-	-
		PM	-	150	150	50	50	-	125	125	125	-	-	-

**Table 2.2-8: Intersection Queuing – Existing Conditions, continued**

Intersection		Peak Hour	Northbound			Southbound			Eastbound			Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
11	29th Av. / E. 10th St.	AM	-	-	-	50	-	50	25	0	-	-	0	0
		PM	-	-	-	50	-	50	25	0	-	-	0	0
12	29th Av. / E. 12th St.	AM	125	250	250	50	100	25	150	150	150	75	75	75
		PM	100	125	125	50	150	50	125	<b>275</b>	<b>275</b>	75	75	75
13	29th Av. / International	AM	125	175	175	25	150	150	75	75	75	125	125	125
		PM	100	125	125	50	225	225	<b>150</b>	150	150	150	150	150
14	Lisbon Av. / E. 8th St.	AM	-	0	0	-	-	-	-	-	-	25	-	25
		PM	-	0	0	-	-	-	-	-	-	25	-	25
15	Lisbon Av. / E. 10th St.	AM	50	50	50	25	25	25	25	25	25	25	25	25
		PM	50	50	50	25	25	25	25	25	25	25	25	25
16	23rd Av. / Ford St.	AM	0	100	0	-	-	0	-	-	-	-	150	25
		PM	0	50	0	-	-	0	-	-	-	-	350	25
17	23rd Av. / Chapman St.	AM	25	-	25	-	-	-	-	0	0	25	0	-
		PM	25	-	25	-	-	-	-	0	0	25	0	-
18	23rd Av. / E. 7th St.	AM	25	25	25	125	25	25	<b>375*</b>	<b>375*</b>	<b>375*</b>	50	50	50
		PM	25	25	25	<b>225</b>	25	25	175	175	175	100	100	25
19	23rd Av. / E. 11th St.	AM	50	50	50	-	-	-	200	225	225	50	275	275
		PM	75	75	75	-	-	-	250	<b>450</b>	<b>450</b>	50	300	300
20	22nd Av. / E. 12th St.	AM	<b>225</b>	175	175	-	125	125	200	200	200	200	200	200
		PM	150	75	75	-	225	225	275	275	275	125	125	125



**Table 2.2-8: Intersection Queuing – Existing Conditions, continued**

Intersection		Peak Hour	Northbound			Southbound			Eastbound			Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
21	22nd Av. / International	AM	100	100	100	75	75	75	75	75	75	125	125	125
		PM	75	75	75	100	100	100	150	150	150	75	75	75
22	Kennedy St. / E. 7th St.	AM	50	50	50	50	50	25	25	25	25	75	75	75
		PM	75	75	50	125	125	50	25	25	25	125	125	125
23	Kennedy St. / Dennison St.	AM	-	-	-	-	-	25	50	-	-	-	-	25
		PM	-	-	-	-	-	125	25	-	-	-	-	25
24	16th Av. / Embarcadero	AM	-	0	0	25	0	-	-	-	-	50	-	25
		PM	-	0	0	25	0	-	-	-	-	50	-	25
25	Fruitvale Av. / E. 8th St.	AM	75	-	75	175	175	25	-	275	275	25	<b>175</b>	-
		PM	50	-	50	<b>250</b>	<b>250</b>	50	-	225	225	25	<b>375</b>	-
26	Fruitvale Av. / E. 9th St.	AM	125	125	125	125	125	125	<b>350</b>	<b>625</b>	<b>625</b>	25	<b>550</b>	<b>550</b>
		PM	125	125	125	<b>450*</b>	<b>450*</b>	<b>450*</b>	<b>150</b>	<b>450</b>	<b>450</b>	25	<b>600</b>	<b>600</b>
27	Fruitvale Av. / E. 12th St.	AM	50	50	50	50	100	25	<b>325*</b>	<b>300</b>	<b>300</b>	125	125	125
		PM	75	50	50	75	125	75	<b>225</b>	175	175	100	100	100
28	Fruitvale Av. / International	AM	75	175	175	50	75	75	75	75	75	<b>350</b>	<b>350</b>	<b>350</b>
		PM	75	100	100	75	150	150	125	125	125	200	200	200

Source: AECOM – July 2009

L = Left; T = Through; R = Right; Queue length in terms of feet; Queue length represents longest 95th percentile turning movement queue length; All queue lengths are rounded up to the length of a full vehicle (assuming vehicle length is 25 feet); "-" denotes movement that does not exist; "\*" denotes movement where volume exceeds capacity (i.e., queue length is theoretically infinite); **Bold** denotes movements exceeding the queue length storage capacity of the turning pocket or upstream segment; (a) The northbound queue length represents the Tilden Way approach. The Lincoln Avenue approach queue length is 25 feet during the weekday AM and weekday PM peak hours.

As shown in Table 2.2-8, *Intersection Queuing – Existing Conditions*, during the weekday PM peak hour, vehicle queuing from downstream roadway facilities frequently extend through the following intersections:

- Number 3, Park Street / Clement Avenue (eastbound);
- Number 7, 29th Avenue / Ford Street (eastbound);
- Number 8, 29th Avenue / Chapman Street (eastbound);
- Number 9, 29th Avenue / East 7th Street (eastbound);
- Number 25, Fruitvale Avenue / East 8th Street (eastbound); and,
- Number 26, Fruitvale Avenue / East 9th Street (westbound).

*Intersection Operations Analysis – Forecast Year 2035 Conditions*

**Build**

In addition to improving the roadway network facilities, the Proposed Project would alter traffic circulation and intersection operations on the local roadways.

The results of the Build Conditions intersection LOS analysis for the weekday AM and PM peak hours is included in Table 2.2-9, *Intersection Operations – Build Conditions*. As indicated on Table 2.2-9, *Intersection Operations – Build Conditions*, during the weekday AM peak hour, 13 of the 28 study intersections would be expected to operate at LOS E or worse in the Build Conditions. During the weekday PM peak hour, 10 of the 28 study intersections would be expected to operate at LOS E or worse in the Build Conditions. In the Build Conditions, the three proposed intersections would all operate at LOS D or better during the weekday AM and PM peak hours.

**Table 2.2-9: Intersection Operations – Build Conditions**

Intersection		Peak Hour	No Build Conditions		Build Conditions	
			LOS	Delay	LOS	Delay
1	Park St. / Lincoln Av.	AM	D	48.7	D	48.7
		PM	<b>E</b>	<b>58.4</b>	<b>E</b>	<b>58.4</b>
2	Park St. / Buena Vista Av.	AM	B	17.7	B	17.7
		PM	B	17.0	B	17.0
3	Park St. / Clement Av.	AM	<b>E</b>	<b>61.7</b>	<b>E</b>	<b>66.2</b>
		PM	D	47.7	<b>E</b>	<b>61.5</b>
4	Park St. / Blanding Av.	AM	<b>F</b>	<b>&gt;80.0</b>	<b>F</b>	<b>&gt;80.0</b>
		PM	<b>F</b>	<b>&gt;80.0</b>	<b>F</b>	<b>&gt;80.0</b>
5	29th Av. / 23rd Av.	AM	C	20.1	B	14.9
		PM	B	13.9	B	11.3

**Table 2.2-9: Intersection Operations – Build Conditions, continued**

Intersection		Peak Hour	No Build Conditions		Build Conditions	
			LOS	Delay	LOS	Delay
6	29th Av. / Glascock St.	AM	C	17.9	B	12.4
		PM	B	12.0	C	16.5
7	29th Av. / Ford St.	AM	<b>F</b>	<b>&gt;50.0</b>	C	28.2
		PM	<b>F</b>	<b>&gt;50.0</b>	D	48.1
8	29th Av. / Chapman St.	AM	B	11.1	B	10.6
		PM	B	11.8	B	11.6
9	29th Av. / E. 7th St.	AM	B	11.3	B	11.0
		PM	B	12.0	B	12.0
11	29th Av. / E. 10th St.	AM	D	31.1	B	15.9
		PM	D	33.2	B	14.9
12	29th Av. / E. 12th St.	AM	<b>F</b>	<b>&gt;80.0</b>	<b>F</b>	<b>&gt;80.0</b>
		PM	<b>E</b>	<b>56.6</b>	<b>F</b>	<b>&gt;80.0</b>
13	29th Av. / International	AM	D	53.2	<b>E</b>	<b>61.9</b>
		PM	<b>F</b>	<b>&gt;80.0</b>	<b>F</b>	<b>&gt;80.0</b>
15	Lisbon Av. / E. 10th St.	AM	A	7.4	A	7.4
		PM	A	8.4	A	7.7
16	23rd Av. / Ford St.	AM	B	17.9	A	8.3
		PM	C	24.7	A	7.3
17	23rd Av. / Chapman St.	AM	<b>F</b>	<b>&gt;50.0</b>	<b>f</b>	<b>&gt;50.0</b>
		PM	D	34.1	D	25.4
18	23rd Av. / E. 7th St.	AM	<b>F</b>	<b>&gt;80.0</b>	D	51.3
		PM	C	21.4	B	17.8
19	23rd Av. / E. 11th St.	AM	C	32.6	B	10.3
		PM	<b>E</b>	<b>73.3</b>	B	11.9
20	22nd Av. / E. 12th St.	AM	<b>F</b>	<b>&gt;80.0</b>	<b>F</b>	<b>&gt;80.0</b>
		PM	<b>F</b>	<b>&gt;80.0</b>	<b>F</b>	<b>&gt;80.0</b>
21	22nd Av. / International	AM	B	16.1	B	19.6
		PM	C	21.2	B	18.5
22	Kennedy St. / E. 7th St.	AM	A	9.2	B	10.5
		PM	B	15.1	B	17.6

**Table 2.2-9: Intersection Operations – Build Conditions, continued**

Intersection		Peak Hour	No Build Conditions		Build Conditions	
			LOS	Delay	LOS	Delay
23	Kennedy St. / Dennison St.	AM	C	22.8	C	22.8
		PM	D	29.1	D	29.1
24	16th Av. / Embarcadero	AM	<b>F</b>	<b>&gt;50.0</b>	<b>F</b>	<b>&gt;50.0</b>
		PM	<b>F</b>	<b>&gt;50.0</b>	<b>F</b>	<b>&gt;50.0</b>
25	Fruitvale Av. / E. 8th St.	AM	B	15.0	B	15.4
		PM	C	25.9	C	26.2
26	Fruitvale Av. / E. 9th St.	AM	<b>F</b>	<b>&gt;80.0</b>	<b>F</b>	<b>&gt;80.0</b>
		PM	<b>F</b>	<b>&gt;80.0</b>	<b>F</b>	<b>&gt;80.0</b>
27	Fruitvale Av. / E. 12th St.	AM	<b>F</b>	<b>&gt;80.0</b>	<b>F</b>	<b>&gt;80.0</b>
		PM	<b>F</b>	<b>&gt;80.0</b>	<b>F</b>	<b>&gt;80.0</b>
28	Fruitvale Av. / International	AM	<b>F</b>	<b>&gt;80.0</b>	<b>F</b>	<b>&gt;80.0</b>
		PM	D	49.4	D	49.5
41	29th Av. / I-880 Off-Ramp	AM	-	-	B	10.8
		PM	-	-	B	15.5
42	29th Av. / I-880 On-Ramp	AM	-	-	C	18.1
		PM	-	-	B	11.7
43	23rd Av. / I-880 On-Ramp	AM	-	-	<b>E</b>	<b>76.9</b>
		PM	-	-	D	40.3

Source: AECOM – July 2009

Weekday AM peak period = 6:30am to 9:30am; Weekday PM peak period = 3:30pm to 6:30pm; Delay in terms of seconds per vehicle; **Bold** denotes intersection operating at LOS E or worse.

#### No Build

The results of the No Build (year 2035) Conditions intersection LOS analysis for the weekday AM and PM peak hours is provided in Table 2.2-10, *Intersection Operations – No Build (Year 2035) Conditions*. The results of the No Build (year 2035) Conditions intersection LOS analysis for the weekday AM and PM peak hours is included in Table 2.2-10, *Intersection Operations – No Build (Year 2035) Conditions*. During the weekday AM peak hour, 12 of the 28 study intersections would be expected to operate at LOS E or worse in the No Build Conditions. During the weekday PM peak hour, 10 of the 28 study intersections would be expected to operate at LOS E or worse in the No Build Conditions.

**Table 2.2-10: Intersection Operations – No Build (Year 2035) Conditions**

Intersection		Peak Hour	Existing Conditions		No Build Conditions	
			LOS	Delay	LOS	Delay
1	Park St. / Lincoln Av.	AM	B	13.3	D	48.7
		PM	B	13.3	<b>E</b>	<b>58.4</b>
2	Park St. / Buena Vista Av.	AM	B	12.0	B	17.7
		PM	B	14.0	B	17.0
3	Park St. / Clement Av.	AM	D	41.2	<b>E</b>	<b>61.7</b>
		PM	B	18.4	D	47.7
4	Park St. / Blanding Av.	AM	<b>F</b>	<b>&gt;80.0</b>	<b>F</b>	<b>&gt;80.0</b>
		PM	D	38.2	<b>F</b>	<b>&gt;80.0</b>
5	29th Av. / 23rd Av.	AM	B	13.6	C	20.1
		PM	B	11.2	B	13.9
6	29th Av. / Glascok St.	AM	B	13.2	C	17.9
		PM	B	10.9	B	12.0
7	29th Av. / Ford St.	AM	D	28.7	<b>F</b>	<b>&gt;50.0</b>
		PM	D	25.1	<b>F</b>	<b>&gt;50.0</b>
8	29th Av. / Chapman St.	AM	B	11.1	B	11.1
		PM	B	11.8	B	11.8
9	29th Av. / E. 7th St.	AM	B	11.3	B	11.3
		PM	B	12.0	B	12.0
10	29th Av. / E. 9th St.	AM	<b>E</b>	<b>46.7</b>	<b>F</b>	<b>&gt;50.0</b>
		PM	C	17.3	<b>F</b>	<b>&gt;50.0</b>
11	29th Av. / E. 10th St.	AM	C	17.5	D	31.1
		PM	B	14.2	D	33.1
12	29th Av. / E. 12th St.	AM	B	13.4	<b>F</b>	<b>&gt;80.0</b>
		PM	B	14.7	D	56.6
13	29th Av. / International	AM	B	12.4	D	53.2
		PM	B	14.3	<b>F</b>	<b>&gt;80.0</b>
14	Lisbon Av. / E. 8th St.	AM	C	18.1	C	18.5
		PM	B	11.8	C	15.8
15	Lisbon Av. / E. 10th St.	AM	A	7.2	A	7.4
		PM	A	7.3	A	8.4
16	23rd Av. / Ford St.	AM	B	11.9	B	17.9
		PM	C	21.6	C	24.7
17	23rd Av. / Chapman St.	AM	D	31.8	<b>F</b>	<b>&gt;50.0</b>
		PM	C	18.1	D	34.1

**Table 2.2-10: Intersection Operations – No Build (Year 2035) Conditions,  
continued**

Intersection		Peak Hour	Existing Conditions		No Build Conditions	
			LOS	Delay	LOS	Delay
18	23rd Av. / E. 7th St.	AM	C	26.5	<b>F</b>	<b>&gt;80.0</b>
		PM	B	12.7	C	21.4
19	23rd Av. / E. 11th St.	AM	B	14.6	C	32.6
		PM	B	17.5	<b>E</b>	<b>73.3</b>
20	22nd Av. / E. 12th St.	AM	C	26.6	<b>F</b>	<b>&gt;80.0</b>
		PM	C	26.2	<b>F</b>	<b>&gt;80.0</b>
21	22nd Av. / International	AM	B	12.1	B	16.1
		PM	B	12.2	C	21.2
22	Kennedy St. / E. 7th St.	AM	A	8.2	A	9.2
		PM	B	12.1	B	15.1
23	Kennedy St. / Dennison St.	AM	C	16.6	C	22.8
		PM	D	27.9	D	29.1
24	16th Av. / Embarcadero	AM	C	16.9	<b>F</b>	<b>&gt;50.0</b>
		PM	C	19.2	<b>F</b>	<b>&gt;50.0</b>
25	Fruitvale Av. / E. 8th St.	AM	B	12.7	B	15.0
		PM	B	14.2	C	25.9
26	Fruitvale Av. / E. 9th St.	AM	C	24.6	<b>F</b>	<b>&gt;80.0</b>
		PM	C	34.1	<b>F</b>	<b>&gt;80.0</b>
27	Fruitvale Av. / E. 12th St.	AM	C	25.8	<b>F</b>	<b>&gt;80.0</b>
		PM	B	14.5	<b>F</b>	<b>&gt;80.0</b>
28	Fruitvale Av. / International	AM	B	14.7	<b>F</b>	<b>&gt;80.0</b>
		PM	B	10.9	D	49.4

Source: AECOM – July 2009

Weekday AM peak period = 6:30am to 9:30am; Weekday PM peak period = 3:30pm to 6:30pm; Delay in terms of seconds per vehicle; **Bold** denotes intersection operating at LOS E or worse.



*Intersection Queuing Analysis – Forecast Year 2035 Conditions*

Build

During the weekday AM peak hour, the queue length storage capacity would be exceeded for at least one approach at 12 of the 29 intersection in the Build Conditions (Year 2035). During the weekday PM peak hour, the queue length storage capacity would be exceeded for at least one approach at 12 of the 29 intersection in the Build Conditions. The approach storage capacity was determined to be the distance to the nearest intersection, bridge, or railroad crossing. Intersection queuing conditions were evaluated for the weekday AM and PM peak hours. The results of the Build Conditions intersection queuing analysis for the weekday AM and PM peak hours are included in Table 2.2-11, *Intersection Queuing – Build Conditions – Weekday AM Peak Hour*, and Table 2.2-12, *Intersection Queuing – Build Conditions – Weekday PM Peak Hour*.

**Table 2.2-11: Intersection Queuing – Build Conditions – Weekday AM Peak Hour**

Intersection		Condition	Northbound			Southbound			Eastbound			Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
1	Park St. / Lincoln Av.	No Build	75 <sup>(a)</sup>	200	200	<b>250*</b>	100	<b>75</b>	250	250	250	<b>350*</b>	<b>350*</b>	<b>350*</b>
		Build	75 <sup>(a)</sup>	200	200	<b>250*</b>	100	<b>75</b>	250	250	250	<b>350*</b>	<b>350*</b>	<b>350*</b>
2	Park St. / Buena Vista Av.	No Build	275	275	275	<b>225</b>	125	125	150	150	150	150	150	150
		Build	275	275	275	<b>225</b>	125	125	150	150	150	150	150	150
3	Park St. / Clement Av.	No Build	250	250	250	<b>350*</b>	<b>350*</b>	<b>350*</b>	<b>400*</b>	<b>400*</b>	<b>400*</b>	75	200	200
		Build	225	225	225	<b>350*</b>	<b>350*</b>	<b>350*</b>	<b>400*</b>	<b>400*</b>	<b>400*</b>	75	200	200
4	Park St. / Blanding Av.	No Build	<b>425*</b>	<b>425*</b>	<b>425*</b>	<b>500*</b>	<b>500*</b>	<b>500*</b>	-	<b>375*</b>	<b>375*</b>	-	<b>475*</b>	<b>475*</b>
		Build	<b>425*</b>	<b>425*</b>	<b>425*</b>	<b>500*</b>	<b>500*</b>	<b>500*</b>	-	<b>375*</b>	<b>375*</b>	-	<b>500*</b>	<b>500*</b>
5	29th Av. / 23rd Av.	No Build	-	-	-	50	-	0	-	0	-	-	-	-
		Build	-	-	-	25	-	0	-	0	-	-	-	-
6	29th Av. / Glascok St.	No Build	-	-	25	-	-	-	-	0	0	-	-	-
		Build	-	-	50	-	-	-	-	0	0	-	-	-
7	29th Av. / Ford St.	No Build	-	<b>700*</b>	<b>700*</b>	-	-	-	0	0	0	25	-	0
		Build	-	-	25	-	-	-	<b>550</b>	<b>675</b>	<b>675</b>	150	-	375
8	29th Av. / Chapman St.	No Build	-	-	25	-	-	-	-	0	0	25	-	-
		Build	-	-	25	-	-	-	-	0	0	0	-	-
9	29th Av. / E. 7th St.	No Build	25	-	25	-	-	-	-	0	0	-	-	-
		Build	25	-	25	-	-	-	-	0	0	-	-	-
11	29th Av. / E. 10th St.	No Build	-	-	-	75	-	75	25	0	-	-	0	0
		Build	-	-	-	100	-	100	75	250	-	-	100	100

**Table 2.2-11: Intersection Queuing – Build Conditions – Weekday AM Peak Hour, continued**

Intersection		Condition	Northbound			Southbound			Eastbound			Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
12	29th Av. / E. 12th St.	No Build	<b>175*</b>	<b>525*</b>	<b>525*</b>	150	150	25	<b>400*</b>	<b>300</b>	<b>300</b>	100	100	100
		Build	<b>175*</b>	<b>600*</b>	<b>600*</b>	150	150	25	<b>400*</b>	<b>400</b>	<b>400</b>	75	75	75
13	29th Av. / International	No Build	150	300	300	125	275	275	<b>300</b>	175	175	<b>425*</b>	<b>425*</b>	<b>425*</b>
		Build	150	325	325	125	275	275	<b>300</b>	175	175	<b>425*</b>	<b>425*</b>	<b>425*</b>
15	Lisbon Av. / E. 10th St.	No Build	50	50	50	25	25	25	25	25	25	25	25	25
		Build	50	50	50	25	25	25	25	25	25	25	25	25
16	23rd Av. / Ford St.	No Build	0	125	0	-	-	0	-	-	-	-	375	25
		Build	0	200	0	-	-	0	-	-	-	-	400	25
17	23rd Av. / Chapman St.	No Build	25	-	25	-	-	-	-	0	0	25	0	-
		Build	50	-	50	-	-	-	-	0	0	25	0	-
18	23rd Av. / E. 7th St.	No Build	25	25	25	<b>175</b>	25	25	<b>525*</b>	<b>525*</b>	<b>525*</b>	125	125	50
		Build	25	25	25	<b>175</b>	25	25	<b>425*</b>	<b>425*</b>	<b>425*</b>	125	125	25
19	23rd Av. / E. 11th St.	No Build	75	75	75	-	-	-	325	<b>700</b>	<b>700</b>	50	<b>600*</b>	<b>600*</b>
		Build	75	-	75	-	-	-	100	200 <sup>(b)</sup>	200 <sup>(b)</sup>	75	425	-
20	22nd Av. / E. 12th St.	No Build	<b>350*</b>	250	250	-	175	175	<b>525*</b>	<b>525*</b>	<b>525*</b>	<b>400*</b>	<b>400*</b>	<b>400*</b>
		Build	<b>550*</b>	250	250	-	200	200	<b>550*</b>	<b>550*</b>	<b>550*</b>	<b>475*</b>	<b>475*</b>	<b>475*</b>
21	22nd Av. / International	No Build	250	250	250	125	125	125	125	125	125	200	200	200
		Build	375	375	375	100	100	100	125	125	125	175	175	175
22	Kennedy St. / E. 7th St.	No Build	75	75	50	75	75	25	25	25	25	125	125	125
		Build	100	100	50	75	75	25	50	50	50	125	125	125

**Table 2.2-11: Intersection Queuing – Build Conditions – Weekday AM Peak Hour, continued**

Intersection		Condition	Northbound			Southbound			Eastbound			Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
23	Kennedy St. / Dennison St.	No Build	-	-	-	-	-	50	75	-	-	-	-	25
		Build	-	-	-	-	-	50	75	-	-	-	-	25
24	16th Av. / Embarcadero	No Build	-	0	0	25	0	-	-	-	-	450	-	50
		Build	-	0	0	25	0	-	-	-	-	450	-	50
25	Fruitvale Av. / E. 8th St.	No Build	75	-	75	<b>200</b>	<b>200</b>	25	-	425	425	25	<b>275</b>	-
		Build	75	-	75	<b>200</b>	<b>200</b>	25	-	425	425	25	<b>275</b>	-
26	Fruitvale Av. / E. 9th St.	No Build	225	225	225	<b>175</b>	<b>175</b>	<b>175</b>	<b>575*</b>	<b>950</b>	<b>950</b>	25	<b>1,150*</b>	<b>1,150*</b>
		Build	200	200	200	75	75	75	<b>500</b>	<b>1,025*</b>	<b>1,025*</b>	25	<b>1,100*</b>	<b>1,100*</b>
27	Fruitvale Av. / E. 12th St.	No Build	50	125	125	100	150	75	<b>500*</b>	<b>600*</b>	<b>600*</b>	<b>400*</b>	<b>400*</b>	<b>400*</b>
		Build	50	125	125	100	150	100	<b>550*</b>	<b>575*</b>	<b>575*</b>	<b>375*</b>	<b>375*</b>	<b>375*</b>
28	Fruitvale Av. / International	No Build	<b>175*</b>	<b>400*</b>	<b>400*</b>	100	225	225	150	150	150	<b>675*</b>	<b>675*</b>	<b>675*</b>
		Build	<b>150*</b>	<b>425*</b>	<b>425*</b>	125	225	225	150	150	150	<b>675*</b>	<b>675*</b>	<b>675*</b>
41	29th Av. / I-880 Off-Ramp	No Build	-	-	-	-	-	-	-	-	-	-	-	-
		Build	75	-	50	-	-	-	-	150	-	-	25	-
42	29th Av. / I-880 On-Ramp	No Build	-	-	-	-	-	-	-	-	-	-	-	-
		Build	-	175	-	-	-	-	-	-	-	-	-	50
43	23rd Av. / I-880 On-Ramp	No Build	-	-	-	-	-	-	-	-	-	-	-	-
		Build	-	-	-	-	-	-	<b>675*</b>	0	-	-	<b>1,225*</b>	0

Source: AECOM – July 2009

L = Left; T = Through; R = Right; Queue length in terms of feet; Queue length represents longest 95th percentile turning movement queue length; All queue lengths are rounded up to the length of a full vehicle (assuming vehicle length is 25 feet); "-" denotes movement that does not exist; "\*" denotes movement where volume exceeds capacity (i.e., queue length is theoretically infinite); **Bold** denotes movements exceeding the queue length storage capacity of the turning pocket or upstream segment;. (a) The northbound queue length represents the Tilden Way approach. The Lincoln Avenue approach queue length is 25 feet during the weekday AM peak hour in the Existing Conditions and No Build Conditions; (b) The eastbound queue length represents the 29th Avenue overcrossing approach. The 29th Avenue frontage approach queue length is 25 feet during the weekday AM peak hour.

**Table 2.2-12: Intersection Queuing – Build Conditions – Weekday PM Peak Hour**

Intersection		Condition	Northbound			Southbound			Eastbound			Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
1	Park St. / Lincoln Av.	No Build	175 <sup>(a)</sup>	150	150	150	75	75	400*	400*	400*	425*	425*	425*
		Build	175 <sup>(a)</sup>	150	150	150	75	75	400*	400*	400*	425*	425*	425*
2	Park St. / Buena Vista Av.	No Build	175	175	175	125	175	175	175	175	175	350	350	350
		Build	175	175	175	125	175	175	175	175	175	350	350	350
3	Park St. / Clement Av.	No Build	75	75	75	300*	300*	300*	400*	400*	400*	125*	25	25
		Build	75	75	75	300*	300*	300*	400*	400*	400*	150*	25	25
4	Park St. / Blanding Av.	No Build	225	225	225	550*	550*	550*	-	275*	275*	-	650*	650*
		Build	225	225	225	550*	550*	550*	-	275*	275*	-	675*	675*
5	29th Av. / 23rd Av.	No Build	-	-	-	50	-	0	-	0	-	-	-	-
		Build	-	-	-	25	-	0	-	0	-	-	-	-
6	29th Av. / Glascocock St.	No Build	-	-	25	-	-	-	-	0	0	-	-	-
		Build	-	-	50	-	-	-	-	0	0	-	-	-
7	29th Av. / Ford St.	No Build	-	725*	725*	-	-	-	0	0	0	25	-	0
		Build	-	-	25	-	-	-	400*	825	825	225	-	725
8	29th Av. / Chapman St.	No Build	-	-	25	-	-	-	-	0	0	25	-	-
		Build	-	-	25	-	-	-	-	0	0	25	-	-
9	29th Av. / E. 7th St.	No Build	25	-	25	-	-	-	-	0	0	-	-	-
		Build	25	-	25	-	-	-	-	0	0	-	-	-
11	29th Av. / E. 10th St.	No Build	-	-	-	100	-	100	25	0	-	-	0	0
		Build	-	-	-	100	-	100	25	350	-	-	175	125



**Table 2.2-12: Intersection Queuing – Build Conditions – Weekday PM Peak Hour, continued**

Intersection		Condition	Northbound			Southbound			Eastbound			Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
12	29th Av. / E. 12th St.	No Build	<b>175*</b>	175	175	125	250	50	250	<b>675*</b>	<b>675*</b>	125	125	125
		Build	<b>200*</b>	175	175	125	250	50	275	<b>900*</b>	<b>900*</b>	150	150	150
13	29th Av. / International	No Build	150	175	175	50	425	425	<b>350*</b>	325	325	<b>475*</b>	<b>475*</b>	<b>475*</b>
		Build	150	175	175	50	425	425	<b>400*</b>	400	400	<b>475*</b>	<b>475*</b>	<b>475*</b>
15	Lisbon Av. / E. 10th St.	No Build	50	50	50	50	50	50	50	50	50	50	50	50
		Build	50	50	50	50	50	50	50	50	50	50	50	50
16	23rd Av. / Ford St.	No Build	0	75	0	-	-	0	-	-	-	-	425	25
		Build	0	100	0	-	-	25	-	-	-	-	200	25
17	23rd Av. / Chapman St.	No Build	25	-	25	-	-	-	-	0	0	25	0	-
		Build	25	-	25	-	-	-	-	0	0	25	0	-
18	23rd Av. / E. 7th St.	No Build	25	25	25	<b>325</b>	25	25	400	400	400	125	125	25
		Build	25	25	25	<b>325</b>	25	25	275	275	275	100	100	25
19	23rd Av. / E. 11th St.	No Build	100	100	100	-	-	-	550	<b>975*</b>	<b>975*</b>	50	<b>575*</b>	<b>575*</b>
		Build	150	-	150	-	-	-	75	350 <sup>(b)</sup>	350 <sup>(b)</sup>	75	400	-
20	22nd Av. / E. 12th St.	No Build	<b>250*</b>	125	125	-	275	275	<b>650*</b>	<b>650*</b>	<b>650*</b>	275	275	275
		Build	<b>275*</b>	125	125	-	275	275	<b>600*</b>	<b>600*</b>	<b>600*</b>	250	250	250
21	22nd Av. / International	No Build	200	200	200	275	275	275	275	275	275	125	125	125
		Build	225	225	225	275	275	275	250	250	250	125	125	125
22	Kennedy St. / E. 7th St.	No Build	100	100	50	175	175	225	50	50	50	175	175	175
		Build	125	125	75	175	175	225	50	50	50	175	175	175
23	Kennedy St. / Dennison St.	No Build	-	-	-	-	-	125	75	-	-	-	-	25
		Build	-	-	-	-	-	125	75	-	-	-	-	25

**Table 2.2-12: Intersection Queuing – Build Conditions – Weekday PM Peak Hour, continued**

Intersection		Condition	Northbound			Southbound			Eastbound			Westbound		
			L	T	R	L	T	R	L	T	R	L	T	R
24	16th Av. / Embarcadero	No Build	-	0	0	50	0	-	-	-	-	175	-	25
		Build	-	0	0	50	0	-	-	-	-	175	-	25
25	Fruitvale Av. / E. 8th St.	No Build	100	-	100	475*	475*	50	-	425	425	25	175	-
		Build	100	-	100	475*	475*	50	-	425	425	25	175	-
26	Fruitvale Av. / E. 9th St.	No Build	175	175	175	675*	675*	675*	200	875*	875*	25	1,175*	1,175*
		Build	175	175	175	375	375	375	175	875*	875*	25	1,175*	1,175*
27	Fruitvale Av. / E. 12th St.	No Build	175	75	75	125	275	150	300*	625*	625*	325*	325*	325*
		Build	175	75	75	125	325	175	300*	575*	575*	325*	325*	325*
28	Fruitvale Av. / International	No Build	150	200	200	150*	325	325	250	250	250	525*	525*	525*
		Build	150	200	200	150*	325	325	225	225	225	500*	500*	500*
41	29th Av. / I-880 Off-Ramp	No Build	-	-	-	-	-	-	-	-	-	-	-	-
		Build	100	-	100	-	-	-	-	275	-	-	175	-
42	29th Av. / I-880 On-Ramp	No Build	-	-	-	-	-	-	-	-	-	-	-	-
		Build	-	100	-	-	-	-	-	-	-	-	-	50
43	23rd Av. / I-880 On-Ramp	No Build	-	-	-	-	-	-	-	-	-	-	-	-
		Build	-	-	-	-	-	-	575	0	-	-	1,400	0

Source: AECOM – July 2009

L = Left; T = Through; R = Right; Queue length in terms of feet; Queue length represents longest 95th percentile turning movement queue length; All queue lengths are rounded up to the length of a full vehicle (assuming vehicle length is 25 feet); "-" denotes movement that does not exist; "\*" denotes movement where volume exceeds capacity (i.e., queue length is theoretically infinite); **Bold** denotes movements exceeding the queue length storage capacity of the turning pocket or upstream segment; (a) The northbound queue length represents the Tilden Way approach. The Lincoln Avenue approach queue length is 25 feet during the weekday PM peak hour in the Existing Conditions and No Build Conditions; (b) The eastbound queue length represents the 29th Avenue overcrossing approach. The 29th Avenue frontage approach queue length is 25 feet during the weekday PM peak hour.

### No Build

Intersection queuing conditions were evaluated for the weekday AM and PM peak hours. The results of the No Build (year 2035) Conditions intersection queuing analysis for the weekday AM and PM peak hours are included in Table 2.2-13, *Intersection Queuing – No Build Conditions*. During the weekday AM peak hour, the queue length storage capacity would be exceeded for at least one approach at 13 of the 28 intersections in the No Build Conditions. During the weekday PM peak hour, the queue length storage capacity would be exceeded for at least one approach at 13 of the 28 intersections in the No Build Conditions.

**Table 2.2-13: Intersection Queuing – No Build Conditions**

Intersection		Peak Hour	Existing Conditions				No Build Conditions			
			NB	SB	EB	WB	NB	SB	EB	WB
1	Park St. / Lincoln Av.	AM	75 <sup>(a)</sup>	125	125	175	200 <sup>(a)</sup>	250	<b>250</b>	<b>350</b>
		PM	100 <sup>(a)</sup>	100	150	<b>275</b>	200 <sup>(a)</sup>	150	<b>400</b>	<b>425</b>
2	Park St. / Buena Vista Av	AM	175	150	150	75	275	225	150	150
		PM	125	150	175	275	175	175	175	<b>350</b>
3	Park St. / Clement Av.	AM	250	300	175	175	225	350	<b>400</b>	200
		PM	75	250	250	100	75	300	<b>400</b>	100
4	Park St. / Blanding Av.	AM	425	325	275	<b>200</b>	425	500	375	<b>475</b>
		PM	225	225	250	<b>475</b>	225	550	275	<b>650</b>
5	29th Av. / 23rd Av.	AM	-	25	0	-	-	50	0	-
		PM	-	25	0	-	-	50	0	-
6	29th Av. / Glascock St.	AM	25	-	0	-	25	-	0	-
		PM	25	-	0	-	25	-	0	-
7	29th Av. / Ford St.	AM	50	-	0	25	<b>700</b>	-	0	25
		PM	25	-	0	25	<b>725</b>	-	0	25
8	29th Av. / Chapman St.	AM	25	-	0	0	25	-	0	25
		PM	25	-	0	0	25	-	0	0
9	29th Av. / E. 7th St.	AM	0	-	0	-	0	-	0	-
		PM	25	-	0	-	25	-	0	-
10	29th Av. / E. 9th St.	AM	450	50	75	-	550	50	75	-
		PM	150	50	125	-	500	50	150	-
11	29th Av. / E. 10th St.	AM	-	50	25	0	-	75	25	0
		PM	-	50	25	0	-	100	25	0
12	29th Av. / E. 12th St.	AM	250	100	150	75	<b>525</b>	150	<b>400</b>	100
		PM	125	150	<b>275</b>	75	175	250	<b>675</b>	125

**Table 2.2-13: Intersection Queuing – No Build Conditions, continued**

Intersection		Peak Hour	Existing Conditions				No Build Conditions			
			NB	SB	EB	WB	NB	SB	EB	WB
13	29th Av. / International	AM	175	150	75	125	300	<b>275</b>	300	425
		PM	125	225	150	150	175	<b>425</b>	350	475
14	Lisbon Av. / E. 8th St.	AM	0	-	-	25	0	-	-	25
		PM	0	-	-	25	0	-	-	50
15	Lisbon Av. / E. 10th St.	AM	50	25	25	25	50	25	25	25
		PM	50	25	25	25	50	50	50	50
16	23rd Av. / Ford St.	AM	100	0	-	150	125	0	-	375
		PM	50	0	-	350	75	0	-	425
17	23rd Av. / Chapman St.	AM	25	-	0	25	25	-	0	25
		PM	25	-	0	25	25	-	0	25
18	23rd Av. / E. 7th St.	AM	25	125	<b>375</b>	50	25	175	<b>525</b>	125
		PM	25	225	175	100	25	<b>325</b>	<b>400</b>	125
19	23rd Av. / E. 11th St.	AM	50	-	225	275	75	-	<b>700</b>	600
		PM	75	-	<b>450</b>	300	100	-	<b>1,000</b>	575
20	22nd Av. / E. 12th St.	AM	225	125	200	200	350	175	525	<b>400</b>
		PM	150	225	275	125	250	275	650	275
21	22nd Av. / International	AM	100	75	75	125	250	125	125	200
		PM	75	100	150	75	200	275	275	125
22	Kennedy St. / E. 7th St.	AM	50	50	25	75	75	75	25	125
		PM	75	125	25	125	100	225	25	175
23	Kennedy St. / Dennison St.	AM	-	25	50	0	-	50	75	0
		PM	-	125	25	0	-	125	75	0
24	16th Av. / Embarcadero	AM	0	25	-	50	0	25	-	450
		PM	0	25	-	50	0	50	-	175
25	Fruitvale Av. / E. 8th St.	AM	75	175	275	175	75	<b>200</b>	<b>425</b>	<b>275</b>
		PM	50	<b>250</b>	225	375	100	<b>475</b>	<b>425</b>	<b>375</b>
26	Fruitvale Av. / E. 9th St.	AM	125	125	<b>625</b>	<b>550</b>	<b>225</b>	175	<b>950</b>	<b>1,150</b>
		PM	125	<b>450</b>	<b>425</b>	<b>600</b>	175	<b>675</b>	<b>875</b>	<b>1,175</b>
27	Fruitvale Av. / E. 12th St.	AM	50	100	<b>325</b>	125	125	150	<b>600</b>	400
		PM	75	125	225	100	175	275	<b>625</b>	325

**Table 2.2-13: Intersection Queuing – No Build Conditions, continued**

Intersection		Peak Hour	Existing Conditions				No Build Conditions			
			NB	SB	EB	WB	NB	SB	EB	WB
28	Fruitvale Av. / International	AM	175	75	75	<b>350</b>	400	225	150	<b>675</b>
		PM	100	150	125	200	200	325	250	<b>525</b>

Source: AECOM – July 2009

Queue length represents longest 95th percentile queue (in feet) of all movements at each approach; All queue lengths are rounded up to the length of a full vehicle (assuming vehicle length is 25 feet); "-" is shown where approach does not exist; **Bold** denotes approaches exceeding the queue length storage capacity of the upstream segment; (a) The northbound queue length represents the Tilden Way approach. The Lincoln Avenue approach queue length is 25 feet during the weekday AM and PM peak hours.

### **Local Roadway Analysis**

#### *Study Roadways*

The Project study area includes roadway facilities located in the City of Oakland and the City of Alameda. The local roadway analysis consists of an evaluation of the arterial and intersection operations and local roadway network conditions. The evaluation area of the local roadway analysis is bounded by 16th Avenue (north), Fruitvale Avenue (south), International Boulevard (east), and Tilden Way / Lincoln Avenue (west). The study intersection locations are shown in Exhibit 2.2-6, *Existing Conditions Intersection Locations*. The intersection numbers correspond to those presented in the Traffic Data Collection Report.

#### *Local Roadways Analysis Methodology*

A network simulation model was developed to evaluate the operations of the regional freeway facilities and local arterial roadways. The simulation model was developed in McTrans' TSIS-CORSIM 6.1 (Build 509) software program. The CORSIM software is a specialized corridor simulation tool that was originally developed by the FHWA.

The network simulation model developed for the regional freeway analysis includes arterial segments and intersections in the local roadway network. The local roadway model was developed in conjunction with the regional freeway model utilizing the same software and methodology.

The simulation model produced a visual representation of the results and quantitative Measures of Effectiveness (MOE). The following Measures of Effectiveness were extracted from the model:

- Vehicle travel time;
- Vehicle on-ramp queuing; and,
- Vehicle drawbridge queuing.

The vehicle on-ramp queuing and vehicle drawbridge queuing results are presented in the Network Queuing section.

### *Local Roadways – Existing Conditions*

The Existing Conditions local roadway intersection lane geometry is shown in Exhibit 2.2-7, *Existing Conditions Intersection Lane Geometry*. The corresponding intersection turning movement volumes for the weekday AM and PM peak hours are shown as Exhibit 2.2-8, *Existing Conditions Intersection Turning Movement Volumes*.

### *Local Roadways – Forecast Year 2035*

#### Build Alternative

The Build Conditions study intersection locations are shown in Exhibit 2.2-9, *Build Conditions Study Intersection Locations*. The Build Conditions local roadway intersection lane geometry is shown in Exhibit 2.2-10, *Build Conditions Intersection Lane Geometry*. The corresponding intersection turning movement volumes for the weekday AM and PM peak hours are shown as Exhibit 2.2-11, *Build Conditions Intersection Turning Movement Volumes*.

#### No Build Alternative

The No Build Conditions local roadway intersection turning movement volumes for the weekday AM and PM peak hours are shown as Exhibit 2.2-12, *No Build (2035) Conditions Intersection Traffic Volumes*. The intersection locations in the No Build Conditions are expected to be the same as the Existing Conditions.

### ***Regional Freeway Analysis***

#### *Study Regional Freeways*

The regional freeway analysis consists of an evaluation of the freeway operations and freeway network conditions. The evaluation area of the regional freeway analysis is bounded by the Adeline Street / Market Street interchanges (north – Oakland) and the 98th Avenue interchange (south – Oakland).

The I-880 freeway between Adeline Street / Market Street and 98th Avenue is a four-lane facility and is approximately 7.8 miles long. The northbound I-880 freeway consists of ten (10) on-ramps and eleven (11) off-ramps. The southbound I-880 freeway consists of thirteen (13) on-ramps and seven (7) off-ramps. These 41 freeway ramp locations are shown in Exhibit 2.2-13, *Existing (2008) Conditions Freeway Ramp Locations*.

#### *Regional Freeway Analysis Methodology*

The network simulation model developed to evaluate the operations of the regional freeway facilities and local arterial roadways, described above under the Local Roadways Methodology section was also utilized for the regional freeway analysis. The simulation model produced a visual representation of the results and quantitative Measures of Effectiveness. The following Measures of Effectiveness were extracted from the model:

- Vehicle throughput;
- Vehicle speed; and,
- Vehicle density.

The Department advocates the use of HCM analysis methodology to analyze the operation of freeway segments. HCM analysis methodology describes the operation of a basic freeway segment using a range of LOS from LOS A to LOS F based on corresponding density (passenger cars/mile/lane) shown in Table 2.2-14, *Freeway Level of Service Criteria*. The Department goal for basic freeway segment operation is the transition between LOS C and LOS D.

**Table 2.2-14: Freeway Level of Service Criteria**

LOS	Description	Density <sup>(a)</sup>
A	No traffic congestion	$\leq 10.0$
B	Little traffic congestion	$> 10.0$ and $\leq 20.0$
C	Average traffic congestion	$> 20.0$ and $\leq 28.0$
D	Heavy traffic congestion	$> 28.0$ and $\leq 35.0$
E	Very heavy traffic congestion	$> 35.0$ and $\leq 43.0$
F	Extreme traffic congestion	$> 43.0$

Source: *Highway Capacity Manual*, Transportation Research Board, 2000.

<sup>(a)</sup> Density in terms of passenger cars per mile per lane (pcpmpl).

#### *Freeway Ramp Queuing*

An evaluation of vehicle queuing was conducted at freeway off-ramp intersections located in the vicinity of the 23rd Avenue and 29th Avenue interchanges. Freeway off-ramp queuing was analyzed based on the 95th percentile queue criteria. The operations of these intersections were consistent with the intersection analyses conducted in the local roadway analysis. A detailed discussion of the vehicle queuing analysis methodology is included above, in the Local Roadway Analysis Methodology section.

The vehicle queuing evaluation includes the effective deceleration length of the off-ramp with respect to the back of the 95th percentile vehicle queue. Typically, the deceleration length of an off-ramp is measured from the back of the 95th percentile queue, rather than the off-ramp intersection control.

#### *Regional Freeway Analysis – Existing Conditions*

The Existing Conditions freeway mainline and ramp traffic volumes on I-880 between the 23rd Avenue and 29th Avenue interchanges are shown in Exhibit 2.2-14, *Existing Conditions Freeway Mainline and Ramp Traffic Volumes*.

As shown in Table 2.2-15, *Freeway Measures of Effectiveness – Existing Conditions* the section of I-880 through the Project site currently operates at an LOS F in the AM Peak Hour and LOS D in the PM Peak Hour.

During the weekday AM peak hour of the Existing Conditions, the freeway travel speeds are typically more than 50 mph throughout the I-880 corridor in the southbound direction. In the northbound direction, travel speeds are typically less than 50 mph throughout the I-880 corridor. Significant slowing occurs between the Hegenberger interchange and the 23rd Avenue interchange. The slow speeds in the northbound direction are caused by the poor freeway junction operations at the Oak Street

interchange and the 23rd Avenue interchange. Additionally, roadway grade and vertical curvature at the I-880 overcrossings at High Street and Fruitvale Avenue reduce the freeway capacity and cause increased upstream density and slower speeds in the northbound direction.

During the weekday PM peak hour of the Existing Conditions, the travel speeds are typically more than 50 mph in the southbound direction. At the Oak Street interchange and the 98th Avenue interchange, the travel speed is between 40 mph and 50 mph. In the northbound direction, travel speeds are typically above 50 mph throughout the corridor. At the High Street interchange the travel speed slows to less than 30 mph. The roadway grade and vertical curvature at the I-880 overcrossings at High Street reduces the freeway capacity and causes increased upstream density and slower speeds in the northbound direction.

**Table 2.2-15: Freeway Measures of Effectiveness – Existing Conditions**

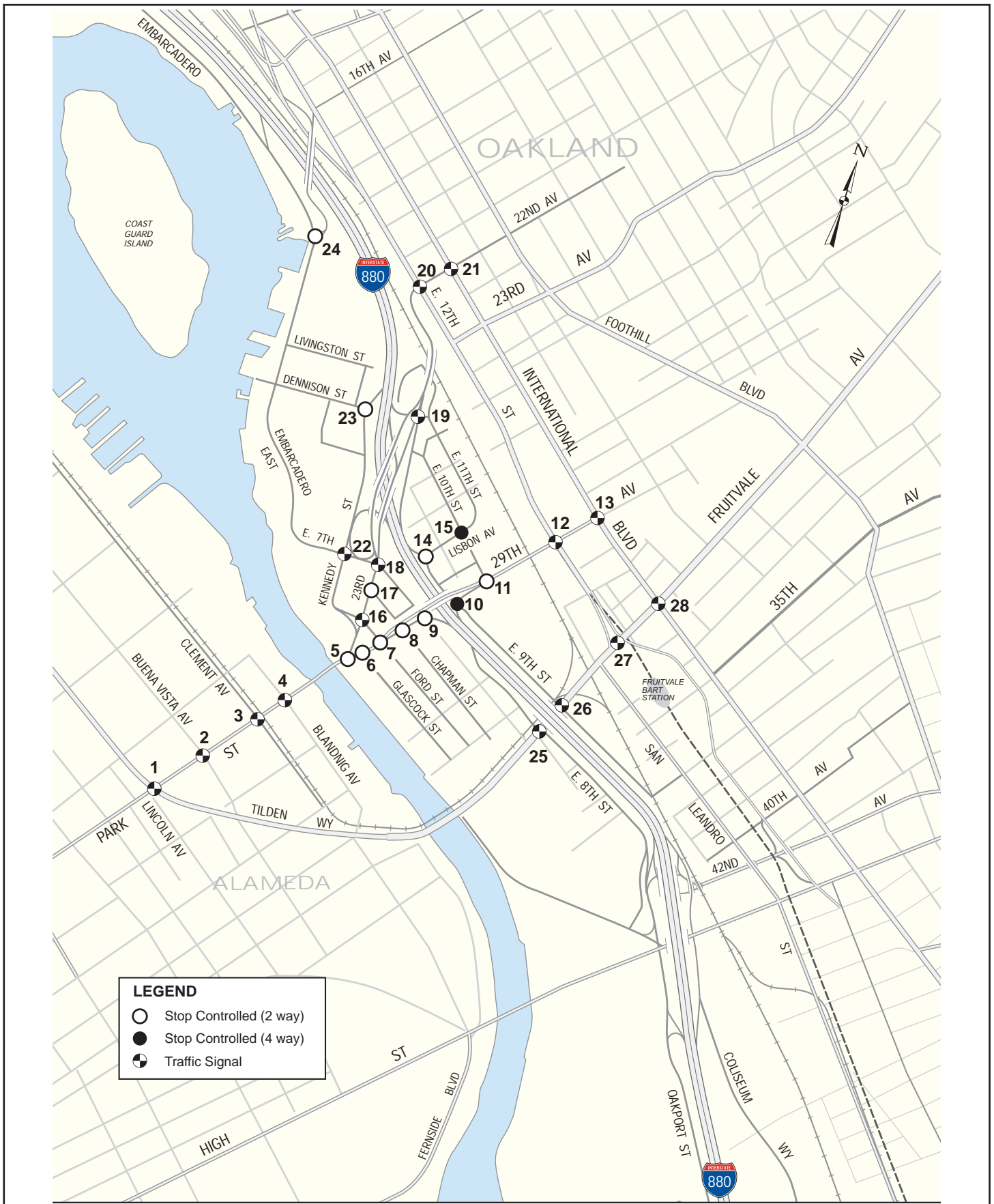
Freeway Section	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Density	Speed	Density	Speed
<b>Southbound I-880 Freeway</b>				
Diverge Section at 23 <sup>rd</sup> Avenue	23	63	23	63
Merge Section at 23 <sup>rd</sup> Avenue	27	59	27	59
Weaving Section between 29 <sup>th</sup> Avenue and Fruitvale Avenue	26	56	26	55
<b>Northbound I-880 Freeway</b>				
Diverge Section at 29 <sup>th</sup> Avenue	26	57	27	64
Weaving Section between Lisbon Avenue and 23 <sup>rd</sup> Avenue	25	36	26	58
Merge Section at 23 <sup>rd</sup> Avenue (EB)	35	31	35	53
Merge Section at 23 <sup>rd</sup> Avenue (WB)	32	49	32	59

Source: AECOM – July 2009

Density in terms of passenger cars / lane / mile; Speed in terms of miles per hour.

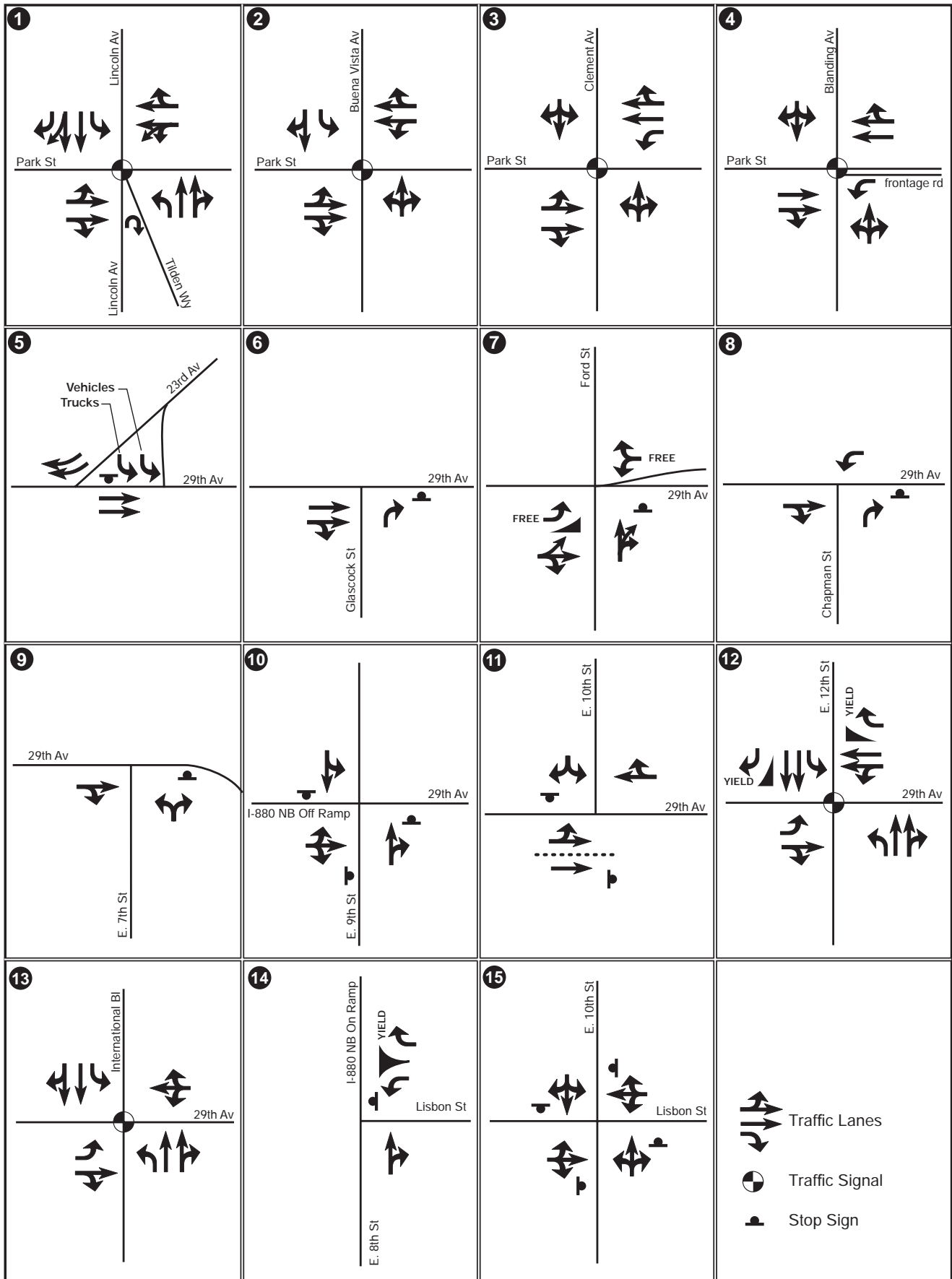


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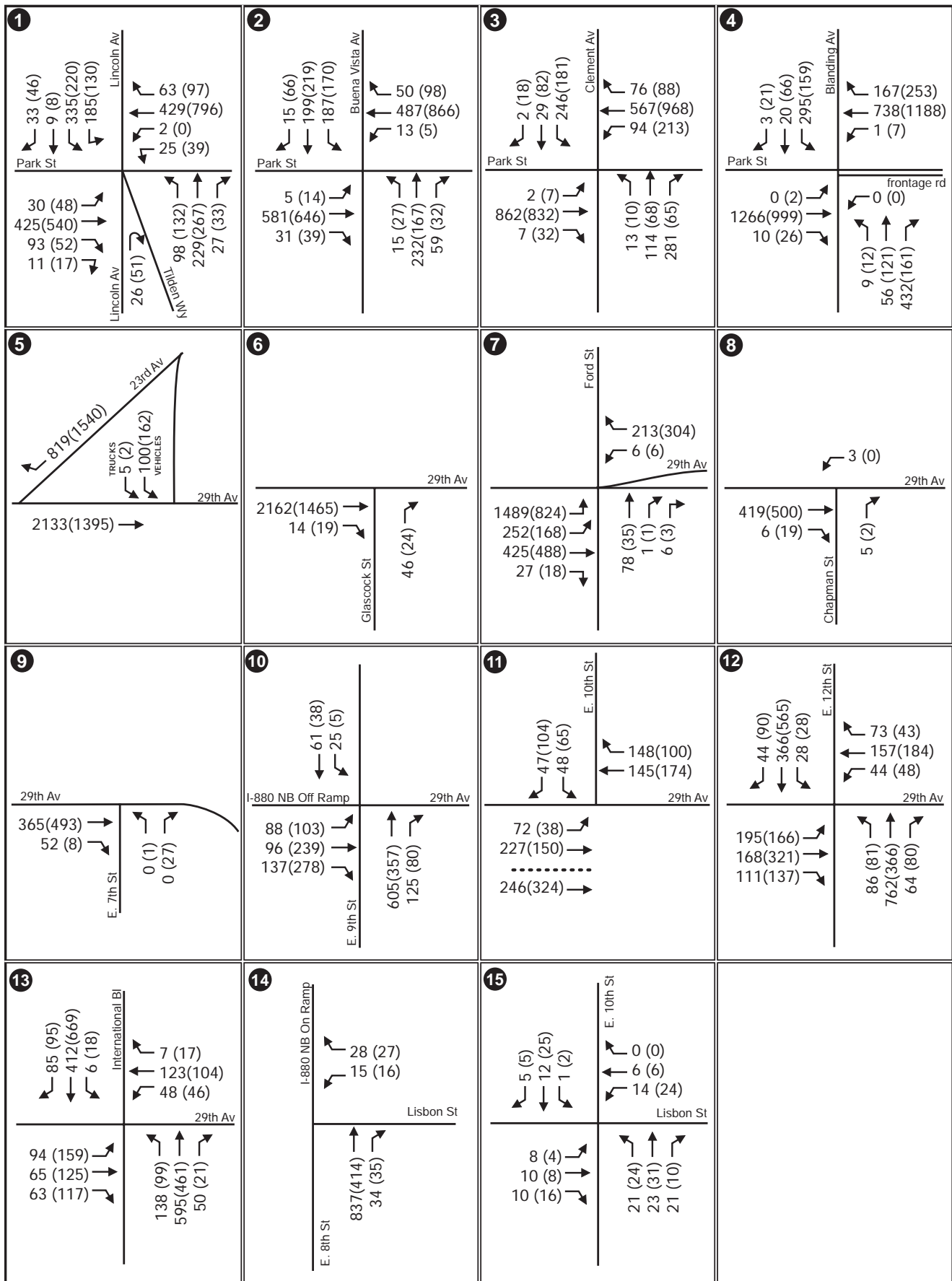


INTERSTATE 880 OPERATIONAL AND SAFETY IMPROVEMENTS  
AT 29TH AVENUE AND 23RD AVENUE OVERCROSSING I5/EA

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INTERSTATE 880 OPERATIONAL AND SAFETY IMPROVEMENTS  
AT 29TH AVENUE AND 23RD AVENUE OVERCROSSING I-880

## Existing Conditions Intersection Traffic Volumes

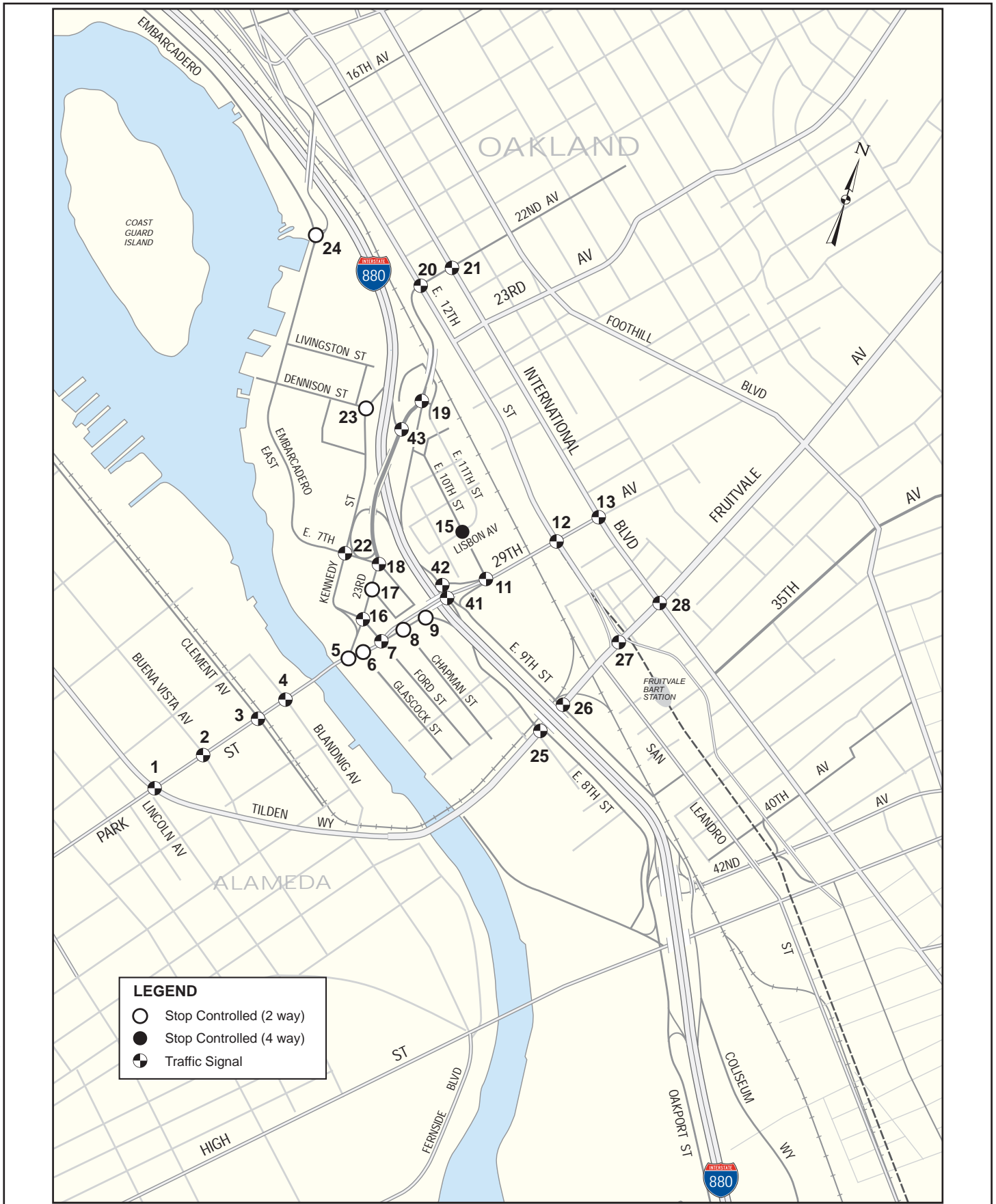
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INTERSTATE 880 OPERATIONAL AND SAFETY IMPROVEMENTS  
AT 29TH AVENUE AND 23RD AVENUE OVERCROSSING I5/EA

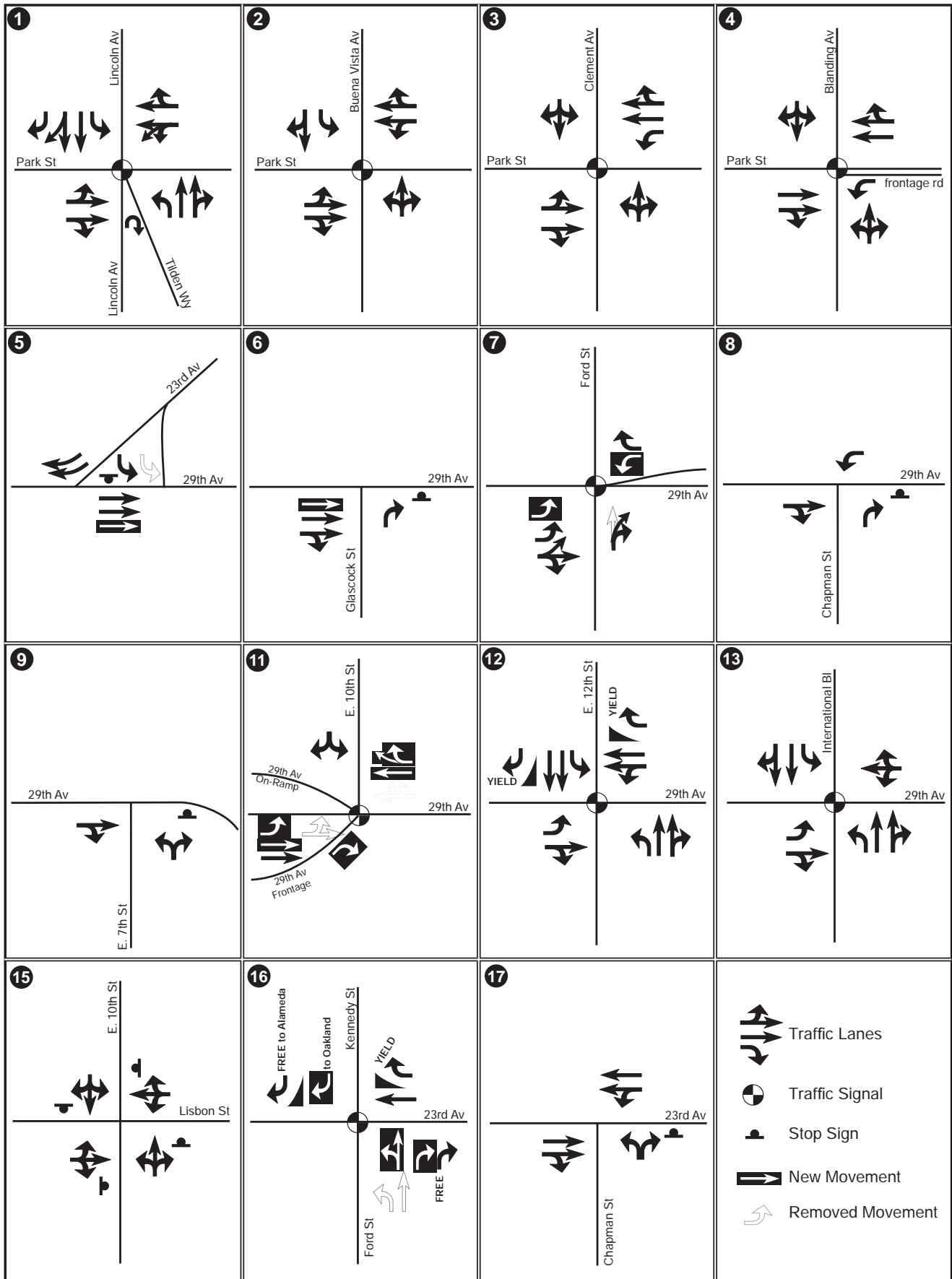
## Build (2035) Conditions Study Intersection Locations

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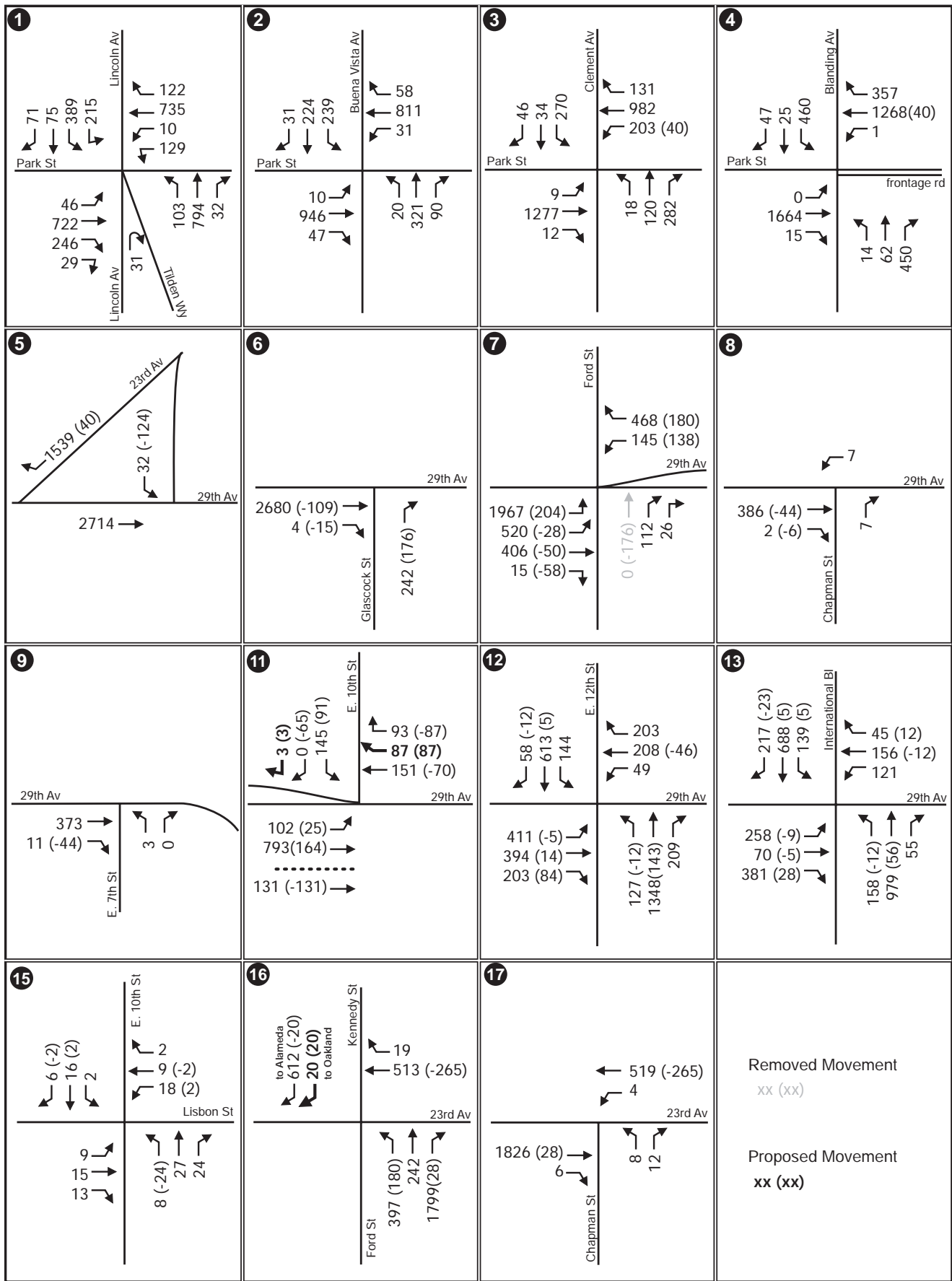
Exhibit 2.2-9



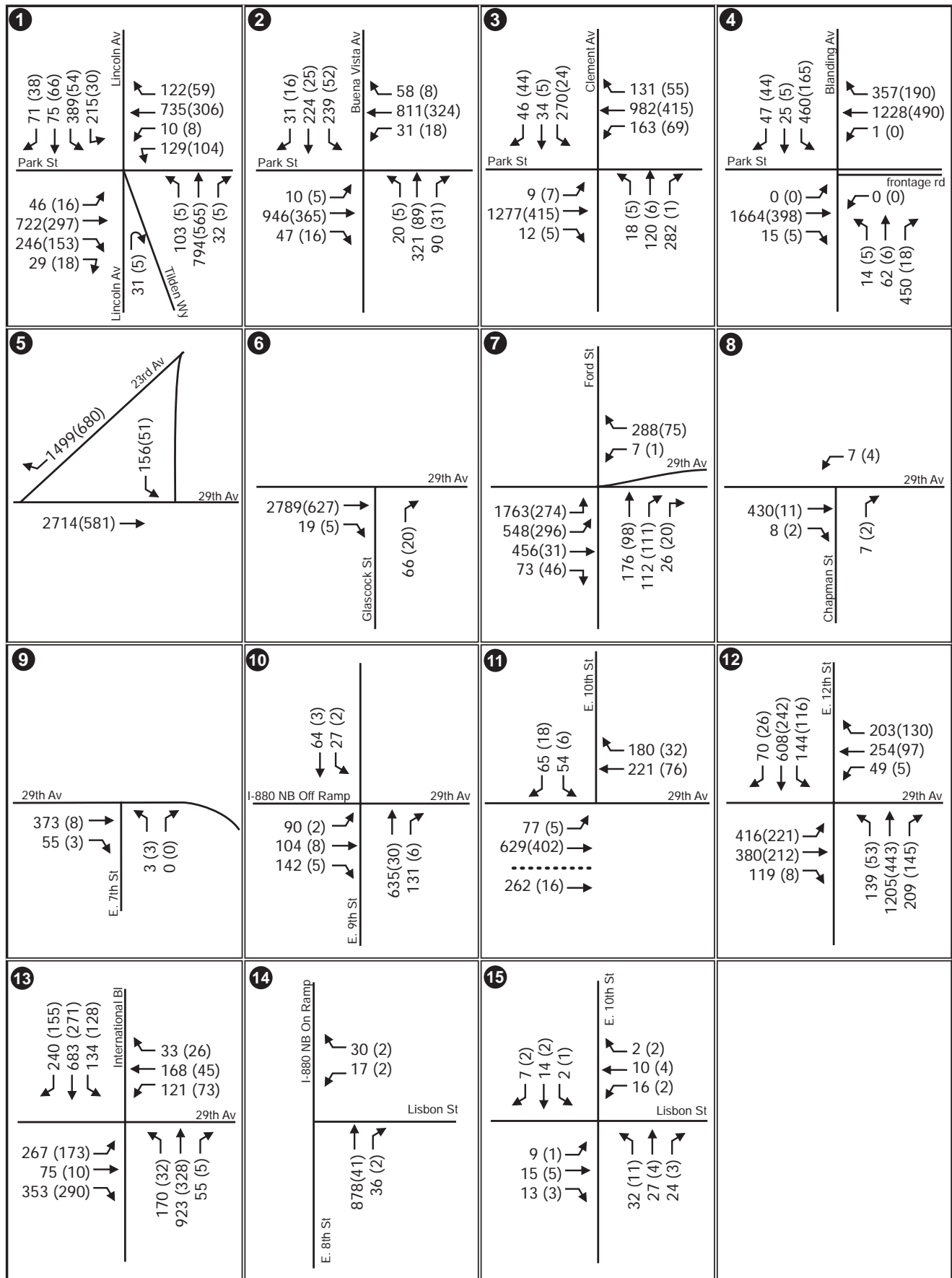
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INTERSTATE 880 OPERATIONAL AND SAFETY IMPROVEMENTS  
AT 29TH AVENUE AND 23RD AVENUE OVERCROSSING I5/EA

## No Build (2035) Conditions Intersection Traffic Volumes

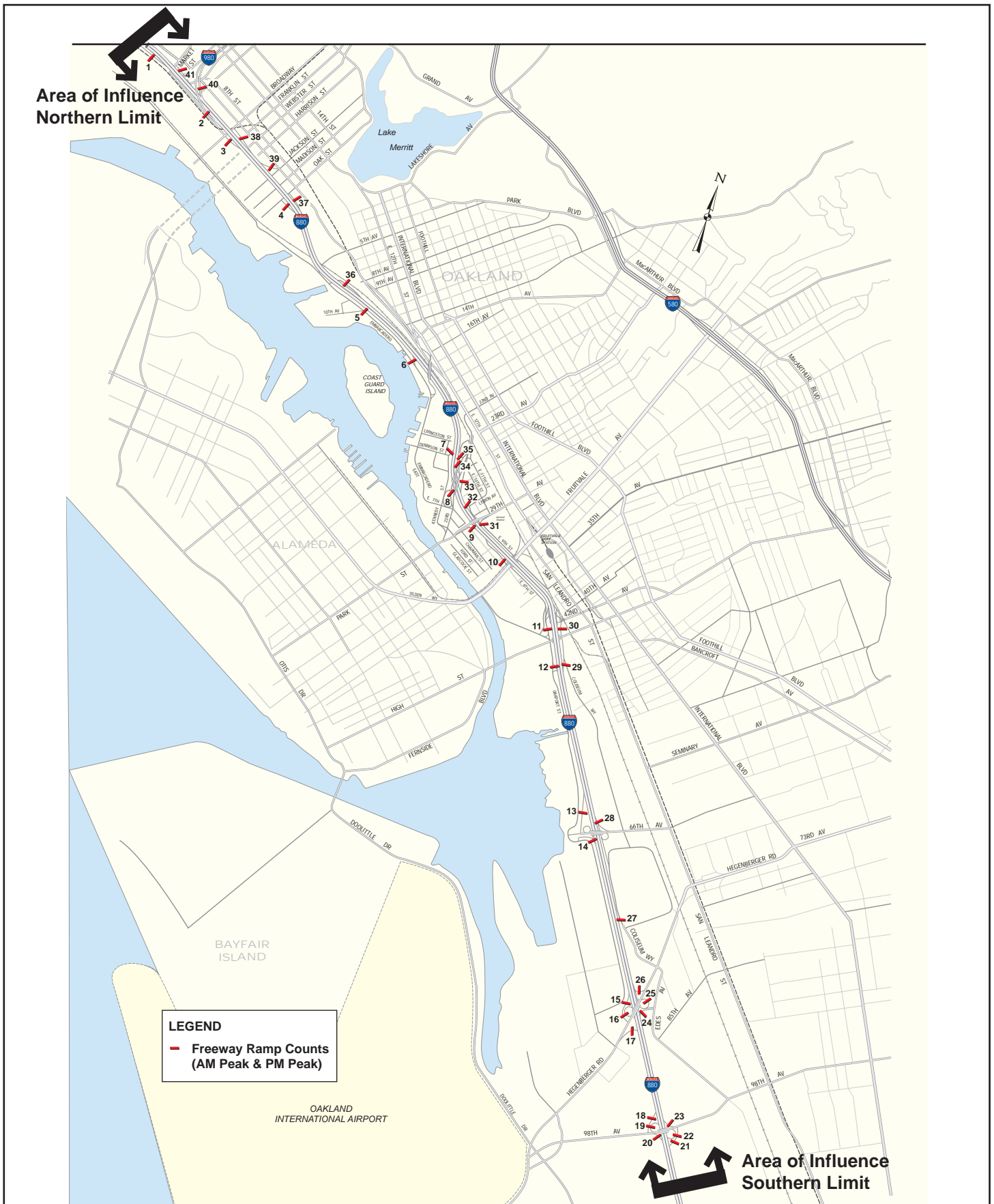
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Exhibit 2.2-12

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INTERSTATE 880 OPERATIONAL AND SAFETY IMPROVEMENTS  
AT 29TH AVENUE AND 23RD AVENUE OVERCROSSING I5/EA

## Existing Conditions Freeway Ramp Locations

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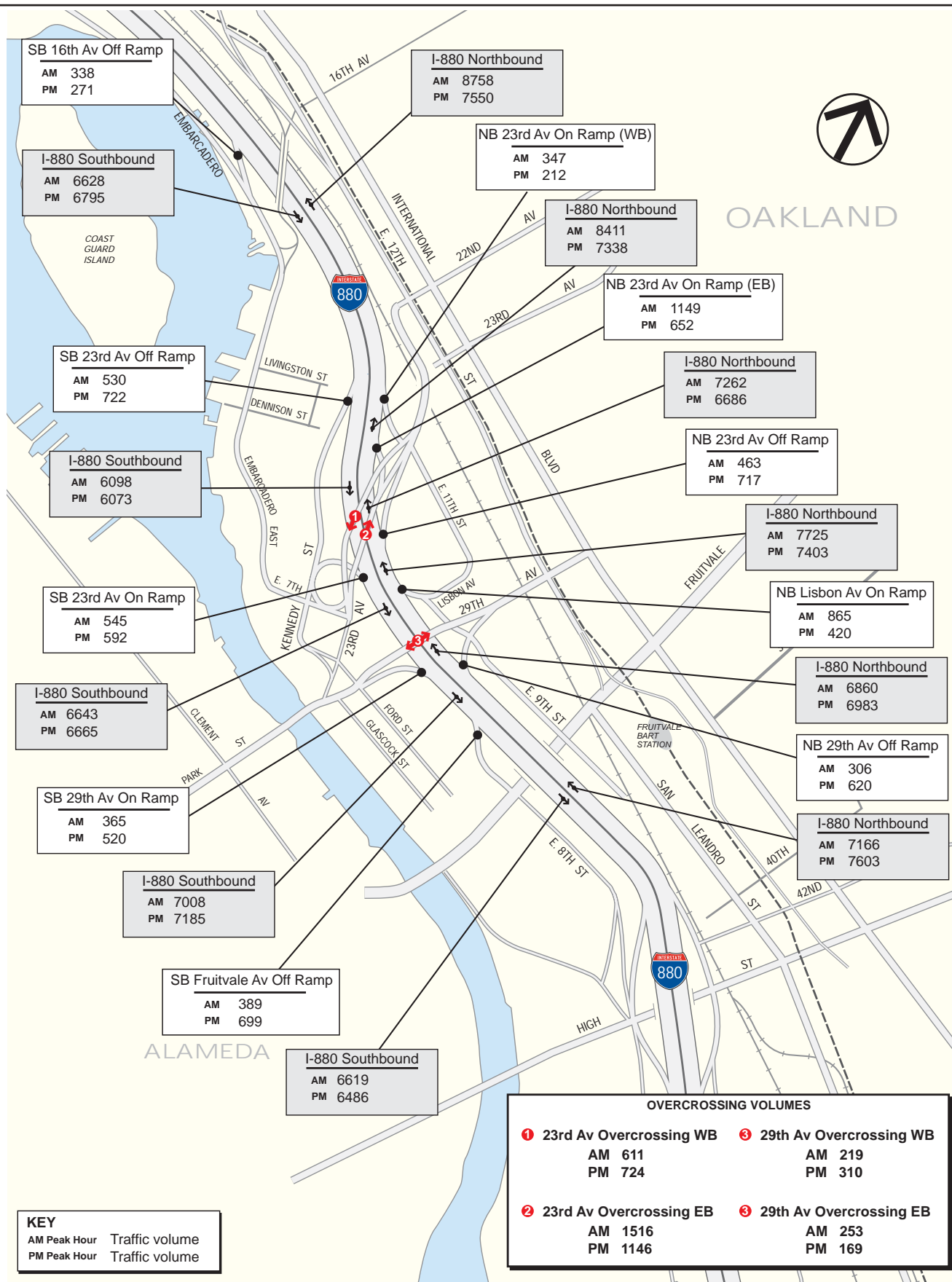
Exhibit 2.2-13

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INTERSTATE 880 OPERATIONAL AND SAFETY IMPROVEMENTS  
AT 29TH AVENUE AND 23RD AVENUE OVERCROSSING IS/EA

## Existing Conditions Freeway Traffic Volumes

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Exhibit 2.2-14

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### *Freeway Ramp Queuing*

Within the Project area, the northbound I-880 off-ramp at 29th Avenue one freeway off-ramp is controlled by an intersection, which results in queuing.

The northbound I-880 off-ramp at 29th Avenue is approximately 338 feet long and does not meet the minimum deceleration length for a freeway off-ramp. The ramp is controlled by an all-way stop controlled intersection, which coincides with the 29th Avenue / East 9th Street intersection that is included in the local roadway intersection operations analysis. The length of the 95th percentile queue during the weekday AM and PM peak hours is included in Table 2.2-16, *Freeway Ramp Queuing – Existing Conditions*.

As shown in Table 2.2-16, *Freeway Ramp Queuing – Existing Conditions*, the longest vehicle queues form on the northbound I-880 off-ramp at 29th Avenue during the weekday PM peak hour. During the weekday PM peak hour, the ramp deceleration length is limited to 213 feet. The off-ramp length is 312 feet less than the minimum mandatory deceleration length. Typically, vehicles begin to decelerate on the mainline freeway in advance of the off-ramp length.

**Table 2.2-16: Freeway Ramp Queuing – Existing Conditions**

Freeway Section	Weekday AM Peak Hour		Weekday PM Peak Hour	
	Queue	Deceleration	Queue	Deceleration
NB I-880 Off-Ramp at 29th Av.	75	263	125	213

Source: AECOM – July 2009

Queue length is in terms of feet for the 95th percentile queue; Deceleration length is in terms of feet from the back of the queue to the mainline freeway divergence point; The minimum mandatory off-ramp deceleration length is 525 feet; The Northbound I-880 Off-Ramp at 29th Avenue is 338 feet long.

### ***Regional Freeway Analysis – Forecast Year 2035***

#### *Build Alternative*

#### Freeway Network Operations

The Build Conditions freeway mainline and ramp traffic volumes on I-880 between the 23rd Avenue and 29th Avenue interchanges are shown in Exhibit 2.2-15, *Build Conditions Freeway Mainline and Ramp Traffic Volumes*.

The vehicle density and speed at these freeway ramp junctions for the weekday AM and PM peak hours were extracted from the CORSIM model and is included in Table 2.2-16, *Freeway Measures of Effectiveness – Build Conditions*.

The simulated traffic volumes on the I-880 mainline freeway were compared to the vehicle demand volumes. The traffic volumes at each of the freeway ramp junctions for the weekday AM and PM peak hours were extracted from the CORSIM model and are included in Table 2.2-18, *Freeway Traffic Volumes – Build Conditions*.

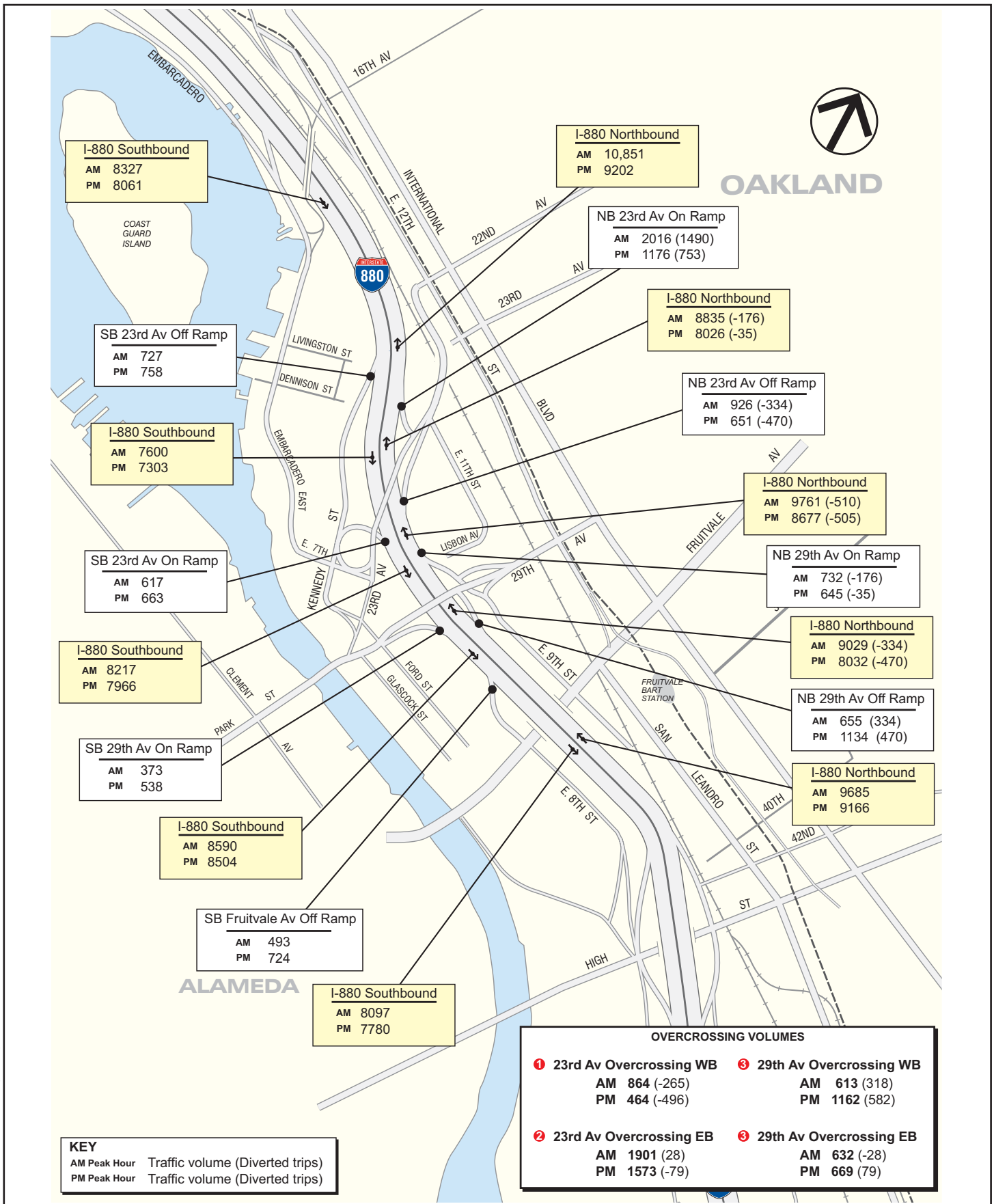
The Build Conditions freeway mainline and ramp traffic volumes on I-880 between the 23rd Avenue and 29th Avenue interchanges are shown in Exhibit 2.2-15, *Build Conditions Freeway Mainline and Ramp Traffic Volumes*.

**Table 2.2-17: Freeway Measures of Effectiveness – Build Conditions**

Freeway Section	Peak Hour	No Build Conditions		Build Conditions	
		Density	Speed	Density	Speed
Southbound I-880 Freeway					
Diverge Section at 23rd Avenue	AM	105	14	92	18
	PM	23	62	23	62
Merge Section at 23rd Avenue	AM	100	16	96	17
	PM	27	57	26	59
Weaving Section between 29th Avenue and Fruitvale Avenue	AM	97	15	104	14
	PM	27	53	25	56
Northbound I-880 Freeway					
Diverge Section at 29th Avenue	AM	34	50	26	59
	PM	74	26	26	60
Weaving Section between Lisbon Avenue and 23rd Avenue	AM	49	32	25	59
	PM	62	22	23	61
Merge Section at 23rd Avenue (EB)	AM	64	29	-	-
	PM	19	58	-	-
Merge Section at 23rd Avenue (WB)	AM	50	39	51	38
	PM	21	58	37	50

Source: AECOM – July 2009

Density in terms of passenger cars / lane / mile; Speed in terms of miles per hour; “-” denotes freeway section does not exist in the Build Conditions



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 AT 29TH AVENUE AND 23RD AVENUE OVERCROSSING IS/EA

## Build (2035) Conditions Freeway Traffic Volumes

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Exhibit 2.2-15

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**Table 2.2-18: Freeway Traffic Volumes – Build Conditions**

Freeway Section	Peak Hour	No Build Conditions		Build Conditions	
		Demand	Served	Demand	Served
Southbound I-880 Freeway					
Diverge Section at 23rd Avenue	AM	8,326	6,592	8,326	6,888
	PM	8,061	6,657	8,061	6,633
Merge Section at 23rd Avenue	AM	8,217	6,505	8,217	6,718
	PM	7,965	6,614	7,965	6,468
Weaving Section between 29th Avenue and Fruitvale Avenue	AM	8,590	6,850	8,590	7,125
	PM	8,503	7,170	8,503	6,960
Northbound I-880 Freeway					
Diverge Section at 29th Avenue	AM	9,685	6,832	9,685	6,884
	PM	9,168	4,831	9,168	6,823
Weaving Section between Lisbon Avenue and 23rd Avenue	AM	10,271	7,422	9,762	7,275
	PM	9,184	5,240	8,679	6,961
Merge Section at 23rd Avenue (EB)	AM	10,325	7,598	-	-
	PM	8,780	5,318	-	-
Merge Section at 23rd Avenue (WB)	AM	10,850	8,097	10,850	8,249
	PM	9,204	5,647	9,204	7,581

Source: AECOM – July 2009

Density in terms of passenger cars / lane / mile; Speed in terms of miles per hour; “-” denotes freeway section does not exist in the Build Conditions

### *Freeway Ramp Queuing*

The northbound I-880 off-ramp at 29th Avenue would be controlled by an intersection in the Build Conditions, which results in queuing. The northbound I-880 off-ramp at 29th Avenue would be approximately 645 feet long. The ramp would be controlled by signalized intersection, which would coincide with the 29th Avenue / northbound I-880 off-ramp at 29th Avenue intersection that is included in the local roadway intersection operations analysis. The length of the 95th percentile queue during the weekday AM and PM peak hours is included in Table 2.2-19, *Freeway Ramp Queuing – Build Conditions*. In the Build Conditions, the 95th percentile queue length is expected to be 120 feet during the weekday PM peak hour. This queue length would reduce the ramp deceleration length to 525 feet, which would meet the minimum mandatory off-ramp deceleration length.

**Table 2.2-19: Freeway Ramp Queuing – Build Conditions**

Freeway Section	Peak Hour	No Build Conditions		Build Conditions	
		Queue	Deceleration	Queue	Deceleration
NB I-880 Off-Ramp at 29th Avenue	AM	75	263	75	570
	PM	150	188	100	545

Source: AECOM – July 2009

Queue length is in terms of feet for the 95th percentile queue; Deceleration length is in terms of feet from the back of the queue to the mainline freeway divergence point; The minimum mandatory off-ramp deceleration length is 525 feet; The Northbound I-880 Off-Ramp at 29th Avenue is 338 feet long in the No Build Conditions; The Northbound I-880 Off-Ramp at 29th Avenue is 645 feet long in the Build Conditions.

#### *No Build Alternative*

The No Build Conditions regional freeway analysis includes an evaluation of the network operations and ramp queuing.

#### *Freeway Network Operations*

The No Build Conditions freeway mainline and ramp traffic volumes on I-880 between the 23rd Avenue and 29th Avenue interchanges are shown in Exhibit 2.2-17, *No Build Conditions Freeway Mainline and Ramp Traffic Volumes*.

The freeway network was simulated using the CORSIM model for the weekday AM and PM peak periods. The vehicle density and speed at these freeway ramp junctions for the weekday AM and PM peak hours were extracted from the CORSIM model and is included in Table 2.2-20, *Freeway Measures of Effectiveness – No Build Conditions*.

The simulated traffic volumes on the I-880 mainline freeway were compared to the vehicle demand volumes. The traffic volumes at each of the freeway ramp junctions for the weekday AM and PM peak hours were extracted from the CORSIM model and are included in Table 2.2-21, *Freeway Traffic Volumes – No Build Conditions*.

**Table 2.2-20: Freeway Measures of Effectiveness – No Build Conditions**

Freeway Section	Peak Hour	Existing Conditions		No Build Conditions	
		Density	Speed	Density	Speed
Southbound I-880 Freeway					
Diverge Section at 23rd Avenue	AM	23	63	105	14
	PM	23	63	23	62
Merge Section at 23rd Avenue	AM	27	59	100	16
	PM	27	59	27	57
Weaving Section between 29th Avenue and Fruitvale Avenue	AM	26	56	97	15
	PM	26	55	27	53
Northbound I-880 Freeway					
Diverge Section at 29th Avenue	AM	26	57	34	50
	PM	27	64	74	26

**Table 2.2-20: Freeway Measures of Effectiveness – No Build Conditions, continued**

Freeway Section	Peak Hour	Existing Conditions		No Build Conditions	
		Density	Speed	Density	Speed
Weaving Section between Lisbon Avenue and 23rd Avenue	AM	25	36	49	32
	PM	26	58	62	22
Merge Section at 23rd Avenue (EB)	AM	35	31	64	29
	PM	35	53	19	58
Merge Section at 23rd Avenue (WB)	AM	32	49	50	39
	PM	32	59	21	58

Source: AECOM – July 2009

Density in terms of passenger cars / lane / mile; Speed in terms of miles per hour.

**Table 2.2-21: Freeway Traffic Volumes – No Build Conditions**

Freeway Section	Peak Hour	Existing Conditions		No Build Conditions	
		Demand	Simulated	Demand	Simulated
Southbound I-880 Freeway					
Diverge Section at 23rd Avenue	AM	6,627	6,765	8,326	6,592
	PM	6,794	6,868	8,061	6,657
Merge Section at 23rd Avenue	AM	6,642	6,781	8,217	6,505
	PM	6,664	6,718	7,965	6,614
Weaving Section between 29th Avenue and Fruitvale Avenue	AM	7,007	7,162	8,590	6,850
	PM	7,184	7,247	8,503	7,170
Northbound I-880 Freeway					
Diverge Section at 29th Avenue	AM	7,166	6,829	9,685	6,832
	PM	7,604	7,657	9,168	4,831
Weaving Section between Lisbon Avenue and 23rd Avenue	AM	7,725	7,355	10,271	7,442
	PM	7,404	7,632	9,184	5,240
Merge Section at 23rd Avenue (EB)	AM	8,421	8,077	10,325	7,598
	PM	7,338	7,770	8,780	5,318
Merge Section at 23rd Avenue (WB)	AM	8,768	8,407	10,850	8,097
	PM	7,550	7,965	9,204	5,647

Source: AECOM – July 2009

Demand represents the peak hour mainline traffic volume demand; Simulated represents the peak hour mainline traffic demand volume that is served in the freeway simulation.

### *Freeway Queuing*

The northbound I-880 freeway off-ramp is controlled by an intersection, which results in queuing, which terminates at 29th Avenue. The northbound I-880 off-ramp at 29th Avenue is approximately 338 feet long and does not meet the minimum deceleration length for a freeway off-ramp. The ramp is controlled by an all-way stop controlled intersection, which coincides with the 29th Avenue / East 9th Street that is included in the local roadway intersection operations analysis. The length of the 95th percentile queue during the weekday AM and PM peak hours is included in Table 2.2-22, *Freeway Ramp Queuing – No Build Conditions*. In the No Build Conditions, the 95th percentile queue length is expected to be 150 feet during the weekday PM peak hour. This queue length would reduce the ramp deceleration length to 188 feet, which is 337 feet less than the minimum mandatory off-ramp deceleration length.

**Table 2.2-22: Freeway Ramp Queuing – No Build Conditions**

Freeway Section	Peak Hour	Existing Conditions		No Build Conditions	
		Queue	Deceleration	Queue	Deceleration
NB I-880 Off-Ramp at 29th Avenue	AM	75	263	75	263
	PM	125	213	150	188

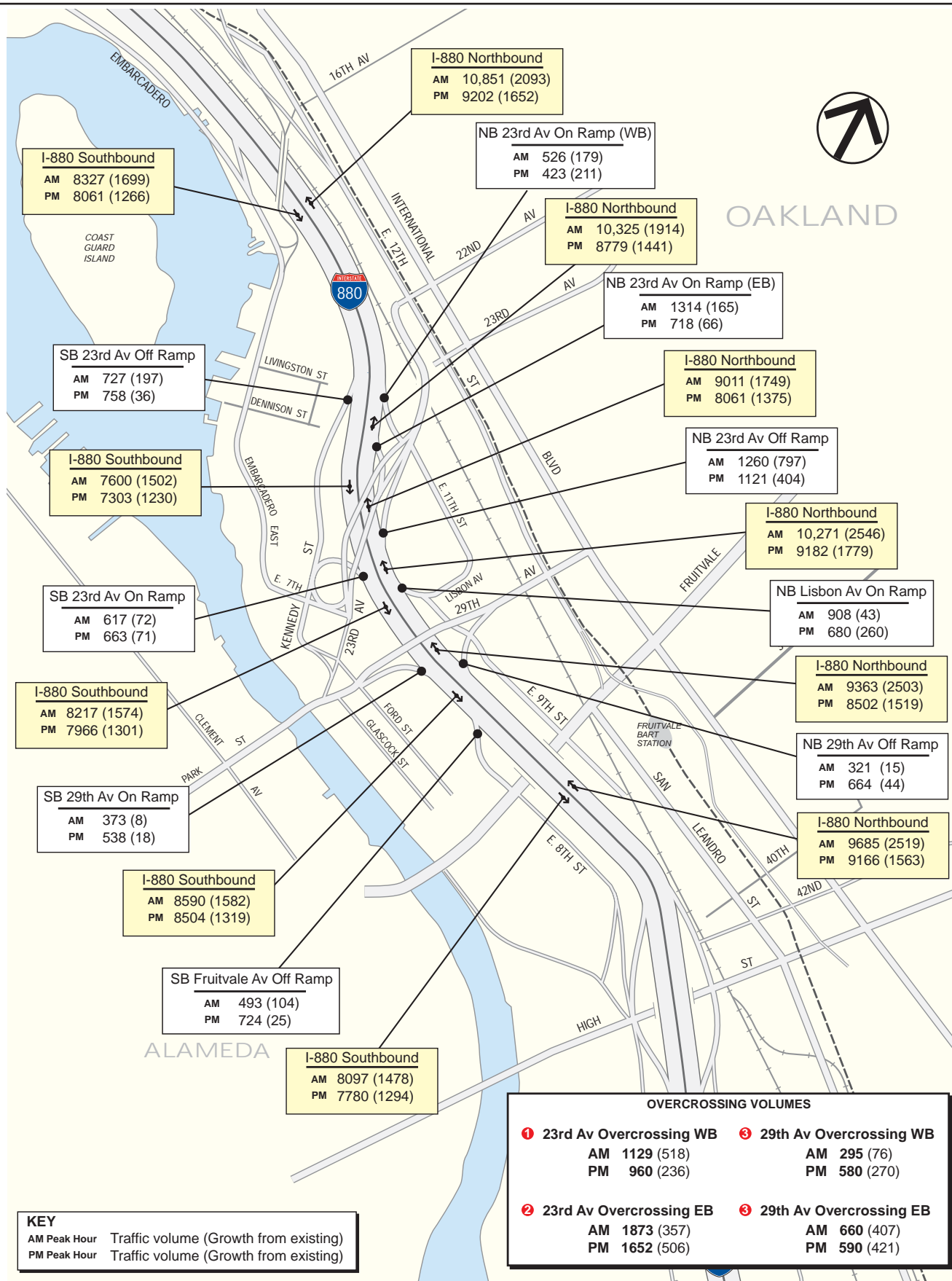
Source: AECOM – July 2009

Queue length is in terms of feet for the 95th percentile queue; Deceleration length is in terms of feet from the back of the queue to the mainline freeway divergence point; The minimum mandatory off-ramp deceleration length is 525 feet; The Northbound I-880 Off-Ramp at 29th Avenue is 338 feet long.

### ***Accident Data***

#### *Regional Freeway*

Traffic accident records available through the Traffic Accident Surveillance and Analysis System (TASAS) for the Proposed Project were reviewed. TASAS accident data was reviewed for a three year period, January 1, 2005 to December 31, 2007. Collisions in the Project area are relatively common due to the current design of the freeway facilities and the local roadway network. The collision rates at the five southbound I-880 segments, and corresponding post miles, and the six northbound I-880 segments, and corresponding post miles, that were evaluated include are included in Table 2.2-23, *Freeway Collision Rate Summary*.



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AT 29TH AVENUE AND 23RD AVENUE OVERCROSSING IS/EA

## No Build (2035) Conditions Freeway Traffic Volumes

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Exhibit 2.2-16

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The 2006 Annual Report of Fatal and Injury Motor Vehicle Traffic Collisions based on the Statewide Integrated Traffic Records System (SWITRS), provided by the California Highway Patrol, indicates that the statewide average number of collisions per million vehicle miles traveled is approximately 1.57.<sup>9</sup> The following freeway segments experience collision rates that are at least 25 percent greater than the statewide average:

- Southbound I-880 from Embarcadero Off-Ramp to 23rd Avenue Off-Ramp;
- Southbound I-880 from 23rd Avenue Off-Ramp to 23rd Avenue On-Ramp;
- Southbound I-880 from 29th Avenue On-Ramp to Fruitvale Avenue Off-Ramp; and,
- Northbound I-880 from High Street On-Ramp to 29th Avenue Off-Ramp.

The Proposed Project alternative for the build condition forecast year 2035 is not expected to increase the potential of accidents in this area, but includes improvements to upgrade the existing roadway resulting in safer vehicular circulation through the Project area. Under the no build forecast year, the proposed improvements would not be completed and the existing conditions would most likely be worsened.

The 23rd Avenue and 29th Avenue Overcrossings have a nonstandard vertical clearance over the I-880 mainline and have been struck by oversized vehicles. These are the only remaining nonstandard overcrossings within the I-880 corridor.<sup>10</sup> Under the Build Alternative, the nonstandard 23rd Avenue and 29th Avenue overcrossings would be removed and reconstructed with standard clearance overcrossings. Under the Build Alternative, the Proposed Project would redesign and replace existing interchange facilities that have been in place for decades and do not adhere to current design standards or driver expectations. Under the Build Alternative, the existing northbound I-880 on-ramps and off-ramp at 23rd Avenue would be reconstructed to improve operations and safety as vehicle demand exceeds freeway design capacity; the existing northbound I-880 on-ramps and off-ramp at 23rd Avenue would be reconstructed to improve operations and safety; and, the existing northbound I-880 off-ramp at 29th Avenue and northbound I-880 on-ramp at Lisbon Avenue would be reconstructed to improve operations and safety.

#### *Local Roadway*

The collision rates were calculated at the 28 intersection locations over a five-year period between January 1, 2003 and December 31, 2007. These collision rates are included in Table 2.2-24, *Intersection Collision Rate Summary*.

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<sup>(9)</sup> 2006 Annual Report of Fatal and Injury Motor Vehicle Traffic Collisions. Statewide Integrated Traffic Records System (SWITRS), California Highway Patrol. Section 1 – Ten Year Summary. <http://www.chp.ca.gov/switrs/>. Page accessed on February 11, 2009.

<sup>(10)</sup> The Davis Street and Marina Boulevard overcrossings currently have non-standard vertical clearances but will be modified as part of the ongoing I-880 HOV lane project.



**Table 2.2-23: Freeway Collision Rate Summary**

Freeway Section		Type of Collision					Persons	
		Side Swipe	Rear End	Hit Object	Other	Total	Injured	Killed
<b>Southbound I-880 Freeway</b>								
1	Embarcadero to 23rd Av.	0.35	1.29	0.27	0.06	1.97	0.50	0.00
2	23rd Av. to 23rd Av.	0.48	0.92	0.44 <sup>(a)</sup>	0.22	2.06	0.66	0.00
3	23rd Av. to 29th Av.	0.29	0.69	0.57	0.04	1.59	0.29	0.00
4	29th Ave. to Fruitvale Av.	0.78	1.00	0.67	0.22	2.67	0.56	0.00
5	Fruitvale Av. to High St.	0.21	0.71	0.17	0.05	1.14	0.36	0.01
Southbound Average		0.32	0.93	0.31	0.08	1.65	0.44	0.01
<b>Northbound I-880 Freeway</b>								
6	High St. to 29th Av.	0.51	1.28	0.43	0.03	2.26	0.88	0.00
7	29th Av. to Lisbon Av.	0.39	1.07	0.30	0.09	1.85	0.56	0.00
8	Lisbon Av. to 23rd Av.	0.42	1.10	0.17	0.08	1.77	0.51	0.00
9	23rd Av. to 23rd Av. (E)	0.44	0.89	0.33	0.06	1.72	0.39	0.00
10	23rd Av. (E) to 23rd Av. (W)	0.35	0.52	0.35	0.00	1.22	0.17	0.00
11	23rd Av. (W) to Embarcadero	0.37	0.53	0.32	0.04	1.26	0.30	0.01
Northbound Average		0.42	0.84	0.34	0.04	1.64	0.49	0.01

Source: Traffic Accident Surveillance and Analysis System (TASAS); AECOM – July 2009

Rates in terms of collisions per million vehicle miles traveled; Data collected between January 1, 2005 and December 31, 2007; (a) Two (2) of the reported collisions on Southbound I-880 between the 23rd Avenue Off-Ramp and the 23rd Avenue On-Ramp consisted of the vehicle striking the bottom of the 23rd Avenue structure.

**Table 2.2-24: Intersection Collision Rate Summary**

Intersection		Involved with					Avg <sup>(a)</sup>	Injury
		Vehicle	Bicycle	Peds	Other	Total		
1	Park Street / Lincoln Avenue	0.00	0.00	0.00	0.00	0.00	1.66	0.00
2	Park Street / Buena Vista Avenue	0.32	0.00	0.00	0.00	0.32	1.66	0.00
3	Park Street / Clement Avenue	0.19	0.00	0.00	0.00	0.19	1.66	0.00
4	Park Street / Blanding Avenue	0.06	0.00	0.00	0.00	0.06	1.66	0.00
5	29th Avenue / 23rd Avenue	0.00	0.00	0.00	0.01	0.01	1.79	0.00
6	29th Avenue / Glascock Street	0.17	0.00	0.00	0.00	0.17	1.79	0.00
7	29th Avenue / Ford Street	0.13	0.00	0.00	0.02	0.15	1.79	0.12
8	29th Avenue / Chapman Street	0.00	0.00	0.00	0.00	0.00	5.69	0.00
9	29th Avenue / East 7th Street	0.00	0.00	0.00	0.00	0.00	5.69	0.00
10	29th Avenue / East 9th Street	0.04	0.00	0.00	0.08	0.12	4.88	0.02
11	29th Avenue / East 10th Street	0.77	0.00	0.00	0.10	0.87	4.88	0.10
12	29th Avenue / East 12th Street	0.57	0.00	0.02	0.02	0.61	1.66	0.22
13	29th Avenue / International Bl.	0.78	0.00	0.05	0.10	0.93	1.66	0.10
14	Lisbon Avenue / East 8th Street	0.00	0.00	0.00	0.06	0.06	4.88	0.00
15	Lisbon Avenue / East 10th Street	0.96	0.00	0.00	0.00	0.96	4.88	0.00
16	23rd Avenue / Ford Street	0.07	0.00	0.00	0.02	0.09	1.66	0.06
17	23rd Avenue / Chapman Street	0.03	0.00	0.00	0.03	0.06	1.79	0.00
18	23rd Avenue / East 7th Street	0.58	0.00	0.00	0.14	0.72	1.66	0.10

**Table 2.2-24: Intersection Collision Rate Summary, continued**

Intersection		Involved with						Injury
		Vehicle	Bicycle	Peds	Other	Total	Avg <sup>(a)</sup>	
19	23rd Av. / E. 11th St.	0.55	0.00	0.00	0.04	0.60	1.66	0.16
20	22nd Av. / E. 12th St.	1.23	0.02	0.03	0.06	1.34	1.66	0.85
21	22nd Av. / International Bl.	1.17	0.00	0.02	0.00	1.20	1.66	0.28
22	Kennedy St. / E. 7th St.	1.28	0.00	0.00	0.03	1.31	1.66	0.51
23	Kennedy St. / Dennison St.	0.45	0.00	0.00	0.10	0.55	4.88	0.04
24	16th Av. / Embarcadero	0.00	0.00	0.00	0.00	0.00	4.88	0.00
25	Fruitvale Av. / E. 8th St.	0.31	0.00	0.00	0.02	0.33	1.66	0.12
26	Fruitvale Av. / E. 9th St.	0.55	0.02	0.00	0.00	0.57	1.66	0.14
27	Fruitvale Av. / E. 12th St.	0.37	0.02	0.02	0.07	0.48	1.66	0.18
28	Fruitvale Av. / International Bl.	0.99	0.04	0.09	0.04	1.15	1.66	0.35

Source: City of Oakland; City of Alameda; AECOM –July 2009

Rates in terms of collisions per million vehicles entering the intersection. N/A = Data Not Available; (a) Average based on collision rate for intersections with similar traffic volumes.

### 2.2.4.3 Environmental Consequences

#### *Intersection Operations*

The Proposed Project would significantly improve intersection operations at several intersections due to the geometric reconfiguration of the network, the resulting modifications in the circulation patterns, and the implementation of the recommended improvements. A detailed assessment of the 11 intersections operating at LOS E or worse in the Build Conditions was conducted. A comparison of the intersections to the applicable significance criteria is included in Table 2.2-25, *Intersection Operations Detailed Summary – Build Conditions*. Based on the intersection operations detailed summary, six of the 11 intersections operating at LOS E or worse and would result in an adverse impact and mitigation measures to reduce impacts would be required.

**Table 2.2-25: Intersection Operations Detailed Summary  
– Build Conditions**

Intersection		Weekday AM Peak			Weekday PM Peak			Meets Criteria
		Avg	V/C	Cont	Avg	V/C	Cont	
Signalized intersection degrades from LOS D or better to LOS E or worse with Proposed Project								
3	Park St. / Clement Av.	--	--	--	n/a	n/a	n/a	Yes
13	29th Av. / International	n/a	n/a	n/a	--	--	--	Yes
Signalized intersection operates at LOS E with and without Proposed Project								
1	Park St. / Lincoln Av.	--	--	--	0.0	n/a	0.0%	No
3	Park St. / Clement Av.	4.5	n/a	3.7%	--	--	--	Yes
Signalized intersection degrades from LOS E to LOS F with Proposed Project <sup>(a)</sup>								
12	29th Av. / E. 12th St.	--	--	--	>6.0	n/a	n/a	Yes
Signalized intersection operates at LOS F with and without Proposed Project								
4	Park St. / Blanding Av.	2.3	n/a	2.9%	8.2	n/a	4.4%	Yes
12	29th Av. / E. 12th St.	n/a	0.00	n/a	--	--	--	No
13	29th Av. / International	--	--	--	n/a	0.39	n/a	Yes
20	22nd Av. / E. 12th St.	n/a	0.15	n/a	n/a	0.00	n/a	Yes
26	Fruitvale Av. / E. 9th St.	n/a	0.00	n/a	n/a	0.00	n/a	No
27	Fruitvale Av. / E. 12th St.	n/a	0.03	n/a	n/a	0.06	n/a	Yes
28	Fruitvale Av. / International	n/a	0.00	n/a	--	--	--	No
Unsignalized intersection meets signal warrants and 10+ trips are added with Proposed Project								
17	23rd Av. / Chapman St. <sup>(b)</sup>	n/a	n/a	n/a	--	--	--	No
24	16th Av. / Embarcadero <sup>(c)</sup>	n/a	n/a	n/a	n/a	n/a	n/a	No

Source: AECOM – July 2009

Avg = Average total intersection delay increase; V/C = Total intersection volume-to-capacity ratio increase; Cont = Contribution to total intersection volume growth; "--" = Intersection does not operate at specified condition; n/a = Criteria is not applicable; **Bold** denotes intersection meets the significance criteria; (a) Average delay represents worse critical movement average delay; (b) In the weekday AM peak hour, the net number of Project-related trips at the 23rd Avenue / Chapman Street intersection would decrease by 292 trips. Therefore, a warrant analysis is not required; (c) In the weekday AM and PM peak hours, there would be no Project-related trips at the 16th Avenue / Embarcadero intersection. Therefore, a warrant analysis was not conducted.

#### *Intersection #3 – Park Street / Clement Avenue*

During the weekday AM peak hour, the Park Street / Clement Avenue intersection would operate at LOS E with and without the implementation of the Proposed Project. The increase in average delay and traffic volume growth contribution would exceed the City of Alameda's significance criteria of a maximum allowable average delay increase

of four operating at LOS E or worse. During the weekday PM peak hour, the Park Street / Clement Avenue intersection would degrade from LOS D to LOS E with the implementation of the Proposed Project. This would meet the City of Alameda's significance criteria of degrading the intersection operations from LOS D or better to LOS E or worse. As such, implementation of the Proposed Project would result in adverse impacts and would require mitigation measures to reduce impacts.

*Intersection #4 – Park Street / Blanding Avenue*

During the weekday PM peak hour, the Park Street / Blanding Avenue intersection would operate at LOS F with and without the implementation of the Proposed Project. The average intersection delay would increase by 8.2 seconds and 4.4 percent of the overall traffic volume growth at the intersection would be contributed by the Proposed Project. The increase in average delay and traffic volume growth contribution would exceed the City of Alameda's significance criteria of a maximum allowable average delay increase of four seconds and contribution of traffic volume growth of three percent for intersections operating at LOS E or worse.

*Intersection #12 – 29th Avenue / East 12th Street*

During the weekday PM peak hour, the 29th Avenue / East 12th Street intersection would degrade from LOS E to LOS F and the worst critical movement delay would increase by more than six seconds with the implementation of the Proposed Project. This would meet the City of Oakland's significance criteria of degrading the intersection operations from LOS E to LOS F and increasing the worst critical movement by more than six seconds.

*Intersection #13 – 29th Avenue / International Boulevard*

During the weekday AM peak hour, the 29th Avenue / International Boulevard intersection would degrade from LOS D to LOS E with the implementation of the Proposed Project. This would meet the City of Oakland's significance criteria of degrading the intersection operations from LOS D or better to LOS E or worse.

During the weekday PM peak hour, the 29th Avenue / International Boulevard intersection would operate at LOS F with and without the implementation of the Proposed Project. The average intersection v/c ratio would increase by 0.39, which would exceed the City of Oakland's significance criteria of a maximum allowable increase of 0.03 for intersections operating at LOS F or worse.

*Intersection #20 – 22nd Avenue / East 12th Street*

During the weekday AM peak hour, the 22nd Avenue / East 12th Street intersection would operate at LOS F with and without the implementation of the Proposed Project. The average intersection v/c ratio would increase by 0.15, which would exceed the City of Oakland's significance criteria of a maximum allowable increase of 0.03 for intersections operating at LOS F or worse.

*Intersection #27 – Fruitvale Avenue / East 12th Street*

During the weekday PM peak hour, the Fruitvale Avenue / East 12th Street intersection would operate at LOS F with and without the implementation of the Proposed Project. The average intersection v/c ratio would increase by 0.06, which would exceed the City

of Oakland's significance criteria of a maximum allowable increase of 0.03 for intersections operating at LOS F or worse.

### ***Intersection Queuing***

Based on the intersection queuing detailed summary, the queue length would increase beyond the storage capacity at six intersections with the implementation of the Proposed Project, resulting in adverse impacts.

#### ***Intersection #3 – Park Street/ Clement Avenue***

The weekday PM peak hour, the westbound left-turn movement queue length at the Park Street / Clement Avenue intersection would increase from 125 feet (v/c ratio of 1.32) to 150 feet (v/c ratio of 1.58). Since the v/c ratio would exceed 1.00, the queue would exceed the storage length of the left-turn pocket and could potentially affect network operations. These changes in queue length resulting from implementation of the Proposed Project would result in adverse impacts and would require mitigation measures to reduce impacts.

#### ***Intersection #4 – Park Street / Blanding Avenue***

During the weekday AM peak hour, the westbound through-right-turn movement queue length at the Park Street / Blanding Avenue intersection would increase from 475 feet (v/c ratio of 1.07) to 500 feet (v/c ratio of 1.10). Since the v/c ratio would exceed 1.00, the queue would exceed the storage length of the roadway segment and could potentially affect network operations.

During the weekday PM peak hour, the westbound through-right-turn movement queue length at the Park Street / Blanding Avenue intersection would increase from 650 feet (v/c ratio of 1.34) to 675 feet (v/c ratio of 1.38). Since the v/c ratio would exceed 1.00, the queue would exceed the storage length of the roadway segment and could potentially affect network operations. These changes in queue length resulting from implementation of the Proposed Project would result in adverse impacts and would require mitigation measures to reduce impacts.

#### ***Intersection #7 – 29th Avenue / Ford Street***

During the weekday AM peak hour, queue length at the 29th Avenue / Ford Street intersection eastbound left-turn movement would be 550 feet (v/c ratio of 0.98) and the eastbound through-right-turn movement would be 675 feet (v/c ratio of 0.79). Both approaches would extend beyond the Glascok Street railroad tracks and the through-right-turn movement would extend onto the Park Street Bridge.

During the weekday PM peak hour, queue length at the 29th Avenue / Ford Street intersection eastbound left-turn movement would be 400 feet (v/c ratio of 1.09) and the eastbound through-right-turn movement would be 825 feet (v/c ratio of 0.85). Since the v/c ratio would exceed 1.00, the queue would exceed the storage length of the roadway segment and could potentially affect network operations. Both approaches would extend beyond the Glascok Street railroad tracks and onto the Park Street Bridge. The through-right-turn movement could potentially extend beyond the Park Street Bridge as the volume is greater than the capacity. These changes in queue length resulting from implementation of the Proposed Project would result in adverse impacts and would require mitigation measures to reduce impacts

*Intersection #12 – 29th Avenue / East 12th Street*

During the weekday AM peak hour, the northbound through-right-turn movement queue length at the 29th Avenue / East 12th Street intersection would increase from 525 feet (v/c ratio of 1.25) to 600 feet (v/c ratio of 1.37). The eastbound through-right-turn movement queue length would increase from 300 feet (v/c ratio of 0.73) to 400 feet (v/c ratio of 0.88). Since the v/c ratio would exceed 1.00 in the northbound direction, the queue would exceed the storage length of the roadway segment and could potentially affect network operations.

During the weekday PM peak hour, the northbound left-turn movement queue length at the 29th Avenue / East 12th Street intersection would increase from 175 feet (v/c ratio of 1.07) to 200 feet (v/c ratio of 1.10). The eastbound through-right-turn movement queue length would increase from 675 feet (v/c ratio of 1.25) to 900 feet (v/c ratio of 1.57). Since the v/c ratio would exceed 1.00 in the northbound and eastbound directions, the queue would exceed the storage length of the roadway segments and could potentially affect network operations. These changes in queue length resulting from implementation of the Proposed Project would result in adverse impacts and would require mitigation measures to reduce impacts.

*Intersection # 13 – 29<sup>th</sup> Avenue/ International Boulevard*

During the weekday PM peak hour, the eastbound left-turn movement queue length at the 29th Avenue / International Boulevard intersection would increase from 350 feet (v/c ratio of 1.22) to 400 feet (v/c ratio of 1.31). Since the v/c ratio would exceed 1.00, the queue would exceed the storage length of the roadway segment and could potentially affect network operations.

*Intersection #20 – 22nd Avenue / East 12th Street*

During the weekday AM peak hour, the northbound left-turn movement queue length at the 22nd Avenue / East 12th Street intersection would increase from 350 feet (v/c ratio of 1.60) to 550 feet (v/c ratio of 2.49). The eastbound approach queue length would increase from 525 feet (v/c ratio of 3.44) to 550 feet (v/c ratio of 3.46). The westbound approach queue length would increase from 400 feet (v/c ratio of 1.18) to 475 feet (v/c ratio of 1.32). Since the v/c ratio would exceed 1.00 in the northbound, eastbound, and westbound directions, the queue would exceed the storage length of the corresponding turn pocket or roadway segment and could potentially affect network operations.

During the weekday PM peak hour, the northbound left-turn movement queue length at the 22nd Avenue / East 12th Street intersection would increase from 250 feet (v/c ratio of 1.05) to 275 feet (v/c ratio of 1.18). Since the v/c ratio would exceed 1.00 in the northbound direction, the queue would exceed the storage length of the turn pocket and could potentially affect network operations. These changes in queue length resulting from implementation of the Proposed Project would result in adverse impacts and would require mitigation measures to reduce.

*Intersection #26 – Fruitvale Avenue / East 9th Street*

During the weekday AM peak hour, the eastbound through-right-turn movement queue length at the Fruitvale Avenue / East 9th Street intersection would increase from 950 feet (v/c ratio of 1.01) to 1,025 feet (v/c ratio of 1.09). Since the v/c ratio would exceed

1.00, the queue would exceed the storage length of the roadway segment and could potentially affect network operations. These changes in queue length resulting from implementation of the Proposed Project would result in adverse impacts and would require mitigation measures to reduce impacts..

Intersection #27 – Fruitvale Avenue / East 12<sup>th</sup> Street

During the weekday AM peak hour, the eastbound left-turn movement queue length at the Fruitvale Avenue / East 12th Street intersection would increase from 500 feet (v/c ratio of 3.76) to 550 feet (v/c ratio of 3.80). Since the v/c ratio would exceed 1.00, the queue would exceed the storage length of the roadway segment and could potentially affect network operations.

Intersection #28 – Fruitvale Avenue/ International Boulevard

During the weekday AM peak hour, the northbound through-right-turn movement queue length at the Fruitvale Avenue / International Boulevard intersection would increase from 400 feet (v/c ratio of 1.02) to 425 feet (v/c ratio of 1.03). Since the v/c ratio would exceed 1.00, the queue would exceed the storage length of the roadway segment and could potentially affect network operations.

*No Build*

Intersection #7 – 29th Avenue / Ford Street

It should be noted that in the No Build Conditions the eastbound approach is a free movement and no queuing would be caused by the intersection; however, a queue would likely propagate onto the eastbound approach from the Ford Street weaving section. The two-lane Ford Street weaving section would accommodate 2,230 vph and 1,792 vph during the weekday AM and PM peak hours, respectively, in the No Build Conditions. During the peak hours, the Ford Street weaving section would likely reach overflow conditions and long queues would form. These queue lengths would likely be comparable to, or possibly exceed, the eastbound queue lengths that are expected in the Build Conditions. Additionally, the Northbound I-880 On-Ramp at 23rd Avenue ramp meter could potentially contribute to queuing that would propagate through the 29th Avenue / Ford Street intersection.

*Local Roadways*

Build

Northbound I-880 Off-Ramp at 23rd Avenue to Alameda

Vehicles utilizing the northbound I-880 off-ramp at 23rd Avenue to access Alameda in the No Build Conditions would be rerouted to utilize the reconstructed northbound I-880 off-ramp at 29th Avenue. In addition to the improvements to the northbound I-880 off-ramp at 29th Avenue, improvements to the 29th Avenue Overcrossing and the Park Street Triangle would increase the roadway capacity and improve the travel time. This configuration would accommodate all vehicles exiting the northbound I-880 freeway to access Alameda via the Park Street Bridge.

The travel time between the northbound I-880 freeway and Alameda is expected to decrease by 1.7 minutes in the weekday AM peak hour and decrease by 2.8 minutes in



the PM peak hour of the Build Conditions as vehicles are rerouted to the northbound I-880 off-ramp at 29th Avenue.

#### Northbound I-880 Off-Ramp at 23rd Avenue to Oakland

The travel time between the northbound I-880 off-ramp at 23rd Avenue and Oakland is expected to decrease by 1.3 minutes in the weekday AM peak hour and decrease by 2.2 minutes in the PM peak hour of the Build Conditions. This improvement could be expected due to standardization of the northbound I-880 off-ramp at 23rd Avenue, the rerouting of Alameda-bound vehicles to the northbound I-880 off-ramp at 29th Avenue, and the improved intersection capacity.

#### Alameda to Northbound I-880 On-Ramp at 23rd Avenue (Eastbound)

The two northbound I-880 on-ramps at 23rd Avenue would be consolidated to a single ramp with the implementation under the Build Condition. The consolidated ramp would be metered and the capacity would be lower than the capacity of the current configuration. Without ramp metering, the maximum capacity of the ramp would be approximately 1,650 vehicles per hour (vph). This capacity is dictated by the mainline freeway volumes and geometry. Given the traffic volumes and intersection geometry, the maximum capacity of the eastbound left turning movement (two lanes) and westbound right turning movement (one lane) would be approximately 2,100 vph. The metered northbound I-880 on-ramp at 23rd Avenue would have a lower capacity than the proposed intersection.

The travel time between Alameda and the northbound I-880 on-ramp at 23rd Avenue is expected to increase by 1.98 minutes in the weekday AM peak hour of the Build Conditions. This increase in travel time would be caused by queuing at the northbound I-880 on-ramp at 23rd Avenue.

The travel time between Alameda and the northbound I-880 on-ramp at 23rd Avenue is expected to increase by 1.9 minutes in the weekday PM peak hour of the Build Conditions. This increase in travel time would be caused primarily by the signalization of the 29th Avenue / Ford Street intersection. The majority of the green time at this intersection would be allotted to vehicles utilizing the northbound I-880 off-ramp at 29th Avenue to access Alameda.

#### Oakland to Northbound I-880 On-Ramp at 23rd Avenue (Westbound)

The two Northbound I-880 On-Ramps at 23rd Avenue would be consolidated to a single ramp with the implementation of the Proposed Project. The westbound approach traffic would no longer be provided an exclusive ramp, which would result in reduced ramp capacity.

The travel time between Oakland and the Northbound I-880 On-Ramp at 23rd Avenue is expected to increase by 1.2 minutes in the weekday AM peak hour of the Build Conditions. This increase in travel time would be caused primarily by the consolidation of the two Northbound I-880 On-Ramps at 23rd Avenue.

#### Oakland to Southbound I-880 On-Ramp at 23rd Avenue

The travel time between Oakland and the Southbound I-880 On-Ramp at 23rd Avenue is expected to decrease by 1.1 minutes in the weekday PM peak hour of the Build

Conditions. This travel time decrease would be caused by the improvements at the 23rd Avenue / East 11th Street intersection. The traffic circulation modifications and the improvements at the 23rd Avenue / East 11th Street intersection would reduce network delay and improve the travel time.

#### No Build

##### Northbound I-880 Off-Ramp at 23rd Avenue to Oakland

Vehicles utilizing the northbound I-880 off-ramp at 23rd Avenue to access Oakland in the No Build Conditions would exit the freeway via a substandard ramp and travel through two signalized intersections with low capacity. Vehicle queuing and substantial intersection delays would be expected and related impacts such as increased congestion, vehicle idling emissions, and impacts to pedestrian/motorist safety.

The travel time between the Northbound I-880 Off-Ramp at 23rd Avenue and Oakland is expected to decrease by 1.3 minutes in the weekday AM peak hour and decrease by 2.2 minutes in the PM peak hour of the Build Conditions. This improvement could be expected due to standardization of the Northbound I-880 Off-Ramp at 23rd Avenue, the rerouting of Alameda-bound vehicles to the Northbound I-880 Off-Ramp at 29th Avenue, and the improved intersection capacity.

#### *Freeway Network Operations*

#### Build

The Proposed Project would consolidate the two northbound I-880 on-ramps at 23rd Avenue to a single ramp. In addition to the removal of a ramp junction, the spacing between the northbound I-880 on-ramp at 23rd Avenue and the northbound I-880 on-ramp at 29th Avenue would be approximately 2,500 feet. Currently, the distance from the northbound I-880 on-ramp at Lisbon Avenue and the northbound I-880 on-ramp at 23rd Avenue (eastbound) is approximately 1,700 feet. The distance between the northbound I-880 on-ramp at 23rd Avenue (eastbound) and northbound I-880 on-ramp at 23rd Avenue (westbound) is approximately 600 feet.

The auxiliary lane between the northbound I-880 on-ramp at Lisbon Avenue and the northbound I-880 off-ramp at 23rd Avenue is 373 feet long and would accommodate 2,168 vehicles and 1,801 vehicles during the weekday AM and PM peak hours, respectively. The Proposed Project would increase the length of the auxiliary lane by 400 feet and reduce the number of trips by 510 vehicles and 505 vehicles during the weekday AM and PM peak hours, respectively. This improvement would adversely reduce the severity and number of maneuvers in the weaving section.

During the weekday AM peak hour of the Build Conditions, the increased ramp spacing allows adequate space for vehicle maneuvers at the ramp junctions. This significantly increases the freeway capacity and travel speed for vehicles traveling through the corridor in the northbound direction. With the implementation of the Proposed Project, the travel average speed increases from approximately 40 miles per hour (mph) to 60 mph between the I-880 overcrossing at High Street and the 23rd Avenue interchange. Negligible changes in freeway performance are expected in the southbound direction.

During the weekday PM peak hour of the Build Conditions, the increased auxiliary lane length between the 23rd Avenue and 29th Avenue interchanges and reduced traffic

volumes would significantly increase the travel speed on the mainline freeway. The standardization of the geometric configuration of the ramps would improve the ramp junctions as vehicles could exit the freeway at a higher rate of speed. Additionally, the modification of the 23rd Avenue / East 11th Street intersection would reduce delay and queuing that could impact ramp operations. With the implementation of the Proposed Project, the average travel speed increases from approximately 25 mph to 50 mph between the I-880 overcrossing at High Street and the 29th Avenue interchange. Negligible changes in freeway performance are expected in the southbound direction.

#### Freeway Queuing

With the implementation of the Proposed Project, the length of the Northbound I-880 Off-Ramp at 29th Avenue would increase by 337 feet – to a total ramp length of 645 feet when compared to the No Build Conditions. The weekday AM and PM peak hour queue lengths at the 29th Avenue / Northbound I-880 Off-Ramp at 29th Avenue intersection would be 75 feet and 100 feet, respectively. Given the length of the queue, the corresponding ramp deceleration length during the weekday AM and PM peak hours would be 570 feet and 545 feet, respectively. The deceleration length would exceed the minimum mandatory deceleration length of 525 feet.

#### No Build

During the weekday AM peak hour of the No Build Conditions, the simulated freeway travel speeds are less than 30 mph throughout the I-880 corridor in the southbound direction. The reduced speeds in the southbound direction are caused by the roadway grade and vertical curvature at the I-880 overcrossings at Fruitvale Avenue, High Street, and 98th Avenue, which reduce the freeway capacity resulting in increased upstream density and slower speeds. In the northbound direction, travel speeds are typically less than 20 mph upstream of the High Street Overcrossing. The slow speeds in the northbound direction are caused by the roadway grade and vertical curvature at the I-880 overcrossings at Fruitvale Avenue, High Street, and 98th Avenue.

During the weekday PM peak hour of the No Build Conditions, the simulated travel speeds decrease and the density increases in the southbound direction at the Broadway and 98th Avenue ramps. In the northbound direction, travel speeds are typically above 50 mph downstream of High Street and below 30 mph upstream of High Street. The roadway grade and vertical curvature at the I-880 overcrossings at High Street and Fruitvale Avenue reduce the freeway capacity and cause increased upstream density and slower speeds in both directions. The high on-ramp volumes at the I-980, Broadway, and Oak Street interchanges cause poor junction operations and result in increased upstream density and slower speeds in the southbound direction.

In the weekday AM peak hour of the No Build Conditions in the southbound direction of I-880, the maximum peak hour mainline traffic volume demand in the Proposed Project vicinity is expected to be 8,590 vph. The maximum peak hour mainline traffic volume that could be served was determined in the simulation to be 6,850 vph. The maximum traffic volume served was determined in the simulation to be 7,678 vph at 6:45am at the Southbound I-880 weaving section between 29th Avenue and Fruitvale Avenue – where the average vehicle speed would be 41 mph. The maximum average vehicle speed at 6:45am was determined in the simulation to be 64 mph at the

Southbound I-880 diverge section at 23rd Avenue – where the simulated traffic volume was 7,325 vph.

In the weekday AM peak hour of the No Build Conditions in the northbound direction of I-880, the maximum peak hour mainline traffic volume demand in the Proposed Project vicinity is expected to be 10,850 vph. The maximum peak hour mainline traffic volume that could be served was determined in the simulation to be 8,097 vph. The maximum traffic volume served was determined in the simulation to be 8,127 vph at 7:45am at the Northbound I-880 merge section at 23rd Avenue (WB) – where the average vehicle speed would be 41 mph. The maximum average vehicle speed at 7:45am was determined in the simulation to be 63 mph at the Northbound I-880 diverge section at Embarcadero – where the simulated traffic volume was 7,839 vph.

In the weekday PM peak hour of the No Build Conditions in the southbound direction of I-880, the maximum peak hour mainline traffic volume demand in the Proposed Project vicinity is expected to be 8,503 vph. The maximum peak hour mainline traffic volume that could be served was determined in the simulation to be 7,170 vph. The maximum traffic volume served was determined in the simulation to be 7,619 vph at 4:30 PM at the southbound I-880 diverge section at 10th Avenue and Fruitvale Avenue – where the average vehicle speed would be 54 mph. The maximum average vehicle speed at 4:30 PM was determined in the simulation to be 65 mph at the southbound I-880 diverge section at 23rd Avenue – where the simulated traffic volume was 6,049 vph. The vehicle demand exceeds the roadway capacity in the southbound direction of the freeway.

In the weekday PM peak hour of the No Build Conditions in the northbound direction of I-880, the maximum peak hour mainline traffic volume demand in the Proposed Project vicinity is expected to be 9,204 vph. The maximum peak hour mainline traffic volume that could be served was determined in the simulation to be 5,647 vph. The maximum traffic volume served was determined in the simulation to be 7,691 vph at 3:30 PM at the northbound I-880 merge section at 23rd Avenue (westbound) – where the average vehicle speed would be 50 mph. The maximum average vehicle speed at 3:30 PM was determined in the simulation to be 64 mph at the northbound I-880 diverge section at Embarcadero – where the simulated traffic volume was 6,797 vph. The vehicle demand exceeds the roadway capacity in the northbound direction of the freeway.

#### Freeway Queuing

As stated above, in the No Build Conditions the queue length on the northbound I-880 off-ramp at 29th Avenue would reduce the ramp deceleration length to 188 feet, which is 337 feet less than the minimum mandatory off-ramp deceleration length of 525 feet and would result in adverse impacts.

#### Parking

Some on-street parking will be removed or restricted as a result of implementation of Mitigation Measures TRA-1, TRA-2, TRA-7, and TRA-8 to reduce adverse traffic impacts. This removal or temporary restriction of parking is minimal and inconsequential.

#### **2.2.4.4 Avoidance, Minimization, and/or Mitigation Measures**

##### *Intersection Operations*

Based on the detailed assessment of the intersection operations, six intersections would meet the City of Alameda and City of Oakland significance criteria and result in adverse impacts. The following mitigation measures, as related to traffic impacts (TRA) are proposed to reduce impacts.

##### Intersection #3 – Park Street / Clement Avenue

TRA-1 The Proposed Project impacts will be mitigated by removing on-street parking and re-striping the northbound approach to include one shared through-left turn pocket and optimizing the signal cycle length and phasing.

During the weekday AM peak hour, the Park Street / Clement Avenue intersection would operate at LOS E (average intersection delay of 61.0 seconds per vehicle) with the implementation of the proposed mitigation. The proposed mitigation would offset the impacts of the Proposed Project and would not be expected to cause any adverse impacts.

During the weekday PM peak hour, the Park Street / Clement Avenue intersection would operate at LOS D (average intersection delay of 48.9 seconds per vehicle) with the implementation of the proposed mitigation. The proposed mitigation would offset the impacts of the Proposed Project and would not be expected to cause any adverse impacts.

The parking removal on the northbound approach would extend 100 feet from the intersection. Approximately one parking space would need to be restricted to accommodate the northbound turn pocket and to mitigate the operational impacts.

Due to the closely spaced roadway network configuration and high traffic volumes, the four signalized intersections on Park Street between Lincoln Avenue and Blanding Avenue would need to operate on a common cycle length to achieve optimal performance. The optimal cycle length would be 65 seconds during the weekday AM and weekday PM peak periods. These cycle length modifications would not be expected to cause any adverse impacts to intersection operations or queuing.

Once the Proposed Project is completed and operational, further improvements could be incorporated to improve circulation and reduce delay at the Park Street / Clement Avenue intersection. These improvements could include the addition of one left turn pocket in the southbound direction with the removal of on-street parking; transit queue jump lanes on Park Street between Buena Vista Avenue and Clement Avenue with the removal of on-street parking; full intersection actuation and video detection equipment; striping modifications between Buena Vista Avenue and Clement Avenue to accommodate transit queue jump lanes; and communication equipment to allow transit priority / preemption through the intersection via the queue jump lane.

The City of Alameda will monitor the operations of the Park Street / Clement Avenue intersection once the Proposed Project is complete and these improvements could be constructed when deemed necessary.

Intersection #4 – Park Street / Blanding Avenue

TRA-2 The Proposed Project impacts will be mitigated by optimizing signal cycle length and phasing.

During the weekday PM peak hour, the Park Street / Blanding Avenue intersection would operate at LOS F (average intersection delay of more than 80.0 seconds per vehicle) with the implementation of the proposed mitigation. The proposed mitigation would offset the impacts of the Proposed Project and would not be expected to cause any adverse impacts.

Due to the closely spaced roadway network configuration and high traffic volumes, the four signalized intersections on Park Street between Lincoln Avenue and Blanding Avenue would need to operate on a common cycle length to achieve optimal performance. The optimal cycle length would be 65 seconds during the weekday AM and weekday PM peak periods. These cycle length modifications would not be expected to cause any adverse impacts to intersection operations or queuing.

Once the Proposed Project is completed and operational, further improvements could be incorporated to improve circulation and reduce delay at the Park Street / Blanding Avenue intersection. These improvements could include the addition of one shared through-left turn pocket in the northbound direction with the removal of on-street parking; the addition of one left turn pocket in the southbound direction with the removal of on-street parking; full intersection actuation and video detection equipment and communication equipment to allow transit priority / preemption through the intersection.

The City of Alameda will monitor the operations of the Park Street / Blanding Avenue intersection once the Proposed Project is complete and these improvements could be constructed when deemed necessary.

Intersection #12 – 29th Avenue / East 12th Street

TRA-3 The Proposed Project impacts could be mitigated by re-striping the eastbound approach to include one from two lanes to three lanes in the eastbound direction); re-striping the westbound approach to include one left-turn pocket and one shared through-right lane (a reduction from two receiving lanes to one receiving lane in the westbound direction); adjusting the signal phasing to protect eastbound and westbound left-turns; and optimizing the signal cycle length and phasing.

These improvements would not require the acquisition right-of-way as the space required to increase the eastbound approach to three lanes (one left-turn pocket, one through-lane, and one right-turn lane) would be offset by reducing the westbound receiving lane requirements to one lane. The left-

turn pockets would allow for protected left-turn phasing in the eastbound and westbound directions.

In addition to the geometric improvements, the signal timing and phasing could be optimized to improve intersection operations.

During the weekday PM peak hour, the 29th Avenue / East 12th Street intersection would operate at LOS C (average intersection delay of 33.5 seconds per vehicle) with the implementation of the proposed mitigation. The proposed mitigation would offset the impacts of the Proposed Project and would not be expected to cause any adverse impacts.

It should be noted that the proposed Gateway Community project would contribute 13.0 percent of the overall traffic volume growth at this intersection during the weekday PM peak hour and would independently impact intersection operations. Prior to the implementation of the Gateway Community project, the intersection may only require the partial implementation of the proposed mitigation measures.

#### Intersection #13 – 29th Avenue / International Boulevard

TRA-4 The Proposed Project impacts could be mitigated by optimizing the signal cycle length and phasing.

During the weekday AM peak hour, the 29th Avenue / International Boulevard intersection would operate at LOS C (average intersection delay of 31.3 seconds per vehicle) with the implementation of the proposed mitigation. The proposed mitigation would offset the impacts of the Proposed Project and would not be expected to cause any adverse impacts.

During the weekday PM peak hour, the 29th Avenue / International Boulevard intersection would operate at LOS D (average intersection delay of 43.4 seconds per vehicle) with the implementation of the proposed mitigation. The proposed mitigation would offset the impacts of the Proposed Project and would not be expected to cause any adverse impacts.

#### Intersection #20 – 22nd Avenue / East 12th Street

TRA-5 The Proposed Project impacts could be mitigated by re-striping the northbound approach to include two left-turn lanes, one through-lane, and one (1) shared through-right-turn lane; and optimizing the signal cycle length and phasing.

It should be noted that the current northbound three through-lane approach on East 12th Street tapers to two lanes within 300 feet downstream of the 22nd Avenue / East 12th Street intersection. Given this configuration, reducing the number of through lanes on the northbound approach would not reduce the carrying capacity of East 12th Street in the northbound direction.

During the weekday AM peak hour, the 22nd Avenue / East 12th Street intersection would operate at LOS E (average intersection delay of 59.4 seconds per vehicle) with the implementation of the proposed mitigation.

The proposed mitigation would offset the impacts of the Proposed Project and would not be expected to cause any adverse impacts.

Intersection #27 – Fruitvale Avenue / East 12th Street

TRA-6 The Proposed Project impacts could be mitigated by optimizing the signal cycle length and phasing.

During the weekday PM peak hour, the Fruitvale Avenue / East 12th Street intersection would operate at LOS E (average intersection delay of 70.2 seconds per vehicle) with the implementation of the proposed mitigation. The proposed mitigation would offset the impacts of the Proposed Project and would not be expected to cause any adverse impacts.

The anticipated year of implementation for the above noted left-turn peak hour restriction mitigation measure is approximately 2030. This assumes that the planned developments are in place in accordance with the model assumptions. In addition, there is an assumption that the planned developments do not require any additional improvements along the Park Street / 23rd Avenue corridor.

As an alternative to implementing the left-turn peak hour restriction in the year +/- 2030, the City of Alameda may accept the commitment by ACCMA to commission a transit corridor study along Park Street / 23rd Avenue. Said study will identify improvements along the corridor that provide prioritization to transit vehicles. Thus, when implemented, the corridor will accommodate more transit vehicles. In turn, the left-turn peak hour restriction would not be required (assuming the transit corridor improvements are completed prior to +/- 2030).

*Intersection Queuing*

Intersection #3 – Park Street/ Clement Avenue

TRA-7 The Proposed Project impacts will be mitigated by restricting on-street parking and re-striping the northbound approach to include one shared through-left turn pocket during the weekday AM and weekday PM peak periods and optimizing the signal cycle length and phasing.

During the weekday PM peak hour, the westbound left-turn movement queue length at the Park Street / Clement Avenue intersection would be 100 feet (v/c ratio of 1.24) with the implementation of the proposed improvements. These improvements would mitigate the Proposed Project impacts and would not be expected to cause any adverse impacts.

The parking removal on the northbound approach would extend 100 feet from the intersection. Approximately one parking space would need to be restricted to accommodate the northbound turn pocket.

Due to the closely spaced roadway network configuration and high traffic volumes, the four signalized intersections on Park Street between Lincoln Avenue and Blanding Avenue would need to operate on a common cycle length to achieve optimal performance. The optimal cycle length would be



65seconds during the weekday AM and weekday PM peak periods. These cycle length modifications would not be expected to cause any adverse impacts to intersection operations or queuing.

Once the Proposed Project is completed and operational, further improvements could be incorporated to improve circulation and reduce delay at the Park Street / Clement Avenue intersection. These improvements could include the addition of one left turn pocket in the southbound direction with the removal of on-street parking; transit queue jump lanes on Park Street between Buena Vista Avenue and Clement Avenue with the removal of on-street parking; full intersection actuation and video detection equipment; striping modifications between Buena Vista Avenue and Clement Avenue to accommodate transit queue jump lanes; and communication equipment to allow transit priority / preemption through the intersection via the queue jump lane.

The City of Alameda will monitor the operations of the Park Street / Clement Avenue intersection once the Proposed Project is complete and these improvements could be constructed when deemed necessary.

#### Intersection #4 – Park Street / Blanding Avenue

TRA-8 The Proposed Project impacts will be mitigated by optimizing the signal cycle length and phasing.

During the weekday AM peak hour, the westbound through-right-turn movement queue length at the Park Street / Blanding Avenue intersection would be 475 feet (v/c ratio of 1.07) with the implementation of the proposed improvements. These improvements would mitigate the Proposed Project impacts and would not be expected to cause any adverse impacts.

During the weekday PM peak hour, the westbound through-right-turn movement queue length at the Park Street / Blanding Avenue intersection would be 725 feet (v/c ratio of 1.33) with the implementation of the proposed improvements. These improvements would mitigate the Proposed Project impacts and would not be expected to cause any adverse impacts.

Due to the closely spaced roadway network configuration and high traffic volumes, the four signalized intersections on Park Street between Lincoln Avenue and Blanding Avenue would need to operate on a common cycle length to achieve optimal performance. The optimal cycle length would be 65 seconds during the weekday AM and weekday PM peak periods. These cycle length modifications would not be expected to cause any adverse impacts to intersection operations or queuing.

Once the Proposed Project is completed and operational, further improvements could be incorporated to improve circulation and reduce delay at the Park Street / Blanding Avenue intersection. These improvements could include the addition of one shared through-left turn pocket in the northbound direction with the removal of on-street parking; the addition of one left turn pocket in the southbound direction with the removal of on-street

parking; full intersection actuation and video detection equipment and communication equipment to allow transit priority / preemption through the intersection.

The City of Alameda will monitor the operations of the Park Street / Blanding Avenue intersection once the Proposed Project is complete and these improvements could be constructed when deemed necessary.

#### Intersection #7 – 29th Avenue / Ford Street

TRA-9 Additional improvements are not recommended for this intersection. The proposed intersection configuration would improve circulation in the Park Street Triangle for motorists, bicyclists, and pedestrians. The addition of the proposed pedestrian crosswalk on the eastern approach would result in increased vehicle queues in the eastbound direction.

To reduce the eastbound queue length, the proposed pedestrian crosswalk on the eastbound approach could be removed from the Proposed Project. Without the pedestrian crosswalk on the eastbound approach, the queue length on the eastbound left-turn movement would be 550 feet (v/c ratio of 0.97) and on the through-right-turn movement would be 250 feet (v/c ratio of 0.68) during the weekday AM peak hour. The queue length on the eastbound left-turn movement would be 475 feet (v/c ratio of 0.99) and on the through-right-turn movement would be 425 feet (v/c ratio of 0.73) during the weekday PM peak hour. Without the eastern approach crosswalk the eastbound queue length would not extend to the Park Street Bridge.

#### Intersection #12 – 29th Avenue / East 12th Street

TRA-10 The Proposed Project impacts could be mitigated by re-striping the eastbound approach to include one left-turn pocket, one through lane, and one right-turn lane (an increase from two lanes to three lanes in the eastbound direction); re-striping the westbound approach to include one left-turn pocket and one shared through-right lane (a reduction from two receiving lanes to one receiving lane in the westbound direction); adjusting the signal phasing to protect eastbound and westbound left-turns; and optimizing the signal cycle length and phasing.

These improvements would not require the acquisition of right-of-way as the space required to increase the eastbound approach to three lanes (one left-turn pocket, one through-lane, and one right-turn lane) would be offset by reducing the westbound receiving lane requirements to one lane. The left-turn pockets would allow for protected left-turn phasing in the eastbound and westbound directions.

In addition to the geometric improvements, the signal timing and phasing could be optimized to improve intersection operations.

During the weekday AM peak hour, the northbound through-right-turn movement queue length at the 29th Avenue / East 12th Street intersection would be 800 feet (v/c ratio of 1.19) with the implementation of the proposed improvements. The eastbound through movement queue length would be

275 feet (v/c ratio of 0.52) with the implementation of the proposed improvements. These improvements would mitigate the Proposed Project impacts and would not be expected to cause any adverse impacts.

During the weekday PM peak hour, the northbound left-turn movement queue length at the 29th Avenue / East 12th Street intersection would be 200 feet (v/c ratio of 0.94) with the implementation of the proposed improvements. The eastbound through movement queue length would be 550 feet (v/c ratio of 0.93) with the implementation of the proposed improvements. These improvements would mitigate the Proposed Project impacts and would not be expected to cause any adverse impacts.

It should be noted that the Gateway Community project would contribute 10.7 percent and 13.0 percent of the overall traffic volume growth at this intersection during the weekday AM and PM peak hours, respectively, and would independently impact intersection operations. Prior to the implementation of the Gateway Community project, the intersection may only require the partial implementation of the proposed mitigation measures.

#### Intersection #13 – 29<sup>th</sup> Avenue/International Boulevard

- TRA-11 The Proposed Project impacts could be mitigated by optimizing the signal cycle length and phasing.

During the weekday PM peak hour, the eastbound left-turn movement queue length at the 29th Avenue / International Boulevard intersection would be 300 feet (v/c ratio of 0.85) with the implementation of the proposed improvements. This improvement would mitigate the Proposed Project impacts and would not be expected to cause any adverse impacts.

#### Intersection #20 – 22nd Avenue / East 12th Street

- TRA-12 The Proposed Project impacts could be mitigated by re-striping the eastbound approach to include one left-turn pocket, one through lane, and one right-turn lane (an increase from two lanes to three lanes in the eastbound direction); re-striping the westbound approach to include one left-turn pocket and one shared through-right lane (a reduction from two receiving lanes to one receiving lane in the westbound direction); adjusting the signal phasing to protect eastbound and westbound left-turns; and optimizing the signal cycle length and phasing.

These improvements would not require the acquisition of right-of-way as the space required to increase the eastbound approach to three lanes (one left-turn pocket, one through-lane, and one right-turn lane) would be offset by reducing the westbound receiving lane requirements to one lane. The left-turn pockets would allow for protected left-turn phasing in the eastbound and westbound directions.

In addition to the geometric improvements, the signal timing and phasing could be optimized to improve intersection operations.

During the weekday AM peak hour, the northbound left-turn movement queue length at the 22nd Avenue / East 12th Street intersection would be 275

feet (v/c ratio of 0.99) with the implementation of the proposed improvements. The eastbound approach queue length would be 600 feet (v/c ratio of 2.45) with the implementation of the proposed improvements. The westbound approach queue length would be 500 feet (v/c ratio of 0.95) with the implementation of the proposed improvements. These improvements would mitigate the Proposed Project impacts and would not be expected to cause any adverse impacts.

During the weekday PM peak hour, the northbound left-turn movement queue length at the 22nd Avenue / East 12th Street intersection would be 125 feet (v/c ratio of 0.75) with the implementation of the proposed improvements. These improvements would mitigate the Proposed Project impacts and would not be expected to cause any adverse impacts.

Intersection #26 – Fruitvale Avenue / East 9th Street

- TRA-13 The Proposed Project impacts could be mitigated by optimizing the signal cycle length and phasing.

During the weekday AM peak hour, the eastbound through-right-turn movement queue length at the Fruitvale Avenue / East 9th Street intersection would be 925 feet (v/c ratio of 0.93) with the implementation of the proposed improvements. This improvement would mitigate the Proposed Project impacts and would not be expected to cause any adverse impacts.

Intersection #27 – Fruitvale Avenue/East 12<sup>th</sup> Street

- TRA-14 The Proposed Project impacts could be mitigated by optimizing the signal cycle length and phasing.

During the weekday AM peak hour, the eastbound left-turn movement queue length at the Fruitvale Avenue / East 12th Street intersection would be 600 feet (v/c ratio of 1.88) with the implementation of the proposed improvements. This improvement would mitigate the Proposed Project impacts and would not be expected to cause any adverse impacts.

Intersection #28 – Fruitvale Avenue/International Boulevard

- TRA-15 The Proposed Project impacts could be mitigated by optimizing the signal cycle length and phasing.

During the weekday AM peak hour, the northbound through-right-turn movement queue length at the Fruitvale Avenue / International Boulevard intersection would be 450 feet (v/c ratio of 1.02) with the implementation of the proposed improvements. This improvement would mitigate the Proposed Project impacts and would not be expected to cause any adverse impacts.

*Traffic Management Plan*

- TRA-16 The Proposed Project impacts could be minimized by the implementation of a Traffic Management Plan.

The TMP for the I-880/29th Avenue and 23rd Avenue Project will identify temporary detours needed to construct the proposed improvements. These

temporary detours are anticipated to be in place for a few hours (nighttime ramp and freeway closures) up to several months (closure of the 29th Avenue overcrossing). The detours that will be in place for a few hours will be identified in the TMP and the Project special provisions will identify certain requirements the contractor will need to implement. In addition, the Project Resident Engineer will be coordinating the nighttime detours with adjacent projects and local media. The detours that will remain in place for an extended period of time will be identified in the TMP, the Project special provisions and on the Project stage construction plans.

The Resident Engineer will also coordinate these detours with adjacent projects and the local media.

The anticipated general stage construction for the Proposed Project will consist of four stages. The staging concept and discussion is conceptual and subject to change during the development of final plans. The TMP will include the final construction staging and how the construction staging will minimize impacts as related to the finalized Project design.

The TMP will evaluate the traffic circulation patterns associated with the detours needed to construct the Proposed Project. The TMP will also evaluate the need for pedestrian and bicycle detours during construction. The TMP will also include measures to reduce adverse impacts related to emergency access and parking.

## **2.2.5 Visual/Aesthetics**

### **2.2.5.1 Regulatory Setting**

The National Environmental Policy Act of 1969 as amended (NEPA) establishes that the Federal government use all practicable means to ensure all Americans safe, healthful, productive, and aesthetically (emphasis added) and culturally pleasing surroundings (42 USC 4331[b][2]). To further emphasize this point, the Federal Highway Administration in its implementation of NEPA (23 USC 109[h]) directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

Likewise, the California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state “with...enjoyment of aesthetic, natural, scenic, and historic environmental qualities.” (CA Public Resources Code Section 21001[b]).

### **2.2.5.2 Affected Environment**

A *Visual Impact Assessment* (VIA) was prepared for the Proposed Project in December 2008, revised April 2009. The information contained in this section is based on the analysis conducted for the VIA report. The VIA was conducted in accordance with guidance provided by the Federal Highway Administration (FHWA), and satisfies the requirements of NEPA and CEQA.

## ***Visual Setting, Viewshed, and Sensitive Viewers***

### ***Project Setting***

The regional landscape establishes the general visual environment of the Project; however, the specific visual environment upon which this assessment will focus upon is determined by defining landscape units and the Project viewshed.

The regional landscape of northwest Alameda County is characterized by the San Francisco Bay to the west, rolling hills of the Oakland Hills to the east, and generally flat land between San Francisco Bay and Oakland Hills. The Project area is located in the flat area of the City and consists of a mix of uses including residential, commercial, industrial, and institutional uses. The I-880 freeway corridor is urban in nature, and views from this corridor generally consist of urban development. Partial views to ridgetops associated with the Oakland Hills to the east are afforded within the I-880 corridor.

### ***Landscape Units***

A landscape unit is a portion of the regional landscape and can be thought of as an outdoor room that exhibits a distinct visual character. A landscape unit will often correspond to a place or district that is commonly known among local viewers.

#### ***Landscape Unit 1: I-880 Corridor***

Landscape Unit 1 (LU1) is located within a flat stretch of land along I-880 between the I-880/23<sup>rd</sup> Avenue Interchange and the I-880/Fruitvale Avenue Interchange; refer to Exhibit 2.2-17, *Landscape Units*. LU1 is relatively flat, with elevations ranging from approximately 15 to 25 feet above mean sea level (msl). LU1 consists of the I-880 corridor located within the northwestern portion of Alameda County. The landscape unit is defined by urban land surrounding the corridor located to the north and south of the Project area, the Oakland Hills to the east, and the San Francisco Bay to the west.

#### ***Landscape Unit 2: Residential and Institutional***

Landscape Unit 2 (LU2) is located in a generally flat area, with elevations ranging from approximately 18 to 42 feet above msl. LU2 consists of residential and institutional land uses located adjacent, to the east of the Project site between 29th Avenue and 23rd Avenue. LU2 is defined by commercial uses to the north, the Oakland Hills to the east, I-880 and the San Francisco Bay to the west, and I-880 to the south and west.

#### ***Landscape Unit 3: Commercial and Industrial***

Landscape Unit 3 (LU3) consists of commercial and industrial land uses located immediately south of I-880. LU3 is located in a relatively flat area, with elevations ranging from approximately 14 to 23 feet above msl. This landscape unit is defined by I-880 to the north, the Oakland Hills and I-880 to the east, and the San Francisco Bay to the south and west.

### ***Project Viewshed***

A viewshed is a subset of a landscape unit and is comprised of all the surface areas visible from an observer's viewpoint. The limits of a viewshed are defined as the visual limits of the views located from the Proposed Project. The viewshed also includes the

locations of viewers likely to be affected by visual changes brought about by Project features.

Based upon a site visit conducted on October 29, 2008, scattered views are afforded from surrounding urban land uses within a one-mile radius of the Project site. The majority of views to the Project site are from northbound and southbound travel lanes along I-880, and adjoining residential, commercial, and industrial land uses to the north and south. The majority of views to the Project area from more distant locations are screened by existing topography, structures, and vegetation that severely limit the viewshed to the Proposed Project.

#### Landscape Unit 1: I-880 Corridor

The majority of views to the Project site within LU1 are afforded from travelers in the northbound and southbound lanes of I-880. Views are afforded along the stretch of freeway (approximately 1.25 miles) between Fruitvale Avenue and 16th Avenue. Travelers have views of the I-880 corridor and the 29th and 23rd Avenue overcrossings.

#### Landscape Unit 2: Residential and Institutional

The residential and institutional uses located to the north of I-880 within LU2 have views to the Project site. Views from residential uses are to the area of the Project site where the new soundwall would be located, as well as to the 29th Avenue Overcrossing. Views from institutional uses include the 29th Avenue Overcrossing, the new soundwall, and the 23rd Avenue Overcrossing. In addition, views from Lazear School would include proposed soundwalls NB-3 and NB-5.

#### Landscape Unit 3: Commercial and Industrial

The mixed uses, mostly commercial and industrial uses with sparse residential uses interspersed are located to the south of I-880 within LU3. These uses have views to the Project site, which include the 29<sup>th</sup> and 23<sup>rd</sup> Avenue overcrossings.

#### Existing Visual Character

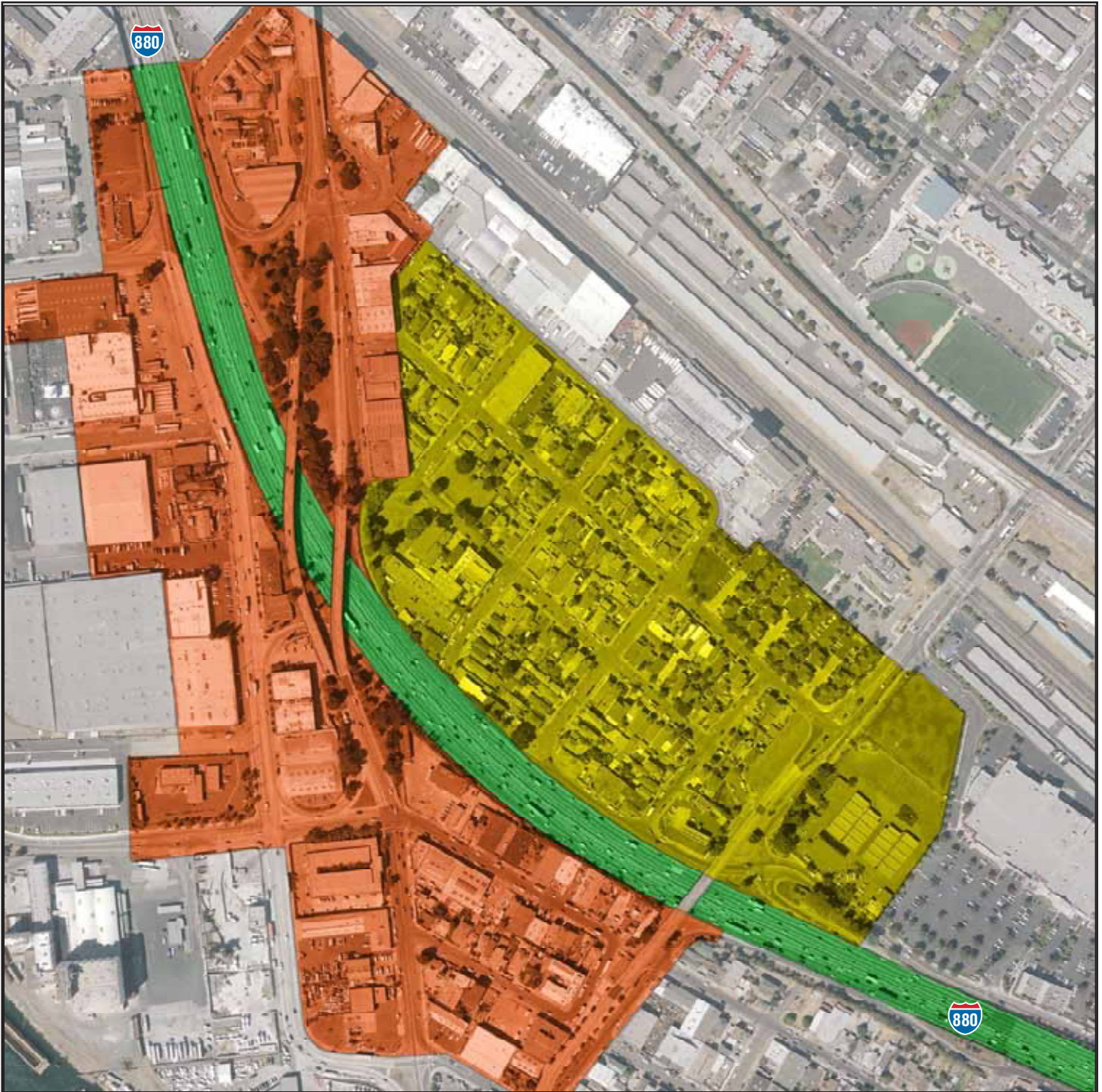
Visual character is descriptive and non-evaluative, which means it is based on defined attributes that are neither good nor bad. A change in visual character cannot be described as having good or bad attributes until it is compared with the viewer response to that change. If there is public preference for the established visual character of a regional landscape and resistance to a project that would contrast that character, then changes in the visual character can be evaluated.

Urban development exists within the vicinity of the Project site. The majority of land uses to the north of I-880 in this area consist of residential uses. Institutional and commercial uses also exist to the north of the Project site. Commercial, residential, and light industrial uses adjoin the southern portion of the Project site.

#### Landscape Unit 1: I-880 Corridor

Existing visual resources within LU1 include partial views to the Oakland Hills, located to the east of the Project site. The San Francisco Bay is located to the west of the Project site; however, this resource is not visible from LU1.





- I-880 Corridor (LU1)
- Residential and Institutional Uses (LU2)
- Mixed Land Uses (LU3)  
(i.e. industrial, commercial, and sparse residential)

Source: VIA, April 2009



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Man-made features within the viewshed from LU1 consist of urban development. Also, a chain-link fence is present along the northern edge of the freeway, separating I-880 and the frontage road (East 8th Street) located near commercial and residential uses. There are also three freeway overcrossings visible within LU1.

Vegetation within LU1 consists of mature ornamental landscaping associated with various urban land uses. Numerous large mature trees and vegetation are located throughout the Project area adjoining I-880 as well as within surrounding uses. Tree species within the Project area that may be affected by the Proposed Project include Redwood, California Sycamore, Acacia, Brazilian Pepper, Black Oak, and Pear.

#### Landscape Unit 2: Residential and Institutional

Existing visual resources within LU2 include partial views to the Oakland Hills, located to the east, and the Kennedy Tract/Jingletown neighborhood. According to the *Historical Resources Evaluation Report (HRER)*, prepared by Jones & Stokes, in 2008, the Kennedy Tract/Jingletown neighborhood may be eligible as a historic district. Residential structures within this neighborhood consist of late nineteenth and early twentieth century structures. Ornamental landscaping within LU2 consists of typical vegetation associated with residential development as well as Redwood and Sycamore trees within Kennedy Tract Park. No water features are visible within LU2.

Man-made features within the viewshed from LU2 consist of surrounding residential and sparse commercial development. Also, a chain-link fence is present along the northern edge of the freeway, separating I-880 and the frontage road (East 8th Street) located near commercial and residential uses. The 29th Avenue Overcrossing is located to the southeast and the 23rd Avenue Overcrossing is located to the northwest of LU2.

In addition, existing views from the Lazear School are a chain link fence transportation uses (vehicular travel on I-880 and local streets), trees and other vegetation.

#### Landscape Unit 3: Commercial and Industrial

Existing visual resources within LU3 include partial views to the Oakland Hills, located to the east of the Project site. Vegetation within LU3 consists of mature ornamental landscaping associated with various urban land uses. The San Francisco Bay is located to the west of LU3; however, this resource is not visible. Man-made features within LU3 consist of surrounding commercial, light industrial, and sparse residential development. Visible transportation features include the 29th Avenue and 23rd Avenue Overcrossing structures.

#### Existing Visual Quality

Visual quality is evaluated by identifying the vividness, intactness, and unity present in the viewshed. FHWA states that this method should correlate with public judgments of visual quality well enough to predict those judgments. This approach is particularly useful in highway planning because it does not presume that a highway project is necessarily an eyesore. This approach to evaluating visual quality can also help identify specific methods for mitigating each adverse impact that may occur as a result of a project. The three criteria for evaluating visual quality can be defined as follows:

- **Vividness** is the visual power or memorability of landscape components as they combine in distinctive visual patterns.

- **Intactness** is the visual integrity of the natural and man-built landscape and its freedom from encroaching elements. It can be present in well-kept urban and rural landscapes, as well as in natural settings.
- **Unity** is the visual coherence and compositional harmony of the landscape considered as a whole. It frequently attests to the careful design of individual man-made components in the landscape.

#### Landscape Unit 1: I-880 Corridor

The average existing visual quality within LU1 Project site is considered to be moderate. Drivers accessing various portions of I-880 generally have views of adjacent urban development that is fairly unified. Existing overcrossings at 29th Avenue and 23rd Avenue appear to detract from the Project area's intactness. Partial distant background views are afforded to ridgetops associated with the Oakland Hills located approximately 3.25 miles east of the Project site. Views to the San Francisco Bay from the I-880 corridor are not afforded due to obstruction from existing structures and mature trees adjacent to the freeway. Views to residential and commercial uses, as well as mature vegetation that adjoin I-880 are also afforded within these views.

#### Landscape Unit 2: Residential and Institutional

The average existing visual quality within LU2 is considered to be moderately high. The historic Kennedy Tract/Jingletown neighborhood consists of residential structures that vary in texture and color. These residential structures appear to be in fair condition. Residents located in this area have views to surrounding residential and institutional uses and I-880. Residents in this area are afforded partial background views to ridgetops of the Oakland Hills to the east. Lazear Elementary School is located to the north of the Project site near I-880 and 29th Avenue. The viewers at the school have direct views to I-880, surrounding residential and commercial uses, and partial background views to ridgetops associated with Oakland Hills. I-880 and the 29th and 23rd Avenue Overcrossings appear to encroach on views from residential and institutional uses.

#### Landscape Unit 3: Commercial and Industrial

The average existing visual quality within LU3 is considered to be moderate. Existing overcrossings at 29<sup>th</sup> Avenue and 23<sup>rd</sup> Avenue appear to detract from the area's intactness. Partial distant background views exist to the ridgetops associated with the Oakland Hills located approximately 3.25 miles east of the Project site. Views to the San Francisco Bay from LU3 are not afforded due to obstruction from existing structures. Views to surrounding commercial, industrial, and limited residential uses are afforded to viewers within LU3.

#### Viewer Sensitivity

Viewer sensitivity is defined as both the viewers' concern for scenic quality and the viewers' response to changes in the visual resources that make up the view. Local values and objectives may confer visual significance on landscape components and areas that would otherwise appear unexceptional in a visual resource analysis. Even when the existing appearance of a project site is uninspiring, a community may still object to projects that fall short of its visual goals. Analysts can learn about these special resources

and community aspirations for visual quality through citizen participation procedures, as well as from local publications and planning documents.

Multiple sensitive viewers adjoin the Project site, the majority of which consist of residential and commercial uses located to the north and south of I-880, as well as institutional uses to the north. The City has developed policies and objectives pertaining to scenic resources within the *City of Oakland General Plan 1998 (General Plan)*. Scenic resources, as designated by the City's *General Plan* include the hillsides to the east and features viewed across San Francisco Bay (i.e., San Francisco and Mount Tamalpais). Views to these visual resources are protected through a combination of development review, zoning, design review, and proper management of park and open space areas.

Based on the Scenic Highways Element of the *General Plan*, adopted in June 1996, I-580, also referred to as the MacArthur Freeway (approximately 2.20 miles east of the Project site), is currently designated as a State scenic highway. There are no officially designated or eligible scenic highway corridors within the Project viewshed.

The *General Plan* also identifies trees in residential neighborhoods and commercial areas as a scenic resource. The City has adopted the *City of Oakland Street Tree Plan*, which addresses species selection and criteria for tree planting, maintenance, and removal. Street trees (i.e., Redwood, California Sycamore, Acacia, Brazilian Pepper, Black Oak, and Pear) currently exist in the Project area, adjoining I-880 and within surrounding uses. The City encourages street tree planting to the greatest extent possible in order to enhance the appearance and quality of the City's built environment. Street tree planting assists to create a distinct visual image of the City's major streets and neighborhoods.

According to the HRER, the Kennedy Tract/Jingletown neighborhood may be eligible as an historic district. The Kennedy Tract/Jingletown neighborhood (located within LU2) adjoins the east border of I-880 to the north of 29th Avenue. The neighborhood is loosely bordered by 23rd Avenue to the north, East 11th Street and the portion of East 10th Street located between Lisbon Avenue and 29th Avenue to the east, 29th Avenue to the south, and I-880/East 8th Street to the west. According to the HRER, this neighborhood consists of 159 structures primarily dating to the late nineteenth and early twentieth century. These buildings appear to be eligible for listing on the National Register of Historic Places listing and also meet the criteria for local historic district listing.

#### Viewer Exposure

Viewer exposure is typically assessed by measuring the number of viewers exposed to the resource change, type of viewer activity, duration of their view, speed at which the viewer moves, and position of the viewer. High viewer exposure heightens the importance of early consideration of design, art, and architecture, along with their roles in managing the visual resource effects of a project.

**Freeway Travelers** – Many drivers commute from the Oakland area to San Francisco every day. Existing daily traffic volumes on I-880 within the area (23rd Avenue to 29th Avenue) range from approximately 73,000 to 90,000 vehicles per day, with peak hour volumes ranging from 4,074 to 8,177 vehicles.

I-880 serves as the primary regional transportation corridor for movement of goods. There is a high volume of truck traffic on the I-880 freeway corridor, particularly since

trucks are prohibited on I-580 through the City. Due to the proximity of the City to the seaport, airport, and industrial areas, the I-880 freeway contains the highest percentage of trucks on City freeways since there are no alternative routes. Truck traffic through the Project area would experience extended views to the Project site.

Daily commuters along I-880 may have an increased awareness of the Project due to the amount of time spent on the freeway each day. Drivers traveling in congested traffic conditions would likely perceive detailed views of the Project features. Drivers traveling at normal freeway speeds typically focus on long-range non-peripheral views. Passengers have a heightened awareness and a wide range of views.

**Community Residents** – Numerous residents live in the vicinity of the Project, some of which have long-duration views of I-880 and the 23rd and 29th Avenue Overcrossings. Longer distance views to I-880 are not afforded due to existing structures and street trees.

Based on the *General Plan*, as previously discussed, community residents are concerned with the quality of views from their communities, as well as with the importance of street trees. As a result, residents are likely to have a high concern for the Project and its effect on views from their homes and neighborhoods. Additionally, residents within the historic Kennedy Tract/Jingletown neighborhood are highly concerned with the appearance of historic structures within the area.

**Commercial Area Employees and Customers** – A variety of commercial uses, ranging from freeway service commercial to light industrial/commercial, are located in the Project vicinity. Commercial employees and clientele would likely have short-to-moderate duration views and a moderate awareness of the Project area.

**Local Street Users** – Hundreds of drivers, bicyclists, and pedestrians using local streets each day have short duration views of the Project site. There is one frontage road located to the north of I-880 (East 8th Street) that currently has direct views to the Project, as the chain-link fence that currently separates the frontage road from I-880 does not provide screening. Streets with short duration views perpendicular to I-880 within the residential, commercial, and industrial areas surrounding the Project site include Portwood Avenue, Lisbon Avenue, 27th Avenue, 26th Avenue, East 7th Street, and Peterson Street. Local street users would have a moderate-to-high awareness of the Project.

**Institutional and Recreation Uses** – The Project area is located adjacent to Lazear Elementary School, Kennedy Tract Park, Olivet Institutional Missionary Baptist Church, and Mary Help of Christians Church. Users of these facilities would have middleground views of the Project site for moderate periods of time.

Institutional and recreation users may be concerned about the appearance of the Project. These institutional and recreational users would have an acute awareness of the Proposed Project features due to their proximity.

#### *Key Views and Resources*

The visual impacts of Project alternatives are determined by assessing the visual resource change due to the Project and predicting viewer response to that change.

Visual resource change is the sum of the change in visual character and change in visual quality. The first step in determining visual resource change is to assess the compatibility of the Proposed Project with the visual character of the existing landscape. The second step is to compare the visual quality of the existing resources with projected visual quality after the Project is constructed.

The viewer response to Project changes is the sum of viewer exposure and viewer sensitivity to the Project as determined in the preceding section. The resulting level of visual impact is determined by combining the severity of resource change with the degree to which people are likely to be adversely affected by the change.

For the purpose of this assessment, Project impacts were assessed for each Key View selected. Visual resource change was measured using the Visual Quality Evaluation Form, administered by the FHWA. The Visual Quality Evaluation Form allows the analyst to assign a numerical value to existing visual conditions, as well as assess the resulting visual quality upon Project implementation. A scaled rating system of 1 through 7 was used to designate a numerical value. The numerical value of 1 represents a very low unit of measurement, and 7 represents a very high unit of measurement. A numerical value for vividness, intactness, and unity was given for existing and proposed conditions within each Key View selected.

The potential for an adverse impact depends upon the severity of resource change and the degree to which people are likely to be adversely affected by the change. Therefore, the following criteria is utilized for determining the resulting visual impacts at each Key View point, based upon comparing the difference in visual quality to the predicted viewer response, which is as follows:

- **Low** – Minor adverse change to the existing visual resource, with low viewer response to change in the visual environment. May or may not require mitigation.
- **Moderate** – Moderate adverse change to the visual resource with moderate viewer response. Impact can be mitigated within five years using conventional practices (i.e., landscaping, architectural treatments, use of a variety of building materials, directional lighting techniques, etc.).
- **Moderately High** – Moderate adverse visual resource change with high viewer response or high adverse visual resource change with moderate viewer response. Extraordinary mitigation practices may be required. Landscape treatment required will generally take longer than five years to mitigate.
- **High** – A high level of adverse change to the resource or a high level of viewer response to visual change such that architectural design and landscape treatment cannot mitigate the impacts. Viewer response level is high. An alternative project design may be required to avoid highly adverse impacts.

Because it is not feasible to analyze all the views in which the Proposed Project would be seen, it is necessary to select a number of Key Views that would most clearly display the visual effects of the Project. Key Views also represent the primary viewer groups that would potentially be affected by the Project. Four (4) Key View points were selected for the Proposed Project.

Key View #1 (Viewers from the Road)

**Orientation** – Key View 1 was taken on-site from the I-880 northbound auxiliary lane near the Lisbon Avenue on-ramp. This view looks to the northwest, along the northbound travel lanes of I-880; refer to Exhibit 2.2-18, *Key View Point 1 – Existing Condition*.

**Existing Visual Quality/Character** – Based on the Visual Quality Evaluation conducted at this Key View, vividness was rated at 4, intactness was rated at 4, and unity was rated at 5, resulting in an overall quality rating of 4.3. The existing visual quality and character of the site is moderate (generally rated at 4). Although hardscape features dominate this Key View, intactness is moderate and overall unity is moderately high.

Travelers on northbound I-880 view four travel lanes. No soundwall exists within these views. Mature trees and vegetation are visible along both sides of I-880. Development within this Key View consists of commercial uses to the east. Visible commercial structures appear to be one story in height and building materials appear to be wood and stucco materials. No structures are visible to the west due to mature trees and vegetation screening views. Background views to sparse mature vegetation are present. Intactness within this Key View is considered to be moderate. Minimal commercial signage, utilities, and power lines are visible throughout this Key View. Overall unity is moderately high. Views of the mature vegetation along I-880 provide a visually coherent landscape. The commercial uses to the east appear consistent with typical commercial uses viewed along I-880 throughout LU1. Visible hardscape features are softened by existing mature ornamental landscaping. Overall, mature landscaping along the east and west sides of I-880 unify the features throughout this Key View.

**Proposed Project Features** – Visible Project features include the 23rd Avenue Overcrossing, reconstructed on-ramp, and a 12-foot soundwall. The Project would remove the two existing 23rd Avenue overcrossings and replace them with a single, four-lane overcrossing that meets current design standards for vertical clearance (16 feet, 6 inches). The new overcrossing would provide an 800-foot span over I-880, allowing for a 12-foot auxiliary lane construction, 12-foot travel lanes, and 6-foot to 10-foot outside shoulders on northbound I-880. The overcrossing would have 12-foot travel lanes, 5-foot shoulders, a 5-foot sidewalk for pedestrians on the south side, and would be wide enough to accommodate a future Class II bicycle lane.

The northbound I-880/Lisbon Avenue on-ramp would be relocated to 29th Avenue, adjacent to the existing Shell Gas Station to the south. A 12-foot soundwall would be constructed on the east side of the I-880, extending from 29th Avenue north approximately 1,000 feet. The soundwall would be constructed as a Department Standard masonry block wall.

**Changes to Visual Quality/Character** – The Project changes are consistent with the built nature of the area; refer to Exhibit 2.2-19, *Key View Point 1 – Proposed Condition*. However, visual changes to the quality and character at this Key View would be moderate (resulting in an overall quality rating of 3 after implementation of the Proposed Project) unless avoided, minimized, or mitigated due to the increase in hardscape and the vegetation thinning and/or removal of trees to the east of I-880.

Impacts from the new 23<sup>rd</sup> Avenue Overcrossing would not significantly alter this Key View compared to existing conditions. The overcrossing would be elevated by approximately two feet, but would not significantly change the structure's form, when compared to the existing condition. The new soundwall would require vegetation thinning and possible removal of mature trees. The new soundwall may increase the dominance of hardscape features and increase light reflectivity from the additional concrete (with the resultant radiant heat glare). The new soundwall would encroach on the transportation uses from this Key View. Therefore, a landscaped aesthetic treatment (i.e., vine treatment, etc.) should be added to the wall structure to enhance the driver scale environment and reduce reflectivity (Minimization Measure VIS-2).

Vegetation thinning and tree removal would occur to the east of I-880 to accommodate the proposed soundwall and ramp improvements, creating additional hardscape appearances in the Key View. In order to minimize the significance of the disturbed landscaping, new landscaping would be planted, where feasible, in a manner that is consistent with the appearance of the existing ornamental landscaping (Minimization Measure VIS-2). In areas of the Project that are characterized by ornamental landscaping, freeway landscaping (i.e., trees, shrubs, and groundcover) would be installed. Landscape palettes and concept plans would conform to the Department's design standards with the concurrence of the District Landscape Architect.

**Viewer Response** – Travelers along I-880 would have short-to-long duration views (depending on traffic conditions) to the new overcrossing and soundwall features. Sensitivity to visual change would be moderate for this viewer group. Due to the high number of viewers affected and the moderate sensitivity to the change, the overall viewer response to Project changes would be moderately high.

**Resulting Visual Impact** – Project improvements would moderately affect existing views of the Project from this Key View (rated difference of -1.0), and sensitive viewers would have a moderately high viewer response to Project changes. These moderate changes would be reduced upon the implementation of avoidance and minimization measures. Implementation of the Proposed Project would increase hardscape features within the area by adding the additional wall feature and thinning/removing existing mature vegetation. Implementation of recommended avoidance and minimization measures pertaining to landscaped aesthetic treatment (i.e., tree planting, vine treatment, etc.) to the soundwall (Minimization Measure VIS-2) would enhance the drive scale environment and reduce the hardscape appearance of the Project site. Upon implementation of landscaping recommendations (Minimization Measure VIS-2), the visible nature of the Project site would be consistent with the appearance of the surrounding ornamental vegetation. Additionally, Minimization Measure VIS-3 recommends the application of wall color/texture to the soundwall, which would reduce potential light reflectivity as a result of the wall.

#### Key View #2 (Viewers to the Road)

**Orientation** – Key View 2 was taken from the Kennedy Tract/Jingletown neighborhood, specifically on Lisbon Avenue to the east of I-880. The Kennedy Tract/Jingletown neighborhood has been identified within the HRER as a possible eligible historic district. The Kennedy Tract/Jingletown neighborhood is comprised of 159 structures primarily dating to the late nineteenth and early twentieth century. This Key View looks



southwest toward the Proposed Project; refer to Exhibit 2.2-20, *Key View Point 2 – Existing Condition*.

**Existing Visual Quality/Character** – Based on the Visual Quality Evaluation conducted at this Key View, vividness was rated at 6, intactness was rated at 4, and unity was rated at 6, resulting in an overall quality rating of 5.3. The existing visual quality and character of the views are moderately high (generally rated at 5).

Overall vividness in this Key View appears to be high. Foreground views of low-to-medium density residential structures are afforded. The residential structures vary in texture, architectural treatments, and color. These structures are consistent with surrounding residential structures. Varying architectural features in the residential structures provide for a high degree of memorability. Streetscape is afforded within foreground and middleground views. Middleground views also include chain-link fencing and I-880. Commercial and residential uses along the west side of I-880 are visible in the background. Intactness within this Key View is considered to be moderate. Overhead power lines that are visible throughout this Key View increase visible encroachment. The residential structures in foreground views are uniform in height. Middleground views to I-880 interrupt the appearance of unity in this view. However, views to background residential and commercial structures allow the appearance of unity to remain moderately high throughout this Key View.

**Proposed Project Features** – Visible Project features within this Key View include the new soundwall and roadway improvements along East 8th Street. The northbound I-880/Lisbon Avenue on-ramp would be relocated to 29th Avenue to the south, and is no longer visible in this Key View. A 12-foot soundwall would be constructed along East 8th Street within this Key View.

**Changes to Visual Quality/Character** – The Project changes would consist of relocating the northbound I-880/Lisbon Avenue on-ramp and introduction of a soundwall along the east side of I-880; refer to Exhibit 2.2-21, *Key View Point 2 – Proposed Condition*. Visual changes to the quality and character in this Key View would be moderate due to the increased appearance of hardscape features (resulting in an overall quality rating of 5.0 after implementation of the Proposed Project) unless avoided, minimized, or mitigated.

The new soundwall would increase the dominance of hardscape features. However, the soundwall would eliminate views to I-880. A landscaped aesthetic treatment (i.e., tree planting, vine treatment, etc.) would be added, where feasible, to wall structures (Minimization Measure VIS-2). Landscape palettes and concept plans would be implemented with the concurrence of the District Landscape Architect. Architectural treatments should also be considered in the soundwall design to enhance a pedestrian scale environment and reduce the appearance of hardscape (Minimization Measure VIS-3).

Light reflectivity impacts may result from the new soundwall to Key View 2. To reduce negative impacts from hardscape, such as introduced light reflectivity from the additional concrete (with the resultant radiant heat glare), a landscaped aesthetic treatment (i.e., tree planting, vine treatment, etc.) should be added to the soundwall (Minimization Measure VIS-2).

**Viewer Response** – Residential dwelling units within the Kennedy Tract/Jingletown neighborhood would have long duration views of the Project features, including the soundwall. The Kennedy Tract/Jingletown neighborhood has been identified within the HRER as a possible eligible historic district. The Kennedy Tract/Jingletown neighborhood is comprised of 159 structures primarily dating to the late nineteenth and early twentieth century. Due to the number and duration of views affected, the overall viewer response to change would be high.

**Resulting Visual Impact** – Project improvements would moderately alter the existing views of the Project site from this Key View (rated difference of -0.3). Adjoining residential uses would have a high visual sensitivity to the proposed improvements. These moderate changes would be reduced upon implementation of the recommended avoidance and minimization measures. Project changes would include the thinning or removal of portions of ornamental vegetation from views of the Project site. Views of I-880 would be blocked by the new soundwall. Also, residential uses would have views to additional hardscape features, which may additionally increase light reflectivity in the area. However, upon implementation of landscaping and aesthetic treatment recommendations (Minimization Measures VIS-2 and VIS-3), adverse impacts from these features would be reduced.

Key View #3 (Viewers to the Road)

**Orientation** – Key View 3 was taken from 23rd Avenue to the north of the 23rd Avenue/East 11th Street intersection. This view looks to the south, toward the 23rd Avenue Overcrossing intersection ramp; refer to Exhibit 2.2-22, *Key View Point 3 – Existing Condition*.

**Existing Visual Quality/Character** – Based on the Visual Quality Evaluation conducted at this Key View, vividness was rated at 5, intactness was rated at 4, and unity was rated at 5, resulting in an overall quality rating of 4.6. The existing visual quality and character of the views are moderately high (generally rated at 5).

Overall vividness within this Key View appears to be moderately high. Existing mature ornamental landscaping (i.e., Redwood and California Sycamore) represent the dominant feature within this Key View. A landscaped median (up to 65 feet wide) separating eastbound and westbound travel lanes on 23rd Avenue is visible in the foreground and middleground views. Partial views to the existing 23rd Avenue Overcrossing exist. Foreground and middleground views to commercial structures are afforded to the east of 23rd Avenue. These structures appear to be approximately two stories in height. Background views include mature trees along 23rd Avenue. Overall intactness within this Key View is moderate. The existing mature vegetation minimizes the encroachment from roadway uses. Existing overhead power lines and traffic signaling appear to encroach on the mature vegetation in this view. The existing mature vegetation appears to unify this Key View, as the vegetation is viewed throughout this Key View. Overall unity is moderately high.

**Proposed Project Features** – The Proposed Project would remove the two existing 23rd Avenue overcrossings and replace them with a single, four-lane overcrossing that meets current design standards for vertical clearance (16 feet, 6 inches). The new overcrossing would provide an 800-foot span over I-880 and would have 12-foot travel lanes, 5-foot

shoulders, a 5-foot sidewalk for pedestrians on the south side, and would be wide enough to accommodate a future Class II bicycle lane.

The East 11th Street/23rd Avenue intersection would be reconstructed to accommodate the following:

- Remove the existing northbound I-880/eastbound 23rd Avenue on-ramp;
- Construct a new intersection at the Northbound I-880/23rd Avenue on-ramp;
- Provide dual left-turn lanes from eastbound 23rd Avenue to the northbound I-880 on-ramp;
- Reconstruct the existing northbound I-880/23rd Avenue on-ramp to accommodate the two left-turn lanes;
- Accommodate the u-turn movement from eastbound to westbound 23rd Avenue; and,
- Remove the existing free right-turn movement from westbound 23rd Avenue to the northbound I-880 on-ramp.

Pedestrian facility in the reconstructed East 11th Street/23rd Avenue intersection would be similar to existing conditions. Sidewalks would be provided on the south side of the 23rd Avenue overcrossing via a five-foot sidewalk, consistent with the current conditions. The existing 65-foot median and other mature landscaping along 23rd Avenue would be removed to accommodate the improvements.

**Changes to Visual Quality/Character** – Visual changes to quality and character at this Key View would be considered high due to the removal of a significant amount of mature vegetation and an increase in visible hardscape (resulting in an overall quality rating of 3.0 after implementation of the Proposed Project); refer to Exhibit 2.2-23, *Key View Point 3 – Proposed Condition*.

The proposed on-ramp and overcrossing would increase the appearance of paved surface area. The hardscape appearance of the 23rd Avenue on-ramp and overcrossing would contribute to the roadway encroachment on the surrounding uses. The scale and massing of this area with the proposed improvements would be significantly increased. The removal of all mature vegetation to accommodate the improvements reduces the appearance of unity. Overall unity would be reduced to a moderate visual rating due to the introduced hardscape features. Therefore, a landscaped aesthetic treatment (i.e., tree planting, landscaped median, etc.) would be required along or within the roadway, as feasible, to enhance a pedestrian and driver scale environment and reduce the hardscape appearance (Minimization Measure VIS-2). Landscape palettes and concept plans would be implemented with the concurrence of the District Landscape Architect.

**Viewer Response** – Commercial employees and clientele (moderate level of awareness) and local street users (moderate level of awareness) would have direct views to the Proposed Project features. Due to the moderate number of viewers affected, the overall viewer response to change would be moderate.

**Resulting Visual Impact** – Project improvements would highly affect existing views of the Project site from this Key View (rated difference of -1.6). Sensitive viewers would have a moderate viewer response to the Project changes. The Project would be required

to avoid, minimize, and mitigate visual impacts from this Key View, as the overall unity would be significantly reduced due to the removal of mature vegetation. Minimization Measure VIS-2 would require that all removed landscaping be replaced, where feasible. Although the resultant visible hardscape features would appear different than existing conditions, the character/quality at the Project site would appear similar to other urban areas typically viewed within the City.

Key View #4 (Viewers to the Road)

**Orientation** – Key View 4 was taken from commercial and residential uses along 23rd Avenue near East 7th Street. This view looks north toward the Proposed Project; refer to Exhibit 2.2-24, *Key View Point 4 – Existing Condition*.

**Existing Visual Quality/Character** – Based on the Visual Quality Evaluation conducted at this Key View, vividness was rated at 5, intactness was rated at 5, and unity was rated at 5, resulting in an overall quality rating of 5. The existing visual quality and character of the views is considered moderately high (generally rated at 5).

Residential and commercial structures are visible in the foreground views. The structures consist of brick and stucco materials, and vary in color. The varying color and texture associated with the foreground structures provide for moderately high vividness. Ornamental landscaping is present throughout the view. Streetscape along 23rd Avenue in foreground views is visible. Views of mature vegetation (i.e., Redwood and Sycamore trees) are also afforded in middleground views. Development within this Key View consists of residential and commercial uses of up to two stories along 23rd Avenue. The pedestrian scale of the structures in the area is enhanced by continuous ornamental landscaping and architectural treatments. However, the existing overhead power lines detract from the intactness of this view. Overall intactness within this Key View is considered to be moderately high. Mature vegetation along the streetscape reduces the appearance of hardscape features of the structures and roadway. Existing structures and landscaping appear to be cohesive. Overall unity is moderately high.

**Proposed Project Features** – The Proposed Project would remove the two existing 23rd Avenue overcrossings and replace them with a single, four-lane overcrossing that meets current design standards for vertical clearance (16 feet, 6 inches). The new overcrossing would provide an 800-foot span over I-880 and would have 12-foot travel lanes, 5-foot shoulders, a 5-foot sidewalk for pedestrians on the south side, and would be wide enough to accommodate a future Class II bicycle lane. Mature landscaping along 23rd Avenue would be removed to accommodate the new overcrossing.

**Changes to Visual Quality/Character** – Visual changes to quality and character at Key View 4 would be considered moderate due to the increased appearance of hardscape features and removal of mature landscaping (resulting in an overall quality rating of 4.0 after implementation of the Proposed Project) unless avoided, minimized, or mitigated; refer to Exhibit 2.2-25, *Key View Point 4 – Proposed Condition*.

Mature landscaping located along 23rd Avenue along the streetscape near commercial and residential uses would remain visible. The new overcrossing would be larger and more visible than the original overcrossing. The removed mature trees and vegetation would create the appearance of the overcrossing encroaching upon the commercial and residential uses. Overall unity would be considered moderate. The hardscape features of

the new overcrossing would be highly visible and would increase scale and massing of transportation uses within the area.

Landscaping would be removed along 23rd Avenue, creating additional hardscape in this Key View. In order to avoid, minimize, or mitigate the significance of the disturbed landscaping, new landscaping would be planted in a manner that is consistent with the appearance of the existing ornamental landscaping (Minimization Measure VIS-2). In order to avoid, minimize, or mitigate the significance of the dominating hardscape features, a landscaped aesthetic treatment (i.e., large tree planting, landscaped median, etc.) should be added to reduce the hardscape appearance (Minimization Measure VIS-2). Landscape palettes and concept plans would be implemented with the concurrence of the District Landscape Architect.

**Viewer Response** – Residential dwelling units and commercial uses would have long duration views of the Proposed Project features, including roadway improvements and the new overcrossing. Sensitivity to visual changes would be moderate-to-high for these viewer groups. Additionally, local street users would be moderately aware of the Proposed Project. Due to the moderate number of viewers affected, the overall viewer response to change would be moderately high.

**Resulting Visual Impact** – Project improvements would moderately affect existing views of the Project site from this Key View (rated difference of -1.0). Sensitive viewers would have a moderately high viewer response to Project changes. However, impacts resulting from these moderate changes would be reduced upon implementation of recommended avoidance and minimization measures. Residential uses would have views to additional hardscape features, which may additionally increase light reflectivity in the area.

Upon implementation of landscaping recommendations (Minimization Measure VIS-2), the visible hardscape features would be reduced and the Project area would appear consistent with the surrounding community. Therefore, with implementation of Minimization Measure VIS-2, these impacts would be reduced.

#### Other Views

Viewer recipients at Lazear School would experience a change in the existing views if proposed soundwalls NB-3 and NB-5 were constructed. Sensitive viewers would have a moderate viewer response to the Project changes. In addition, the school is requesting the soundwalls to lessen existing noise from the freeway. Project changes would include the thinning or removal of portions of ornamental vegetation from views of the Project site. Views of I-880 would be blocked by the new soundwall. Also, residential uses would have views to additional hardscape features, which may additionally increase light reflectivity in the area. Implementation of Minimization Measures VIS-2 and VIS-3 would lessen any adverse visual impacts within the project area.

### **2.2.5.3 Environmental Consequences**

#### *No Build Alternative*

The No Build Alternative would maintain the existing roadway and interchange configurations, and therefore, would not alter existing views. Existing visual/aesthetic resources would not be affected by the No Build Alternative.

### *Build Alternative*

#### Short-Term Construction Impacts

Implementation of the Proposed Project would expose sensitive users to views of the Project site. With implementation of the recommended avoidance and minimization measures, visual impacts would be reduced.

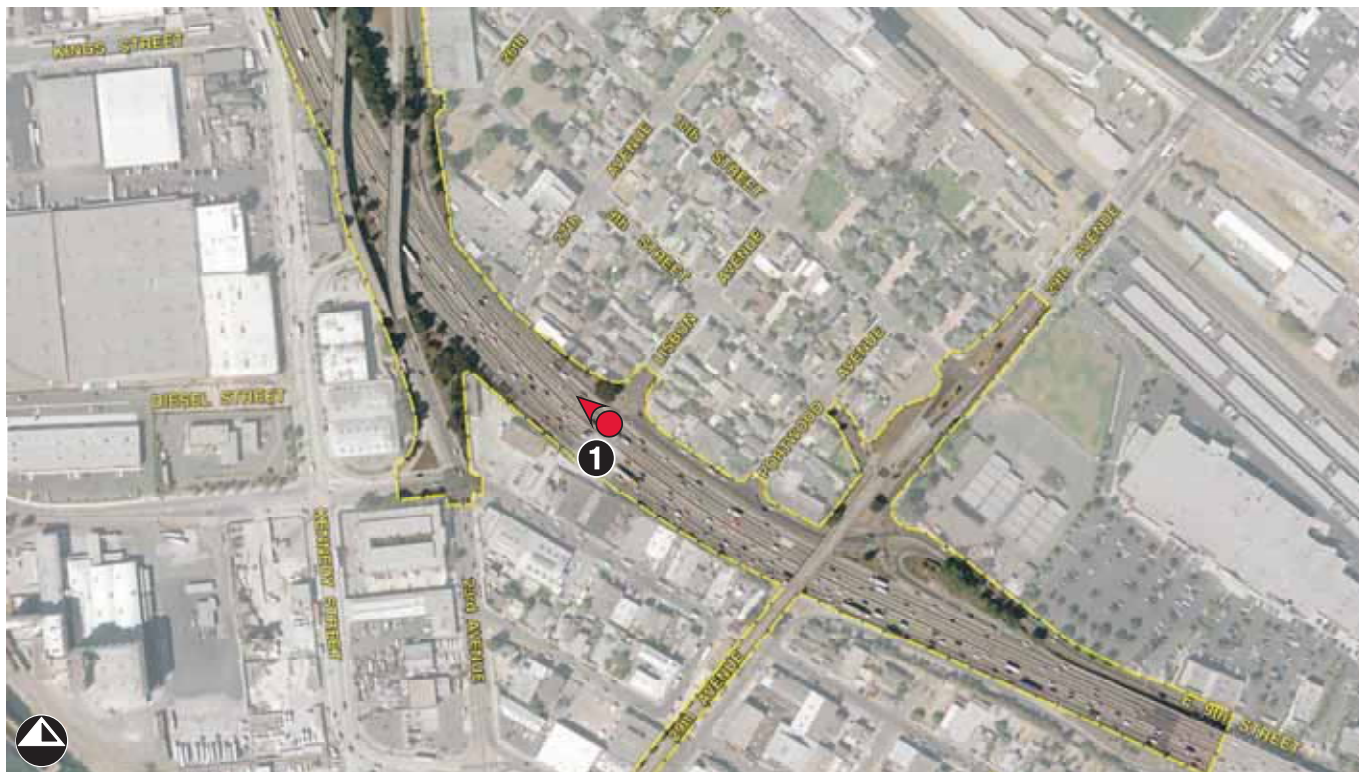
The Proposed Project would result in temporary visual impacts from construction activities. Exposed surfaces, construction debris, equipment, and truck traffic may temporarily impact views adjacent to the site. These impacts are short-term and would cease upon Project completion. Construction-related visual impacts would be minimized by adhering to the Department's Standard Specifications for Construction.

Light and glare from nighttime construction lighting would potentially cause a nuisance to motorists traveling along I-880. Demolition and construction activities associated with the 29th and 23rd Avenue overcrossing would require temporary nighttime construction. Nighttime construction may be required to take place for several months. One to two travel lanes may need to be closed for nighttime construction to protect the safety of the construction workers and to expedite the Project. Nighttime construction along I-880 would be limited by the Department to the hours of 10:00 p.m. to 6:00 a.m. Necessary lighting for safety and construction purposed would be contained and directed toward the specific area of construction.

The proposed soundwall along East 8th Street would be constructed prior to implementation of construction activities for the 29th and 23rd overcrossings in order to reduce potential nighttime lighting impacts associated with construction of the 23rd and 29th Avenue overcrossing on sensitive uses (Minimization Measure VIS-1). Should construction of the soundwall occur during nighttime hours, necessary lighting for safety and construction purposed would be contained and directed toward the specific area of construction. Also, a temporary opaque barrier would be used to limit potential light spillover onto adjacent residential uses. Early construction of the soundwall is necessary to minimize potential nighttime construction impacts from construction activities within the I-880 mainline. Therefore, although motorists traveling along I-880 may experience short-term impacts from light and glare, light and glare impacts to surrounding sensitive uses (particularly to the east) would be minimized with implementation of Minimization Measure VIS-1 and impacts in this regard would be reduced.

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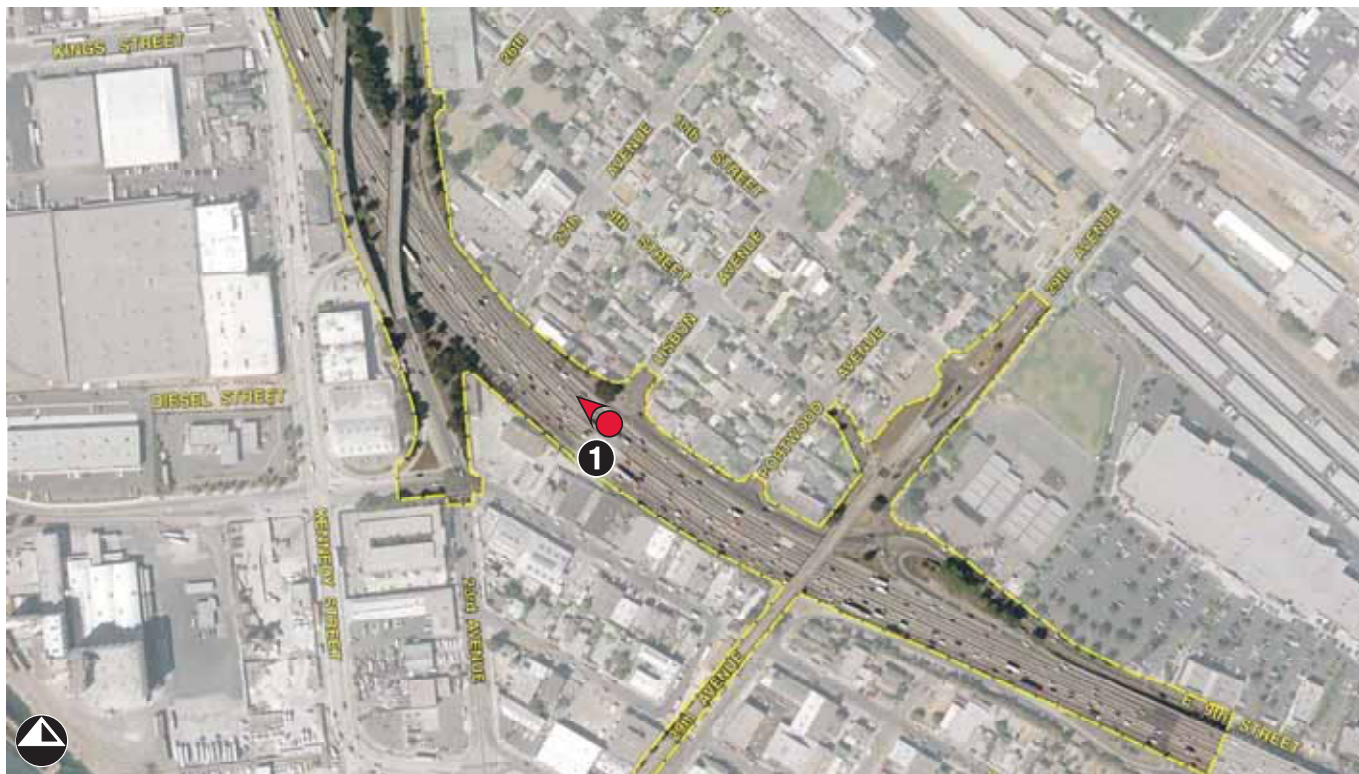


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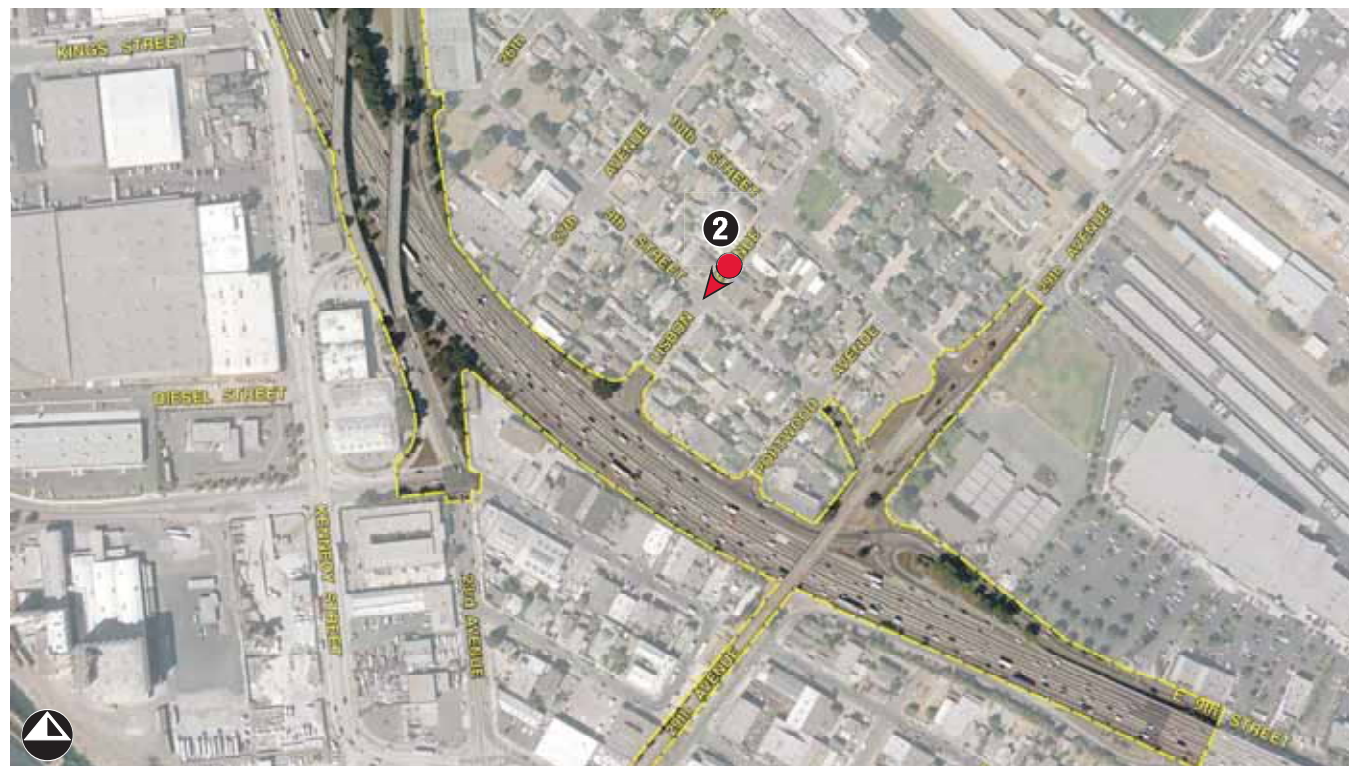
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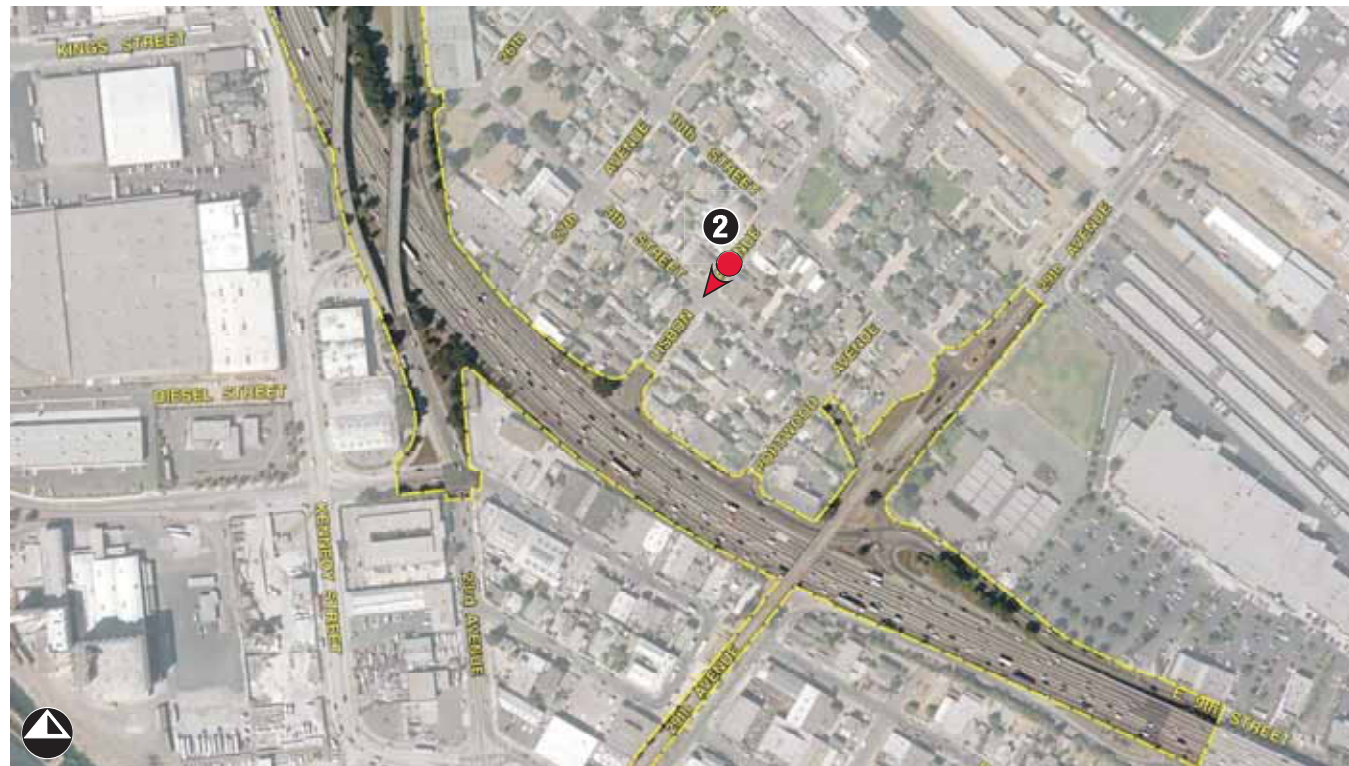


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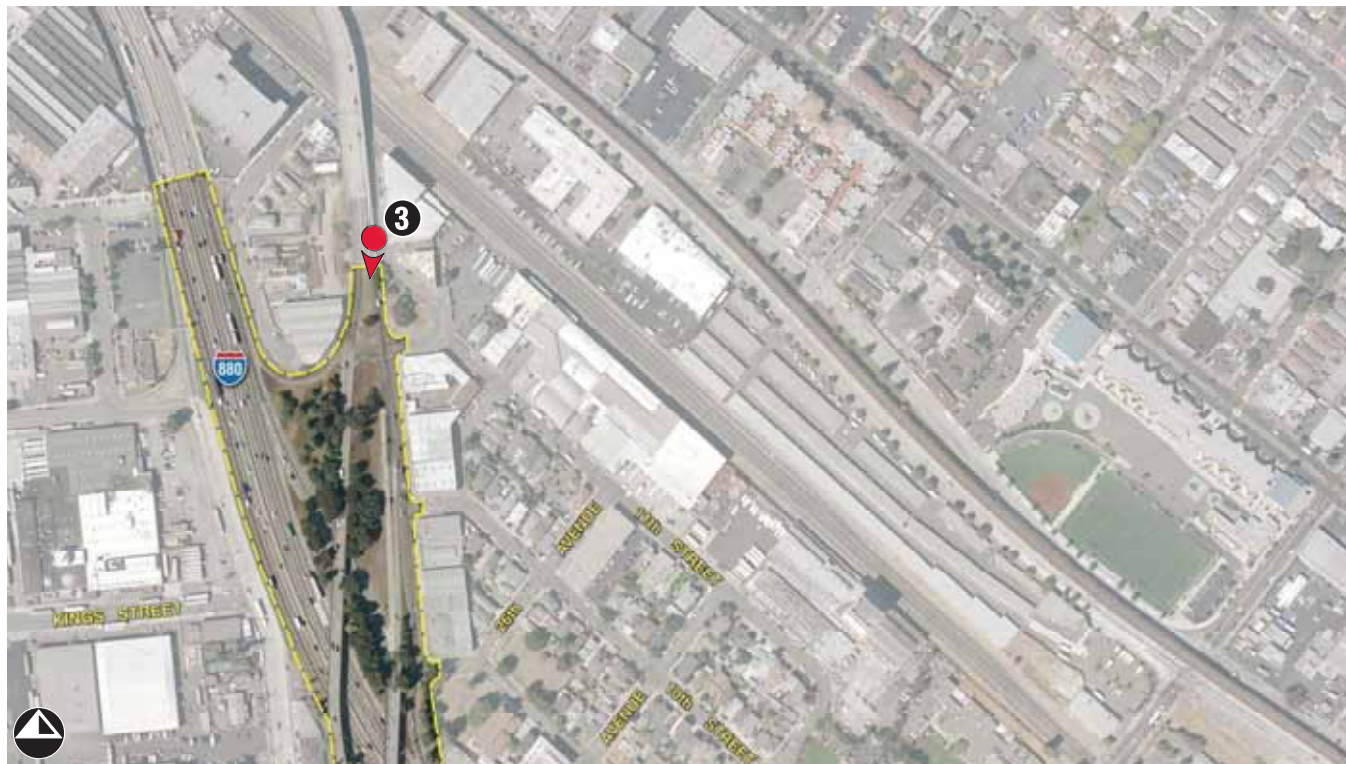
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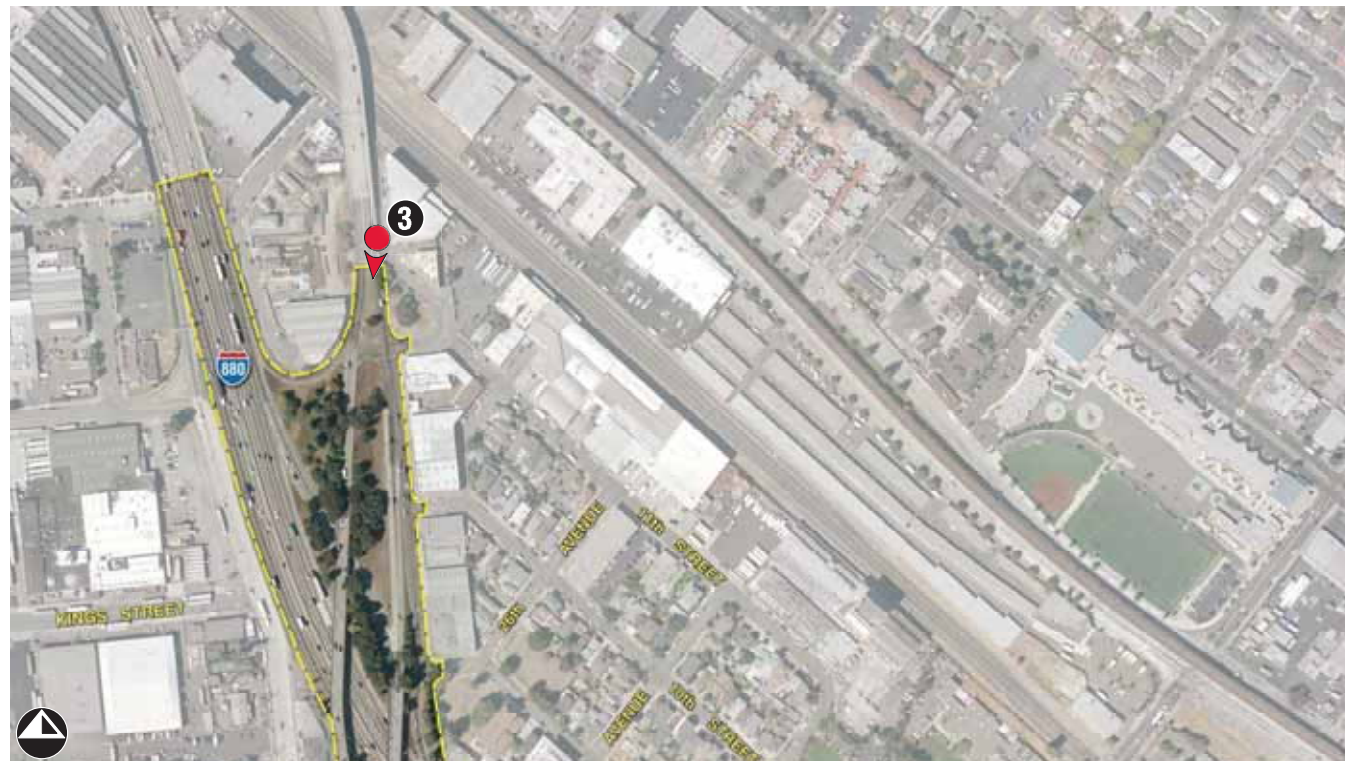


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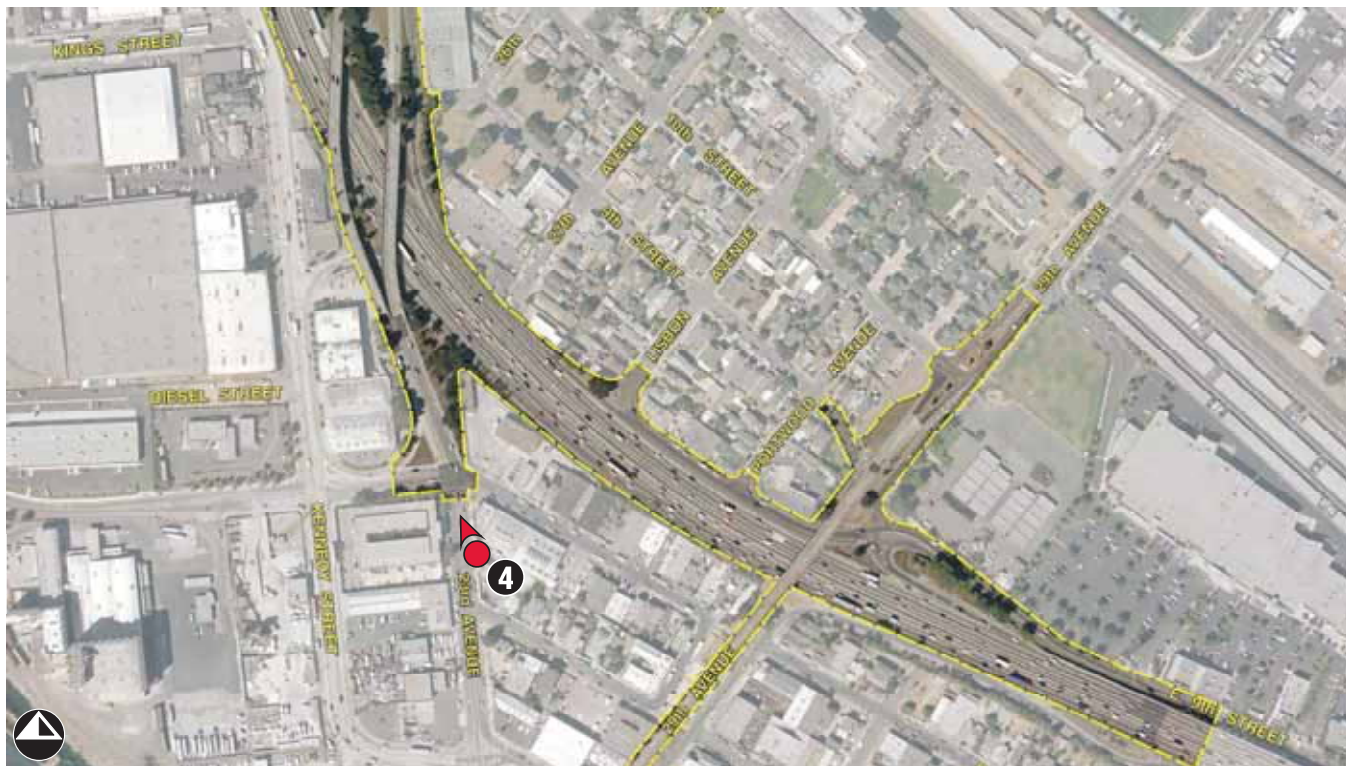
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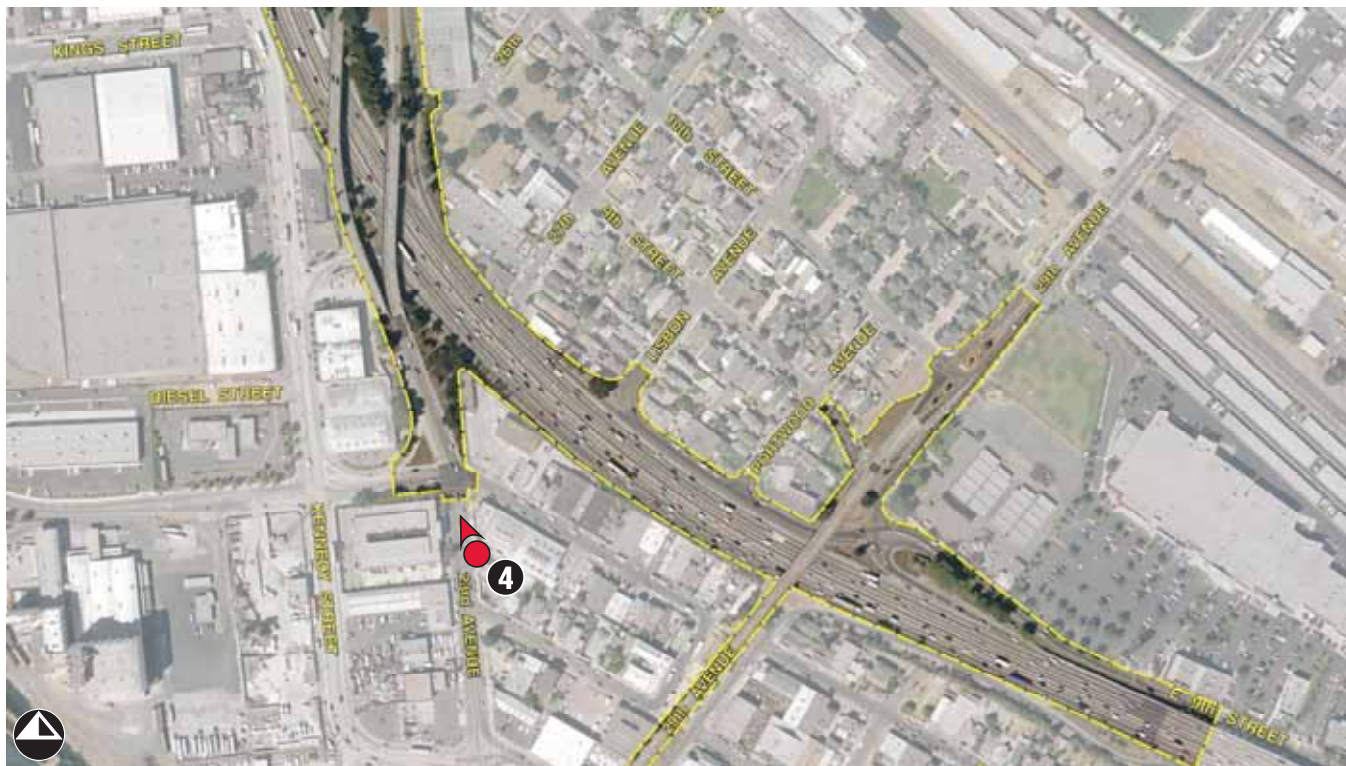


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### Long-Term Operational Impacts

The following is a summary of resulting impacts for each Key View:

Key View 1: Project features at Key View 1 would result in a moderate change to character/quality and a moderately high viewer response to that change. Changes would include an increase in hardscape features and removal of existing vegetation. These moderate changes in character/quality would be reduced with implementation of Minimization Measure VIS-2.

Key View 2: Introduced Project features at Key View 2 would result in a moderate high change to character/quality and a high viewer response to that change. Changes would include an increased appearance in hardscape features as a result of the new soundwall. These moderate changes in character/quality would be reduced with implementation of Minimization Measures VIS-2 and VIS-3.

Key View 3: Introduced Project features at Key View 3 would result in a high change to character/quality and a moderate viewer response to that change. Changes would include the removal of existing mature landscaping and an increase in the appearance of hardscape features. Implementation of Minimization Measure VIS-2 would reduce these visual impacts. Also, the resultant character at Key View 3 would appear similar to the generally urban character of the area. Therefore, the resultant visual change at Key View 3 would not appear to adversely degrade the character/quality of the area and impacts in this regard would be minimal after implementation of Minimization Measure VIS-2.

Key View 4: Implementation of the Project would result in moderate changes to character/quality and a moderately high viewer response to that change at Key View 4. Changes would include an increase in the appearance of hardscape features and the removal of mature landscaping. These moderate changes in character/quality would be minimal with implementation of Minimization Measure VIS-2. Overall, these visual impacts can be minimized with implementation of recommended Minimization Measure (with the exception of southern views along 23rd Avenue within the northern portion of the Project site). The Proposed Project would replace a chain-link fence with a 12-foot soundwall. The new soundwall would be composed of textured, tan/beige concrete material. The surrounding community would experience a change in visible hardscape. Although the new soundwall would increase visible hardscape in the immediate vicinity of the neighborhood, the soundwall would also screen middleground views to I-880 (which also contributes to visible hardscape). With implementation of Minimization Measures VIS-2 and VIS-3, landscape and wall aesthetic treatment (i.e., tree planting, vine treatment, etc.) would be added to the new wall to enhance the surrounding residential and pedestrian scale environment and reduce the appearance of hardscape as a result of the wall.

The interchange improvements would remove existing ornamental vegetation. Erosion control plant species utilized would be determined by the District Landscape Architect to ensure that the mix and application strategy is appropriate for the specific soil composition of the area (Minimization Measure VIS-2). In order to preserve the existing character of the ornamental landscaping features (including form, texture, and color of mature landscaping), trees, shrubs, and grasses would be planted, where feasible. All landscape palettes and concept plans would be selected with the guidance of the District

Landscape Architect, and would be consistent with the appearance of the surrounding ornamental landscaping.

The Proposed Project would alter the visible landscape along 23rd Avenue within the northern portion of the Project site due to mature landscape removal. The Project would reduce the potential area available for re-planting, and generally limit the size of new vegetation allowed. However, the resultant character at Key View 3 would appear similar to the urban character of the area. Therefore, the resultant visual change at Key View 3 would not appear to adversely degrade the character/quality of the area and impacts in this regard would be reduced after implementation of Minimization Measure VIS-2.

#### Other Views

Introduced Project features at Lazear School would result in a moderate high change to character/quality and a high viewer response to that change. Changes would include an increased appearance in hardscape features as a result of the new soundwall. These moderate changes in character/quality would be reduced with implementation of Minimization Measures VIS-2 and VIS-3.

#### *Build Alternative (Roundabout)*

Build Alternative (Roundabout) is identical to the Build Alternative except for the intersection of E. 9th Street/ 29th Avenue/ northbound 29th Avenue on ramp. The Build Alternative identifies this intersection point as a tee configuration that would be all way stop controlled. The Build Alternative – Roundabout identifies the intersection point as a roundabout configuration. Introduction of a roundabout at this intersection would not result in any new impacts to the visual character or quality of the area, as compared to the Build Alternative. Minimal ornamental landscaping would be removed to accommodate the roundabout. The additional hardscape features as a result of Build Alternative (Roundabout) would be minimized by the incorporation of landscaping and aesthetic treatment at the roundabout feature. Viewer response to the potential roundabout feature would be similar to those analyzed in the Build Alternative. Viewers of the potential roundabout feature would be limited to travelers and pedestrians. Similar to the Build Alternative, implementation of Minimization Measure VIS-2 and minimization measure VIS-3 would reduce the visual impacts resulting from the introduction of a roundabout at the East 9th Street/29th Avenue/northbound 29th Avenue on-ramp intersection.

#### Light and Glare

Implementation of the Proposed Project would introduce additional sources of light and glare such as street lighting, vehicle headlights, and traffic signals. Additional traffic signals with street lighting would be installed on 23rd Avenue near the proposed new I-880 north on-ramp. If this lighting is not adequately focused or shielded, it may cause spillover lighting and glare that may present a nuisance to the commercial uses to the east of 23rd Avenue. The existing mature vegetation within the median along 23rd Avenue, as well as along 23rd Avenue west of I-880, would be removed to allow for construction of the proposed overcrossing. Although vegetation would be replanted, commercial uses and interspersed residential uses along 23rd Avenue would be exposed to increased amounts of light and glare. However, since businesses adjacent to 23rd

Avenue would operate primarily during daytime hours (approximately 9:00 a.m. to 8:00 p.m.), these uses would not be adversely affected by new sources of light and glare. Additionally, Minimization Measure VIS-4 would allow the District Landscape Architect to review Project lighting types, plans, and placement at his or her discretion. Implementation of Minimization Measure VIS-4 would ensure that appropriate lighting controls would be applied to reduce light and glare impacts.

Light and glare impacts associated with vehicle headlights along I-880 toward residents to the east would be minimized with implementation of the Proposed Project. The proposed soundwall along the eastern side of I-880 would block light and glare to adjacent residential neighborhoods to the east. Residents and commercial uses along the frontage road (East 8th Street) would be exposed to increased levels of light and glare from vehicle headlights reflecting off the proposed soundwall. However, implementation of recommended landscaping treatments (Minimization Measure VIS-2) and compliance with the Department's Standard Design Practices, in concurrence with the District Landscape Architect, would eliminate these adverse effects of light and glare impacts. Therefore, impacts in this regard would be reduced with implementation of Minimization Measure VIS-2.

The roundabout proposed in Build Alternative - Roundabout would not create additional sources of light and glare compared to the existing condition. Implementation of Minimization Measure VIS-2 would require landscaping and aesthetic treatment to the roundabout to reduce light and glare impacts associated with the introduction of additional hardscape features. Similar to the Build Alternative, impacts in this regard would be reduced with the implementation of Minimization Measure VIS-2.

#### **2.2.5.4 Avoidance, Minimization, and/or Mitigation Measures**

The Department and FHWA mandate that a qualitative/aesthetic approach be taken to avoid and minimize for visual quality loss in the Project area. This approach fulfills the letter and the spirit of FHWA requirements because it addresses the actual cumulative loss of visual quality that will occur in the Project viewshed when the Project is implemented. It also constitutes avoidance and minimization that can generate public acceptance of the Project.

Visual avoidance and minimization for adverse Project impacts addressed in the Key View assessments and summarized in Section 2.2.6, Visual/Aesthetics, of this document, will consist of adhering to the following design requirements in cooperation with the District Landscape Architect. The requirements are arranged by Project feature and include design options in order of effectiveness. All visual avoidance and minimization will be designed and implemented with the guidance of the District Landscape Architect. The following minimization measures as related to visual impacts (VIS) have been proposed to reduce adverse impacts.

- VIS-1 To minimize potential impacts, the proposed soundwall along East 8th Street shall be constructed prior to implementation of construction activities for the 29th and 23rd Avenue Overcrossings in order to reduce potential nighttime lighting impacts associated with construction of the 29th and 23rd Avenue Overcrossings on sensitive uses. Should construction of the soundwall occur during nighttime hours, necessary lighting for safety and construction

purposes shall be contained and directed toward the specific area of construction. Also, a temporary opaque barrier shall be used to limit potential light spillover onto adjacent residential uses.

- VIS-2 To minimize potential impacts, and to maintain the context of the Project area (color, form, and texture), the Project shall install landscaping that is compatible with the existing landscape on the freeway and adjacent communities. Landscape shall include specimen-sized trees (where feasible), shrub/ground cover mass planting, and vines on walls to soften the hardscape features (including the new soundwall and roundabout feature [if implemented]), and reduce the negative environmental impacts (such as glare and radiant heat) from hardscape. The new landscape concept and plant palette shall be determined in consultation with the District Landscape Architect. Erosion control plant species utilized shall be determined by the District Landscape Architect to ensure that the mix and application strategy is appropriate for the specific soil composition of the area.

In addition, coordination between the City and the School District shall be conducted to provide a collaborative decision making process to determine specific soundwall design features such as texture, color, and overall appearance. This collaboration shall also provide measures to control graffiti, such as vine planting when possible and graffiti removal scheduling.

- VIS-3 To minimize potential impacts, and to maintain consistency with the existing infrastructure (i.e., bridges, walls, sidewalks, etc.) in the Project area, landscape and/or architectural treatments (i.e., color, texture, etc.) for the structure elements (including the soundwall and potential roundabout feature) of the Project shall be determined in consultation with the District Landscape Architect during the Plans, Specifications, and Estimate (PS&E) phase.

- VIS-4 Project lighting types, plans, and placement shall be reviewed at the discretion of the District Landscape Architect in order to minimize light and glare impacts on surrounding sensitive uses.

## **2.2.6 Cultural Resources**

### **2.2.6.1 Regulatory Setting**

“Cultural resources” as used in this document refers to all historical and archaeological resources, regardless of significance. Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act of 1966, as amended, (NHPA) sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places (National Register). Section 106 of NHPA requires federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the Advisory

Council, FHWA, State Historic Preservation Officer (SHPO), and the Department went into effect for Department projects, both state and local, with FHWA involvement. The PA implements the Advisory Council's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to the Department. The FHWA's responsibilities under the PA have been assigned to the Department as part of the Surface Transportation Project Delivery Pilot Program (23 CFR 773) (July 1, 2007).

Historic properties may also be covered under Section 4(f) of the U.S. Department of Transportation Act, which regulates the "use" of land from historic properties. Historical resources are considered under the California Environmental Quality Act (CEQA), as well as California Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet National Register of Historic Places listing criteria. It further specifically requires the Department to inventory state-owned structures in its rights-of-way.

#### **2.2.6.2 Affected Environment**

The Historic Property Survey Report (HPSR), including the Archaeological Survey Report (ASR) and the Historic Resources Evaluation Report (HRER), was prepared for this Proposed Project (Jones & Stokes, 2009). Preparation of the document included conducting site visits, performing a record search at the Northwest Information Center (NWIC), Sonoma State University, and contacting state and local agencies, as well as nearby Native American tribes.

The Area of Potential Effects (APE) for the Project was established based on the maximum Proposed Project footprint and encompasses the existing right-of-way; any new right of way; all proposed easements, temporary or permanent, including staging areas or construction access roads; and material or disposal sites that may be impacted by Project activities. As shown in Exhibit 2.2-26, *Area of Potential Effect Map*, there are two APE lines: the architectural APE and the archaeological APE.

The architectural APE includes all individual buildings and groupings of historic buildings directly abutting the Project. The APE accounts for all potential proximity-related impacts to potential historic architectural resources abutting the full length of the 29th and 23rd Avenue overcrossings proposed for reconstruction. It extends west of I-880 in the Brooklyn Basin neighborhood, extending as far west as the easterly curb line of Ford Street at the 29th Avenue overcrossing terminus and the westerly curb line of East 7th Street at the southbound 23rd Avenue overcrossing terminus. It also extends east to include the Kennedy Tract neighborhood, extending as far east as East 10th Street and East 11th Street. The archaeological APE was established based on the potential for ground disturbing activities associated with the Proposed Project. It includes all areas where re-grading of roadways, excavation for footings or piling for overcrossing structures and/or soundwalls are proposed, or where construction staging is proposed.

The record searches conducted on July 18, 2006 and September 30, 2008 identified no archaeological sites within the APE. The record searches identified the California Cotton Mills Weaving/Carding/Spinning Building within the APE, as a historical resource under CEQA.

The Native American Heritage Commission (NAHC) was contacted in September 2008 to request that it conduct a search of its sacred lands database and provide a list of Native American representatives that might have any information or concerns regarding the Project and the Project area. The NAHC replied in October 2008, stating that the search of its sacred lands database did not indicate the presence of any Native American cultural resources in the study area. The NAHC also provided a list of local Native American representatives that may have interest in, or knowledge of, the Project area. In November 2008, letters were sent to all contacts identified on the list of Native American representatives provided by the NAHC (refer to Appendix A in the ASR for all Native American correspondence). The letter included a brief Project description, a map of the Project area, and a summary of the record search results. The letter also requested that the recipients respond with any information or concerns. As of July 2009, none of the Native American representatives had responded with any concerns regarding the Project and the Project area.

In addition to archaeologists and architectural historians conducting pre-field research that included a background records search for previously recorded resources, correspondence with the California Native American Heritage Commission (NAHC) and local Native American representatives, pedestrian surveys of the Project area were also conducted. Because the entire Project area either consists of a built/developed environment, freeway/interchanges, or heavily landscaped cut-and-fill, a formal archaeological survey was not conducted. A very limited pedestrian survey of the archaeological APE was conducted on September 26, 2008.

In addition to the field survey of the APE for archaeological resources, a detailed examination of historical maps, aerial photos, and historical documents was undertaken in an effort to identify buildings and structures historically located within the archaeological APE that may have had associated subsurface 'historic-era' archaeological deposits that could be encountered during ground disturbing activities associated with the Project.

The California Cotton Mills Weaving/Carding/Spinning Building is located in the northernmost portion of the APE. The California Cotton Mills Weaving/Carding/Spinning Building is the principal surviving structure within what was once a large compound of numerous mill buildings and structures. The 1917 building appears to be individually eligible for the National Register of Historic Places (National Register) under Criteria A and C at a local level of significance. On July 15, 2009, SHPO concurred that the California Cotton Mills Weaving/Carding/Spinning Building is eligible for listing on the National Register. The mill compound produced one of the largest arrays of cotton products in California and is also significant for ethnic historical reasons, as it was integral to the development of the Kennedy Tract/Brooklyn Basin neighborhood, known as Jingletown, which housed a large Portuguese population. In addition, the mill compound was also the scene of important immigrant and woman labor struggles in 1911 and 1918. The California Cotton Mills Weaving/Carding/Spinning Building is considered a historical resource under CEQA.

The Kennedy Tract/Jingletown (Jingletown) historic district was not identified during the record searches and is not listed on a Federal, State, or local historic register; it was identified during the field survey. Jingletown has a strongly cohesive architectural and

design character that embodies Oakland's late nineteenth century and early twentieth century vernacular architectural tradition. Occupying approximately 40 acres, the Jingtowntown historic district is located between 29th and 23rd Avenues and between East 9th and 11th Streets, east of I-880. It consists of 161 properties, dominated by single-family and two-family residences constructed between 1880 and 1929. Jingtowntown appears to be eligible for the National Register under Criteria C and A at a local level of significance. On July 15, 2009, SHPO concurred that the Jingtowntown historic district is eligible for the National Register. The neighborhood was initially subdivided in 1876 and is located with the southwestern boundary of the November 1872 annexation to the City of Oakland. The subdivision is also referenced in the 1878 Thompson and West Historical Atlas of Alameda County. Residents during the late nineteenth century included persons of German, Scandinavian, Italian, and Irish ancestry. Around the turn of the twentieth century, Portuguese immigrants originating from the Azores Islands moved into the neighborhood. The Portuguese built and occupied a majority of the buildings in the Jingtowntown neighborhood during the first half of the twentieth century, supplied a majority of the workforce in the adjacent factories, including the California Cotton Mills Weaving/Carding/Spinning Building, and established Mary Help of Christians Catholic Church, a key contributing architectural resource and community institution within the Jingtowntown neighborhood. The neighborhood has narrow lot sizes, a key characteristic of working class residential subdivisions of the late nineteenth and early twentieth centuries. Jingtowntown is considered a historical resource under CEQA.

Two properties, 646 Kennedy Street and 948-976 23rd Avenue, are considered historical resources under CEQA but are not eligible for the National Register. The property at 646 Kennedy Street is identified as Barrow Pringle/Bayley-Underhill Overall Company/Bay Cities Paper Box Company and was historically an industrial – clothing manufacturing building. The property has a local significance and is considered a historical resource under CEQA, but is ineligible for the National Register. The property at 948-976 23rd Avenue is identified as Eandi Metals Works and was historically, and continues to be, an industrial – metal manufacturing building. The property has significance because of its historical association as the most noteworthy of the metal fabrication and foundry businesses clustered in Oakland's Kennedy Tract/Brooklyn Basin during the mid to late twentieth century. The property is a historical resource under CEQA, but is not eligible for the National Register (Jones & Stokes, 2009). In addition to these two properties, the HPSR identifies two resources, 1080 Calcot Place and 1092 Calcot Place, which SHPO determined not to be historical resources under CEQA, on October 9, 2008 (Jones & Stokes, 2009).

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to PRC Section 5097.98, if the remains are thought to be Native American, the coroner will notify the NAHC who will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact the District Environmental Branch so that they may



work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC Section 5097.98 are to be followed as applicable.

### **2.2.6.3 Environmental Consequences**

#### ***No Build Alternative***

Under the No Build Alternative, no changes would be made to the 29th and 23rd Avenue Overcrossings. No impacts would occur to historic or archaeological resources within the Project area.

#### ***Build Alternative***

The archaeological literature and record searches conducted for the Project indicate that the APE does not contain prehistoric archaeological resources. One prehistoric archaeological site and one potential prehistoric archaeological site have been recorded within a one-half-mile radius of the APE. No archaeological sites have been recorded within or adjacent to the archaeological APE. The Project is within close proximity to the prehistoric San Francisco Bay margin and is within relatively young (Holocene) alluvial fan deposits. This suggests moderate archaeological sensitivity. Site visits conducted during the preparation of the HPSR, ASR, and HRER indicated that the areas within and surrounding the APE have been extensively modified and disturbed by multiple phases of urban development and redevelopment. Additional surveys would be required if Project plans are changed to include areas not surveyed previously, or if deeper excavation is required in locations other than those specified during the preparation of the HPSR, ASR, and HRER.

The Project would not be located within the property boundaries of the National Register-eligible California Cotton Mills Weaving/Carding/Spinning Building nor would it call for the demolition of any resources within the property boundaries. All Proposed Project improvements adjoining this historic resource would occur within the public right-of-way. The Project would not adversely affect the activities, features, and attributes that qualify the California Cotton Mills Weaving/Carding/Spinning Building property for protection under Section 106 of the NHPA because the property would not be acquired. Neither the California Cotton Mills Weaving/Carding/Spinning Building nor its character defining architectural elements would be adversely affected through any type of Project-related acquisition process. Any construction easements would occur within the public right-of-way, rather than on the California Cotton Mills Weaving/Carding/Spinning Building property, and would not substantially compromise the adjoining neighborhood's already degraded physical/visual setting. As assigned by FHWA, Caltrans has determined that a Finding of No Adverse Effect without Standard Conditions is appropriate for the undertaking of the Proposed Project (Jones and Stokes, 2009).

The Project does not call for the removal of the California Cotton Mills Weaving/Carding/Spinning Building from its current location, changes in the character of the property, or for changes to the physical features associated with a property that contribute to its historic significance (Jones & Stokes, 2009). No character defining features of the historic property would be adversely affected. No constructive use of the California Cotton Mills Weaving/ Carding/Spinning Building property would occur because the Project would not adversely affect the activities, features, and attributes that

qualify the resource for protection under Section 4(f); nor is temporary occupancy of a Section 4(f) property proposed (RBF Consulting and Jones & Stokes, 2009).

The Project would occur within the delineated boundaries of the National Register-eligible Jingtletown historic district. The Project would not result in the demolition of any resource within the boundaries of the historic district. In areas of right-of-way acquisition, no historic properties in the delineated historic district would be acquired and no character defining features of contributing resources within the district would be adversely affected. The Proposed Project would not affect any historical architectural resource deemed a contributing historic resource within the delineated boundaries of the district (Jones and Stokes, 2009). Temporary construction easements and construction staging areas are proposed on vacant land or within the existing right-of-way. The construction easement along the north side of 29th Avenue adjoins, but is outside of, the historic district boundaries and would not substantially compromise the neighborhood's already degraded physical/visual setting (Jones and Stokes, 2009).

Construction of the soundwall along East 8th Street would occur outside the boundaries of the National Register-eligible historic district. Only one building abutting East 8th Street is a contributing resource to the historic district, all other buildings are non-contributing resources. The historic setting of the neighborhood has been irreversibly compromised due to the placement of I-880 during the late 1940s. At present, a chain link fence separates the buildings along East 8th Street from I-880 (RBF Consulting and Jones and Stokes 2009). Exhibit 2.2-20, *Key View Point 2 - Existing Condition*, depicts the existing visual environment, while Exhibit 2.2-21, *Key View Point 2 - Proposed Condition*, provides a visual simulation of the proposed impacts from the construction of the soundwall on the historic district. As discussed in the Visual Impact Assessment (RBF Consulting, 2009), the soundwall would have minimal impacts on the visual setting. As assigned by FHWA, Caltrans has determined that a Finding of No Adverse Effect without Standard Conditions is appropriate for the undertaking of the Proposed Project (Jones and Stokes, 2009). It should be noted that minimization measures to reduce potential adverse vibration impacts resulting from implementation of the Project have been included in Sections 2.3.2 *Geology/Soils/Seismic/Topography* and 2.5.5 *Noise*.

The National Register-eligible Jingtletown historic district is considered a Section 4(f) historic resource however, no constructive use of properties within the potential historic district would occur because the Project would not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f); nor is temporary occupancy of a Section 4(f) property proposed.

No substantial adverse effects to National Register-eligible properties or to the two referenced historical resources under CEQA are anticipated as a result of the Project. The reason being that the Project would not result in the material impairment of an historical resource or changes to the historic resource's immediate surroundings such that the resources would be materially impaired.

Coordination between the Department and the SHPO is currently in progress. Although neither the California Cotton Mills Weaving/Carding/Spinning Building nor the Jingtletown historic district were previously listed on the National Register, both were determined eligible by SHPO based on review of the HPSR in June 2009. The SHPO concurrence letter dated July 15, 2009 (see Appendix B), documents the coordination and

consultation between the Department and the SHPO. In addition, two properties were identified, 646 Kennedy Street and 948-976 23rd Avenue, that are ineligible for the National Register; however, they are historical resources under CEQA. A Finding of Effect Report has been prepared and will be sent to the SHPO for review and concurrence. Overall, the Section 106 finding for the Project's potential effects on historic properties is No Adverse Effect without Standard Conditions.

#### **2.2.6.4 Avoidance, Minimization, and/or Mitigation Measures**

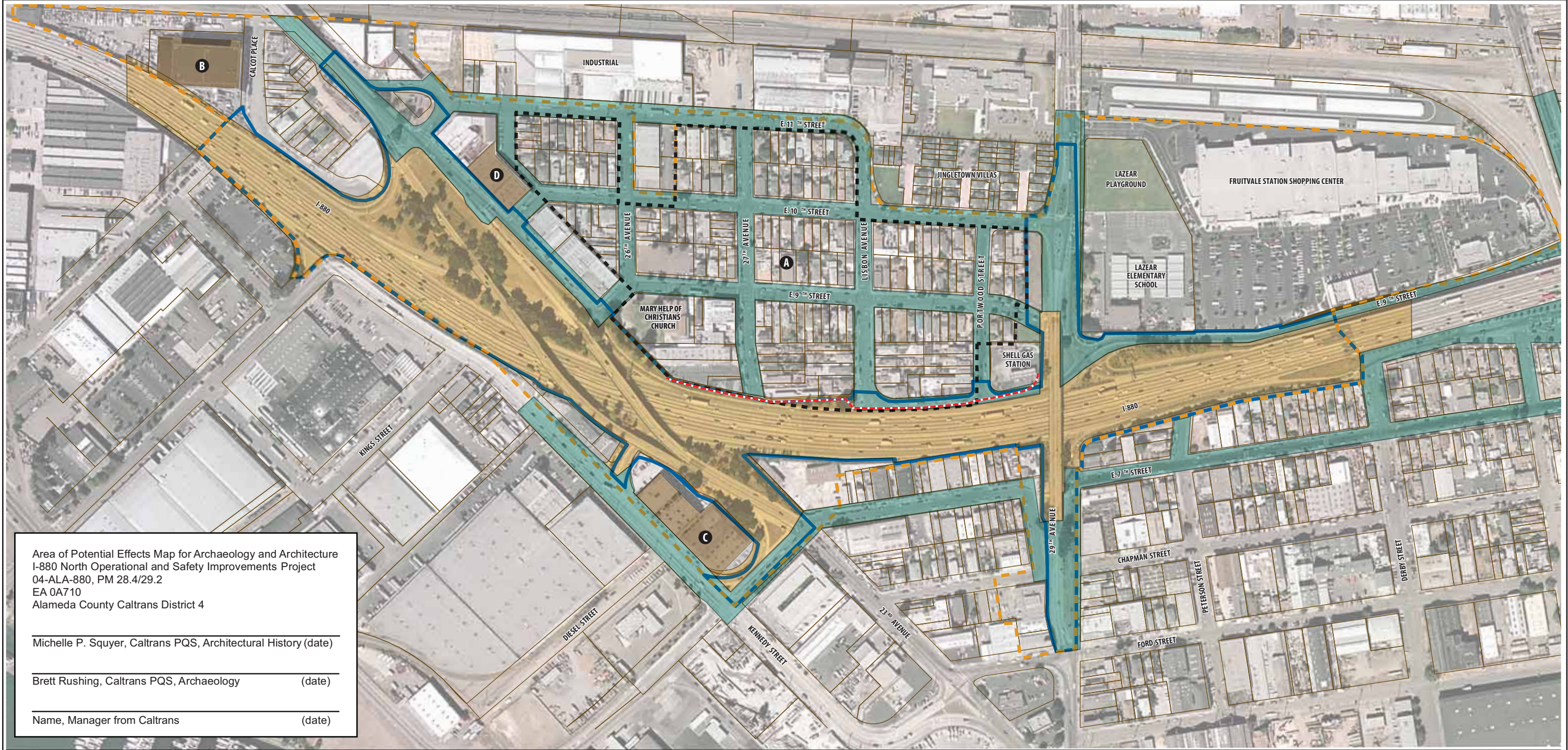
Implementation of the following avoidance measure, as related to cultural resources (CULT), would reduce or eliminate the adverse property acquisition effects of the Proposed Project:

CULT-1 If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

Implementation of the following minimization measure would reduce or eliminate the adverse property acquisition effects of the Proposed Project:

CULT-2 If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to Public Resources Code Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC) who will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact the District Environmental Branch so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.





Area of Potential Effects Map for Archaeology and Architecture  
I-880 North Operational and Safety Improvements Project  
04-ALA-880, PM 28.4/29.2  
EA 0A710  
Alameda County Caltrans District 4

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Michelle P. Squyer, Caltrans PQS, Architectural History (date)

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Brett Rushing, Caltrans PQS, Archaeology (date)

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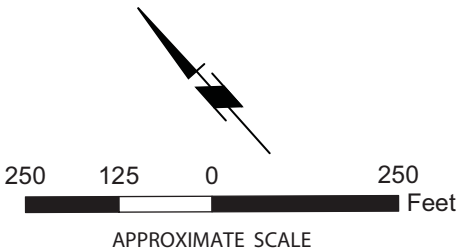
Name, Manager from Caltrans (date)

**LEGEND**

- ARCHITECTURAL HISTORY APE
- ARCHAEOLOGICAL APE
- POTENTIAL KENNEDY TRACT/ "JINGLETOWN" HISTORIC DISTRICT
- PARCEL BOUNDARIES
- CALTRANS RIGHT-OF-WAY
- CITY OF OAKLAND RIGHT-OF-WAY
- NEW SOUNDWALL

**KEY INVENTORIED RESOURCES**

- NR-eligible Properties**
- A KENNEDY TRACT / "JINGLETOWN" (RESOURCE # I-880-ALA-1\_DISTRICT)
  - B CALIFORNIA COTTON MILLS (RESOURCE # I-880-ALA-2)
- CEQA Historical Resources**
- C 646 KENNEDY STREET (RESOURCE # I-880-ALA-3)
  - D 948-976 23RD AVENUE (RESOURCE # I-880-ALA-4)



Source: HPSR



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