
CHAPTER 1 – PROPOSED PROJECT



Proposed Project

1.1 INTRODUCTION

The Interstate 880 (I-880) Operation and Safety Improvements at 29th Avenue and 23rd Avenue Overcrossings Project (Project) is located at the existing I-880 interchanges with 29th Avenue and 23rd Avenue in the City of Oakland, Alameda County, California. Exhibits 1-1 and 1-2 provide the Project location and vicinity maps.

The Alameda County Congestion Management Agency (ACCMA) has sponsored the Project and is the responsible agency for the Project. The California Department of Transportation (Department) would be the lead agency under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) per the Federal Highway Administration (FHWA) NEPA delegation. The ACCMA and the Department propose to construct operational and safety improvements on northbound I-880, the I-880/29th Avenue interchange, and the I-880/23rd Avenue interchange. The 29th Avenue/23rd Avenue area is a major bottleneck on I-880 due to low vehicle clearances of the overcrossings, non-standard interchange spacing, and on- and off-ramp configurations.

In November 2006, California voters approved funding for safety and operations improvements on state highway systems. The Regional Transportation Plan (RTP) and the Transportation Improvement Plan (TIP) currently list a portion of the Project improvements (RTP project number 22769 and TIP project number ALA050019). Project funding includes monies from the Regional Measure 2 Program (Regional Traffic Relief Plan project number 30.1) (local funds) and Surface Transportation Program (federal funds) totaling \$10 million. In addition, this Project is included in Trade Corridors Improvement Fund (TCIF project number 4) for \$73 million, the 2008 State Transportation Improvement Program (STIP, PPNO 44C) for \$12 million, and Federal funds from Transportation Equity Act for the 21st Century (TEA-21) for \$1.8 million. The environmental, plans, specifications, estimates, right-of-way, and construction are all funded with the above referenced \$96.9 million.

1.2 PURPOSE AND NEED

A recent Department study identified the 29th Avenue/23rd Avenue area as a major bottleneck on I-880 due to the low vertical clearances of the overcrossings, the nonstandard interchange spacing, the existing ramp geometric configurations, and the limited ability to widen I-880. Replacement of these last overcrossings to attain the standard vertical clearances will allow fully loaded trucks to use the I-880 corridor. In addition, lengthening the auxiliary lanes would increase the flow of vehicles along the mainline, thus reducing the rate of congestion-related accidents and improving the traffic flow and safety through the I-880 corridor, particularly to truck traffic.

1.2.1 Purpose

The purpose of the Project is:

- To correct existing geometric deficiencies of the overcrossings at 29th Avenue and 23rd Avenue along I-880;
- To improve the safety and operations of I-880 from PM 28.4 to PM 29.2;
- To improve operational deficiencies of the northbound ramps at 29th Avenue and 23rd Avenue for I-880; and,
- To provide I-880 noise protection to the Jingtowntown residential community and Lazear Elementary school.

1.2.2 Need

The Proposed Project is necessary because the existing I-880 interchanges at 29th Avenue and 23rd Avenue are currently heavily congested and have high collision rates as a result of nonstandard roadway designs. The interchanges are currently spaced at 1,400 feet which is nonstandard interchange spacing. In addition, the mainline freeway horizontal alignment transitions between relatively small-radius reversing horizontal curves. The existing overcrossings have multiple columns supporting each bridge and the vertical clearances over I-880 are less than the current Caltrans Design Standard of 16.5 feet. These bridge columns are oriented in such a way as to prevent widening of the mainline freeway to accommodate standard lane widths, standard shoulders, or to incorporate auxiliary lane extensions. The inside and outside mainline shoulders do not meet current design standards and the width of the number one (inside) lane in the northbound direction is less than the 12-foot design standard. These conditions all contribute to the poor operations of this section of I-880 as well as contribute to the high rate of accidents (approximately five times the state-wide average).

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Source: CIA, October 2006

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

Local Vicinity Map

 = Improvement Location

SD Mac: 35100463.003/35100463LandscapeLetter.indd

Exhibit 1-2

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1.2.3 Capacity, Transportation Demand, and Safety

1.2.3.1 Existing Capacity and LOS

Intersection Analysis

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 Study Intersection Locations*. The intersection numbers correspond to those presented in the Traffic Data Collection Report.

Intersection Analysis Methodology

Intersection Operations

Level of Service (LOS)¹ 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 1-1, *Intersection Level of Service Criteria*.

Table 1-1: Intersection Level of Service Criteria

LOS	Description	Intersection Delay ^(a)	
		Signalized	Unsignalized
A	Little or no delay	≤ 10.0	≤ 10.0
B	Short traffic delay	> 10.0 and ≤ 20.0	> 10.0 and ≤ 15.0
C	Average traffic delay	> 20.0 and ≤ 35.0	> 15.0 and ≤ 25.0
D	Long traffic delay	> 35.0 and ≤ 55.0	> 25.0 and ≤ 35.0
E	Very long traffic delay	> 55.0 and ≤ 80.0	> 35.0 and ≤ 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.

¹ Level of Service is a measure of traffic flow. Under LOS A, traffic flows freely with no delays or restrictions. Traffic flow under LOS F is jammed and vehicles experience considerable delays.

Intersection 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 intersections, 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.

Intersection Analysis – Existing Conditions

As indicated in the *Draft Environmental Impact Transportation Analysis*, prepared for the Proposed Project, dated July 17, 2009, 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.

Intersection Queuing

Existing intersection queuing conditions for weekday AM and PM peak hours were evaluated in the *Draft Environmental Impact Transportation Analysis*, prepared for the Proposed Project, dated July 17, 2009. Through the analysis it was determined that 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).

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).

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 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. The following Measures of Effectiveness were extracted from the model:

- Vehicle throughput; and,
- Vehicle travel time.

Local Roadways – Existing Conditions

The Existing Conditions local roadway intersection lane geometry is shown in Exhibit 2.2-7; refer to Chapter 2. The corresponding intersection turning movement volumes for the weekday AM and PM peak hours are shown as Exhibit 2.2-8; refer to Chapter 2.

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.

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 1-2, *Freeway Level of Service Criteria*. The Department goal for basic freeway segment operation is the transition between LOS C and LOS D.

Table 1-2: Freeway Level of Service Criteria

LOS	Description	Density ^(a)
A	No traffic congestion	≤ 10.0
B	Little traffic congestion	> 10.0 and ≤ 20.0
C	Average traffic congestion	> 20.0 and ≤ 28.0
D	Heavy traffic congestion	> 28.0 and ≤ 35.0
E	Very heavy traffic congestion	> 35.0 and ≤ 43.0
F	Extreme traffic congestion	> 43.0

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

^(a) Density in terms of passenger cars per mile per lane (pcmpl).

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; refer to Chapter 2.

Freeway Ramp Queuing

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

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 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.

1.2.3.2 Regional Forecasts

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. The Association of Bay Area Governments (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 percent growth since 1990 (6,521), and represents a 2.19 percent annual growth rate.

1.2.3.3 Projected Capacity Needs and LOS

The need for the Project with respect to capacity is determined based upon the projected traffic volumes at the interchange being expected to significantly increase by the year 2035. The increased traffic volumes, in conjunction with the limited capacity of the existing ramps, are expected to result in the deterioration of traffic operations at the ramps and intersections within the Project area from the existing LOS B to LOS E or worse by the year 2035. Without the proposed improvements, queues on the exit ramps will increase and would likely impact through movements on the I-880 mainline.

System Safety Needs

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 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 1.57.² 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.

1.2.4 Roadway Deficiencies

1.2.4.1 Regional Freeway

Within the vicinity of the 23rd Avenue and 29th Avenue interchanges, the I-880 freeway, freeway ramps, and the local roadway network have reduced network capacity and high collision rates due to the non-standard network characteristics. The I-880 freeway between the Embarcadero ramps and the High Street interchange includes many features that reduce mainline freeway capacity and result in collisions. The features that reduce the mainline freeway capacity include steep roadway grades, sharp horizontal curvature, nonstandard vertical clearance, weaving, ramp spacing, ramp lengths, and ramp metering.

A steep roadway grade on the mainline I-880 freeway limits the sight distance of motorists, resulting in slower traffic speeds and cautious car following behavior. These characteristics, coupled with poor pavement conditions, reduce the mainline capacity which results in traffic congestion that propagates to the upstream freeway. Sharp horizontal curvature on the mainline I-880 freeway also limits the sight distance of motorists and results in reduced vehicle speeds and roadway capacity. In addition, the nonstandard vertical clearance of overcrossings on the mainline I-880 freeway results in accidents and limits mobility within the trade corridor. The standard vertical clearance for freeway overcrossings is 16.50 feet. The locations of substandard vertical clearance have been identified at the 23rd Avenue Overcrossing and the 29th Avenue Overcrossing. The substandard weaving sections on the I-880 freeway increase vehicle density and reduce traffic speeds. These characteristics reduce the mainline capacity which results in traffic congestion that propagates to the upstream freeway. The vehicle demand and high frequency of freeway ramps on the I-880 freeway between High Street and 23rd Avenue results in frequent vehicle maneuvers as motorists position themselves to enter and exit the freeway.

Collectively, the dense ramp spacing and frequent vehicle maneuvers result in reduced speeds and capacity on the mainline freeway. The substandard ramp lengths on the I-880 freeway encourage vehicles to decelerate prior to exiting the freeway. The deceleration on the mainline freeway increases congestion and reduces lane capacity. If vehicles queue beyond the ramp and onto the freeway, the capacity of the freeway lane is essentially eliminated for through traffic and the lane becomes a de facto off-ramp. Ramp metering allows the throughput on the mainline I-880 freeway to be maximized. Where ramp

² 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.

metering does not exist, the number of vehicles entering the freeway is unconstrained and the overall mainline freeway operates at less than the optimal capacity.

1.2.4.2 Local Roadway

The local roadway network between the 23rd Avenue and 29th Avenue interchanges includes many features that reduce mainline freeway capacity and result in collisions. The features that reduce the roadway capacity include weaving sections, ramp metering, drawbridges, and rail crossings.

Weaving sections within the Project area cause delay and restrict capacity for motorists entering and exiting Alameda via the Park Street Bridge. Ramp metering within the Project area causes vehicle queuing at several locations. Where adequate storage length is not provided, the queuing can cause delay and congestion on the local roadway facilities.

Access to Alameda to and from Oakland is constrained by the Oakland / Alameda Estuary. Within the Project area, access between Alameda and Oakland is served by two (2) four-lane bridges, one (1) two-lane bridge, and two (2) two-lane tunnels. The two (2) tunnels are one-way couplets. In addition to serving vehicles, pedestrians, and bicyclists, the bridges function as drawbridges to accommodate vessel traffic. When raised for a passing vessel, all other traffic utilizing the bridge is suspended. Based on field observations, the frequency of vessel traffic varies and the duration of accommodation varies; however, the duration was observed to occasionally last for as much as six (6) minutes. When raised, the bridges create significant delays and queues, which typically are slow to subside.

An at-grade Union Pacific railroad track crosses 23rd Avenue and 29th Avenue within the Park Street Triangle. The railroad track continues to the north through the RMC Concrete Plant and to the south in the middle of Glascock Street through Lancaster Street. Currently, the railroad track is inactive and no railroad crossing gates are present; however, the roadway is striped for railroad operations. Although the railroad is currently not utilized, railroad operations are expected to be resurrected in the near future. Once activated, the railroad is expected to serve approximately three (3) trains per week – two (2) trains during the off-peak weeknight hours and one (1) on Friday afternoons.³ The crossing of the trains at the Park Street Triangle is expected to impact traffic operations similarly to the raising of the Park Street Bridge. However, due to the anticipated schedule and frequency of the train crossings, the impacts of railroad operations on the vehicle queuing and delay is expected to be no more significant than the raising of the Park Street Bridge during off-peak hours.

1.2.5 Social Demands/Economic Development

The Project area contains existing transportation, commercial, residential, and school uses. Oakland's zoning designations adjacent to the Proposed Project include various zones and land use designations as described in the *City of Oakland General Plan*. The Fruitvale Shopping Center is in the M-30 (general industrial) zone, within the Central Business District land use designation. The Lazear Elementary School is also in the M-30 zone within the Institutional land use designation. The area northwest of 29th Avenue is within the Mixed Housing Type Residential land use designation, and includes the following zones: M-20 (light industrial), M-

³ The frequency and schedule of the trains was provided by Halim Mathkour of Caltrans' Office of Design East (District 4) on January 21, 2009 at the Project Development Team (PDT) meeting.

30 (general industrial), R-40 (garden apartment), and M-20/S-13 (light industrial/mixed-use development). No new land use plans are being proposed as a result of this project.

1.2.6 Modal Interrelationships and System Linkages

I-880 traverses north to south through Alameda and Santa Clara counties from I-980 in Oakland to I-280 in Santa Clara County, and is located entirely within Department District 4. 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.⁴ The Proposed Project is considered to be a high priority Project in the North I-880 Operations and Safety Study Report prepared for the ACCMA in July 2003.

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.

The following lists the preliminary estimated costs for the Proposed Project:

Roadway Items (2009 value)	\$28,131,000
Structure Items (2009 value)	\$26,285,000
Subtotal Construction (2009 value)	\$54,416,000
Roadway Items (2014 value)	\$35,903,000
Structure Items (2014 value)	\$33,547,000
Subtotal Construction (2014 value)	\$69,450,000
Right of Way (2013 value)	\$4,896,000
Total Project Cost	\$74,346,000

1.2.7 Air Quality Improvements

Under the Build Alternative, the existing northbound I-880 on-ramps and off-ramp at 23rd Avenue would be replaced 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 replaced 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 replaced to

⁴ North I-880 Safety and Operations Study, July 2003, p. 2

improve operations and safety. No HOV preferential lanes will be included in the Proposed Project.

1.2.8 Independent Utility and Logical Termini

As discussed previously, the existing I-880 interchanges at 29th Avenue and 23rd Avenue are currently heavily congested and have high collision rates as a result of nonstandard roadway designs which contribute to the poor operations of this section of I-880 as well as contribute to the high rate of accidents. In addition, the 29th Avenue/23rd Avenue area of the I-880 corridor has been identified by the Department as a major bottleneck. The lengthening of the auxiliary lanes would increase traffic flow of vehicles along the mainline, thereby reducing the rate of congestion-related accidents and improving the traffic flow through this section of the I-880 corridor. As geometric conditions, congestion, and operations of the I-880 corridor improve outside the Project area, the Project area termini would be of sufficient length to address environmental matters on a broad scope. The Proposed Project would result in improvements to the current traffic conditions along the I-880 corridor without any additional transportation improvements being made in the area. As such, the Proposed Project is considered to have independent utility. Furthermore, the Proposed Project would not restrict considerations of alternatives for other reasonably foreseeable transportation improvements.

1.3 PROJECT DESCRIPTION

1.3.1 Existing Traffic Operations

Four northbound I-880 segments were analyzed within the Project area, and all operate at unacceptable LOS (LOS D or below) during at least one peak-hour period. Three southbound I-880 segments were analyzed within the Project area, and two operate at unacceptable LOS. Eleven intersections were analyzed for LOS and only one, the 29th Avenue/East 9th Street intersection, operates at an unacceptable LOS during peak hours. The area also contains high vehicle accident rates. Data was collected on accident characteristics during a three-year analysis period (2001 to 2004) on I-880 within the Project area. A total of 402 accidents occurred over this three-year period, with 131 injuries and three fatalities. The resulting accident rates are approximately five times the state average. The City of Oakland collected intersection accident data during a four-year period (2001 to 2005) for three intersections near the Project area: 8th Street/Lisbon Avenue, 10th Street/29th Avenue, and Ford Street/29th Avenue. The 10th Street/29th Avenue intersection had 1.25 accidents per one million vehicles passing through the intersection, well over the state incident rate average of 0.43 accidents per one million vehicles.

1.3.2 Proposed Project

1.3.2.1 Build Alternative

The Project is located in the City of Oakland, Alameda County on I-880 and the 29th Avenue and 23rd Avenue interchanges (post mile 28.4/29.2). The approximately 0.8-mile 29th Avenue/23rd Avenue area is a major bottleneck on I-880 due to low vehicle clearances of the overcrossings, non-standard interchange spacing, and on- and off-ramp configurations. The Project proposes to replace the 29th Avenue overcrossing and the two 23rd Avenue overcrossings to provide the standard vertical clearances (16 feet, 6 inches) over I-880 and to accommodate 12-foot travel lanes, 5-foot to 10-foot outside shoulders on northbound I-880;

refer to Exhibit 1-3, *Proposed Project Site Plan (Build Alternative)*. In addition, the Build Alternative proposes improvements to the northbound I-880/29th Avenue and the northbound I-880/23rd Avenue interchanges. These improvements, especially lengthening the auxiliary lanes, would increase the flow of vehicles along the mainline, thus reducing the rate of congestion-related accidents and improving the mobility and safety through the I-880 corridor, particularly to truck traffic.

1.3.2.2 Build Alternative (Design Options)

The Build Alternative included two design options to configure the intersection of East 9th Street and 29th Avenue. One was a roundabout configuration and the other a tee intersection, which would be stop-controlled. The roundabout option provides more local traffic circulation to the local community (commonly known as Jingtown), better pedestrian and bicycle access between this neighborhood and Lazear elementary School, and a safer school drop off area than the tee intersection option.

The Build Alternative with the roundabout option required a formal review and approval process for all proposed roundabouts on the State Highway System. This included various operational and safety considerations, as well as the conceptual viability of the roundabout at the proposed location. An independent peer review evaluated the viability of the roundabout, the proposed geometry and the forecasted operations. Subsequent to this peer review and follow up discussion and meeting on April 7, 2010, the Department, the ACCMA, the City of Oakland, the Design Team, and the peer reviewers selected the roundabout design option as the superior intersection option based on data presented. The Build Alternative now includes the roundabout option as part of the proposed project.

The ACCMA, City of Oakland, and Caltrans will monitor the roundabout operations during the first year after opening. Although operational problems with the roundabout are not anticipated, there were concerns related to the Lazear Elementary School drop off/pick up area and its close proximity to the roundabout. If unpredictable traffic issues do occur at the school drop off/pick up area and causes traffic to backup into the roundabout, the ACCMA, City of Oakland, and Caltrans are committed to quickly address the problem. Possible options for addressing this include extending the drop off/ pick up area further down 29th Avenue using the existing city right of way, closing a portion of the drop off/ pick up area closest to the roundabout, and/or utilizing parking monitors to control the traffic and parking in the drop off/ pick up area.

1.4 ALTERNATIVES

This section discusses the alternatives in detail. The Project Study Report (PSR) dated August 2007 evaluated eight alternatives for this Project. Of these, the following alternative has been carried through as the Proposed Build Alternative. In addition, a Value Analysis (VA) Study was conducted December 1st through December 5th, 2008. The VA Study identified 11 alternatives and five are being carried through as design elements within the Proposed Build Alternative. The alternatives rejected during the PSR and VA processes are discussed in Section 1.4.4, *Alternatives Considered but Rejected from Further Analysis*.

1.4.1 Proposed Build Alternative

The Build Alternative is the Proposed Project. The Project proposes to replace the 29th Avenue overcrossing and the two 23rd Avenue overcrossings to provide the standard vertical clearances (16 feet, 6 inches) over I-880 and to accommodate 12-foot travel lanes, 5-foot to 10-foot outside shoulders on northbound I-880. In addition, the Build Alternative proposes improvements to the northbound I-880/29th Avenue and the northbound I-880/23rd Avenue interchanges. Exhibit 1-3, *Proposed Project Site Plan (Build Alternative)*, provides a graphical representation of the Proposed Project.

These proposed improvements are consistent with the purpose and need, and would accommodate anticipated future improvements on the I-880 corridor. These improvements are broken out into five key elements and discussed in detail below.

1.4.1.1 Northbound I-880/29th Avenue On-Ramp and Soundwall

The northbound I-880/Lisbon Avenue on-ramp would be relocated to 29th Avenue, adjacent to the existing Shell gas station. A soundwall would be constructed on the east side of the relocated northbound I-880/29th Avenue on-ramp, extending from 29th Avenue north approximately 1,000 feet. The soundwall would be constructed as a Department Standard with masonry block soundwall and would be approximately 12 feet in height as measured from the residential side. The relocation of the Lisbon Avenue on-ramp would extend the auxiliary lane to provide additional weaving distance between 29th Avenue and 23rd Avenue. The ramp relocation would also relocate regional traffic traveling through the residential streets of East 8th Street, East 10th Street, Portwood Avenue, and Lisbon Avenue.

1.4.1.2 Removal and Replacement of the 29th Avenue Overcrossing

The existing two-lane 29th Avenue overcrossing structure would be removed and replaced with a three-lane overcrossing that meets current design standards for vertical clearance (16 feet, 6 inches) over the mainline travel lanes. The 29th Avenue overcrossing would provide three 12-foot travel lanes (one eastbound lane and two westbound lanes), 5-foot outside shoulders (bike lanes), and an 8-foot sidewalk on the north side of the structure. The dual westbound 12-foot travel lanes would be provided to accommodate the dual left-turn lanes at the new I-880 northbound off-ramp. The new overcrossing would have a 120-foot span to allow for northbound I-880 improvements, including a 12-foot auxiliary lane construction, 12-foot travel lanes, a 5-foot to 10-foot outside shoulder, and a 2-foot to 4-foot inside shoulder. The existing Ford Street/29th Avenue and East 10th Street/29th Avenue intersections would be replaced to accommodate the new profile of the overcrossing.

1.4.1.3 Northbound I-880/29th Avenue Off-Ramp

The Project would elevate the northbound I-880/29th Avenue off-ramp to terminate at the new 29th Avenue overcrossing structure at a signalized intersection. This would provide a 555-foot off-ramp, increasing the deceleration length and providing additional vehicle queue storage. The northbound I-880/29th Avenue off-ramp at the terminus would include three 12-foot travel lanes (dual left-turn lanes and dual right-turn lanes), a 4-foot left shoulder, and an 8-foot right shoulder. The portion of the off-ramp leading up to the overcrossing structure near East 9th Street would be supported on both sides with Type 1 cantilever retaining walls, or mechanically stabilized embankment (MSE) walls, approximately 175 feet long and varying in height from 3 feet on the east side to 16 feet near

the beginning of the ramp bridge structure. Signal phasing priority at the new intersection would also be provided for the off-ramp vehicles.

1.4.1.4 Removal and Replacement of the 23rd Avenue Overcrossing and Replacement of the Northbound I-880/23rd Avenue Ramps

The Project would replace the northbound I-880 off-ramp at 23rd Avenue to have an increased radius and meet current design standards for sight distance requirements. The Project would shift the northbound I-880 off-ramp to bypass the existing East 9th Street/23rd Avenue T-intersection and terminate immediately east of East 10th Street. The reconfigured alignment would provide a 775-foot off-ramp, thus increasing the deceleration length and providing additional storage length for queuing vehicles. In order to prevent pedestrians from accessing the northbound I-880/23rd Avenue off-ramp, an access-control, chain link fence would be constructed. This chain link fence would begin at the north end of the proposed soundwall and end at East 10th Street.

In addition, the Proposed Project would remove the two existing 23rd Avenue overcrossings and replace them with a single, three-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, accommodating 12-foot mainline travel lanes, a 10-foot outside shoulder on northbound I-880, and maintain the existing southbound mainline lanes and on-ramp. The overcrossing would accommodate 12-foot travel lanes (one westbound and two eastbound), 5-foot shoulders (bike lanes), and a 6-foot sidewalk for pedestrians on the south side.



Ortho-photo flown September 2008

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

Source: Project Report, April 2010.



SD Mac: 35100463.003/35100463LandscapeTabloid.indd

INTERSTATE 880 OPERATIONAL AND SAFETY IMPROVEMENTS
AT 29TH AVENUE AND 23RD AVENUE OVERCROSSING IS/EA
Proposed Project Site Plan (Build Alternative)

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

- Remove the existing northbound I-880/eastbound 23rd Avenue on-ramp;
- Construct a new signalized 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;
- Replace the existing northbound I-880/23rd Avenue on-ramp to accommodate the two left-turn lanes; and,
- Replace the existing signal at East 11th Street/23rd Avenue.

Pedestrian facilities in the proposed East 11th Street/23rd Avenue intersection would be similar to existing conditions. Entrance to the Jingtowntown neighborhood from the 23rd Avenue overcrossing would remain in the current location in the vicinity of East 11th Street. Pedestrians traveling east from the west side of I-880 to the Jingtowntown neighborhood on the east would access the neighborhood via a push-button controlled crosswalk at the proposed northbound I-880/23rd Avenue off-ramp terminus. Sidewalks would be provided on the south side of the 23rd Avenue overcrossing via a six-foot sidewalk, and will be compliant with the American Disabilities Act (ADA) requirements. In addition, where feasible, ADA upgrades that meet current ADA standards will be completed to all pedestrian facilities within the Project scope of work/project limits.

1.4.1.5 Lazear School Soundwall

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.

1.4.1.6 Right-of-Way Acquisition

Implementation of the Project could result in right-of-way (ROW) acquisition. At a maximum, ROW acquisitions would occur along the north edge of 29th Avenue and along the east edge of the I-880 northbound off-ramp at 23rd Avenue. The entire vacant lot would be acquired on the north side of 29th Avenue between East 9th Street and East 10th Street. Along the right edge of the I-880 northbound off-ramp at 23rd Avenue, between 27th Avenue and 23rd Avenue, 3 feet to 22 feet of ROW would be required from two industrial parcels in order to replace the northbound off-ramp at 23rd Avenue.

1.4.1.7 Construction Areas

Construction of the Project would require grading and other ground disturbing activities. As this project is replacing the overcrossings with higher ones, little grading is required below the ground surface other than that required for construction of the structure foundations. The following ground disturbance depths would be associated with construction:

- Two to six feet below ground surface for grading activities associated with proposed roadway construction. The proposed surface would be up to four feet lower than the existing surface under the 29th Avenue overcrossing just east of I-880 and to the north along the proposed soundwall. Additional grading will be required to place the soundwall foundation and prepare for the new pavement section.
- Up to 20 feet below ground surface for construction of the abutments and embankments associated with replacement of the 23rd Avenue and 29th Avenue overcrossings.
- Sixty to 120 feet below ground surface for piles (note that a range is necessary as Steel H-piles or large cast-in-drilled-hole [CIDH] piles are anticipated) constructed in association with the 23rd Avenue and 29th Avenue overcrossings. Piles are also anticipated for the retaining soundwall along northbound I-880.

1.4.2 No Build Alternative

The No Build Alternative would maintain the existing facility in its current condition. No improvements would be constructed and existing conditions on I-880 would continue. As a result, operations along the mainline I-880 would continue to stay at unacceptable LOS, exit ramp queues would continue to spillback onto I-880 due to insufficient ramp length; accident rates would continue to be above the state average due to the many nonstandard features in the study area; and, the transportation of goods would continue to be restricted because of the nonstandard vertical clearances of the 23rd Avenue and 29th Avenue overcrossings.

1.4.3 Comparison of Alternatives

As indicated above, this Proposed Mitigated Negative Declaration / Environmental Assessment (MND/EA) includes the analysis of two alternatives: the No Build Alternative and the Build Alternative. The Build Alternative has been determined to satisfy the Project purpose and need. The design of this alternative was created through a lengthy process, spanning over many years that included extensive coordination with the City of Alameda and the City of Oakland. In addition, numerous Project team meetings between the City of Oakland, the City of Alameda, the Department, and the Project Design Team were held. Three public meetings were held as a proactive approach of involving the interested parties early in the design process, ensuring that their most important needs and design preferences would be accommodated prior to circulation of the environmental document for public review. The Build Alternative also analyzed the cost of implementing this Alternative, the resulting roadway efficiency, geometry, and compatibility with the surrounding community. During the design process additional alternatives were considered, however they were rejected and are discussed in further detail in Section 1.4.4, *Alternatives Considered But Eliminated from Further Discussion*. The Build Alternative is supported by the both of the Local Jurisdictions; the City of Alameda, the City of Oakland, the Department, and the community.

Following the public circulation period, all comments were considered. The Department has selected the Build Alternative and made the final determination of the Project's effect on the environment. In accordance with CEQA, if no unmitigable adverse impacts are identified, the Department will prepare a Negative Declaration (ND) or Mitigated ND. Similarly, if the Department determines the action does not adversely impact the environment, the Department,

as assigned by FHWA, will issue a Finding of No Significant Impact (FONSI) in accordance with NEPA.

1.4.4 Alternatives Considered But Eliminated From Further Discussion

1.4.4.1 23rd Avenue Northbound Interchange Options

Five additional options were considered for the 23rd Avenue/Northbound I-880 Interchange. The first option would have adjusted the original geometry of the Proposed Project based on new topographic maps because the original geometry was done on distorted aerials. Because the Build Alternative was redesigned, Option 1 was eliminated from further review. The remaining four options were eliminated from further evaluation due to adverse right-of-way acquisition, socioeconomic impacts, limited funding, geometric constraints, and/or conflicts with the goals of the community. These options are discussed below.

Option 2

Option 2 provides a new single, four-lane overcrossing structure at 23rd Avenue. This option includes a new on-ramp for eastbound traffic west of the East 11th Street intersection. This option incorporates using the existing on-ramp location at the East 11th Street intersection for westbound traffic. This existing on-ramp has a compound curve that is not preferred. In addition, the motorists traveling eastbound from Alameda would be traveling at a higher speed than the motorists traveling westbound from 23rd Avenue to get on to I-880 northbound at the merging area. Option 2 does not provide an improvement to the operations of the existing I-880 northbound on-ramps.

Option 3

Option 3 provides a new single, four-lane overcrossing structure at 23rd Avenue. This option also includes a new single-point on-ramp for eastbound and westbound traffic west of the East 11th Street intersection. This option maximizes the distance between the East 11th Street intersection and the new on-ramp intersection and between 23rd Avenue and I-880 in order to provide as much storage for the ramp metering as possible. Option 3 was considered but removed from further study because it does not provide an improvement to the operations of the existing I-880 northbound on-ramps.

Option 4

Similar to the existing configuration at I-880 and 23rd Avenue, Option 4 provides two two-lane overcrossing structures at 23rd Avenue. This option incorporates using the existing on-ramp location at the East 11th Street intersection for westbound traffic. This existing on-ramp has a compound curve that is not preferred. In addition, the motorists traveling eastbound from Alameda would be traveling at a higher speed than the motorists traveling westbound from 23rd Avenue to get on to I-880 northbound at the merging area. This option is also extremely challenging from a geometric and structures perspective. Option 4 was considered but removed from further study because it increases Project costs, requires an outrigger structure, and requires a portion of the existing southbound on-ramp to be constructed to a lower elevation. In addition, it does not provide an improvement to the operations of the existing I-880 northbound on-ramps.

Option 5

An additional alternative was studied along the 23rd Avenue corridor. This alternative was identified as the Transit Corridor Option along 23rd Avenue. The Transit Corridor Option evaluated the implementation of improvements along the 23rd Avenue corridor from the Park Street Bridge to the Northbound on-ramp at 23rd Avenue. Said improvements were related to dedicated eastbound lanes for transit vehicles and/or signal prioritization for transit vehicles along this corridor. The signal prioritization could be engaged immediately after a Park Street Bridge closure.

This alternative was evaluated and removed from the Proposed Project improvements. The implementation of lanes dedicated to transit vehicles would require the purchase of additional right-of-way, including the purchase of existing buildings. The signal prioritization option is still viable, but not directly related to the Proposed Project. ACCMA, the City of Oakland, and the City of Alameda agreed that the separate local project to study improvements within the Park Street Triangle should also evaluate implementing signal prioritization for eastbound vehicles along the 23rd Avenue corridor.

During the preliminary engineering stages of the Proposed Project, eight alternatives were studied and seven were rejected. Each alternative had minor variations, which resulted in more than 12 alternative variations. Due to adverse right-of-way impacts, meetings with elected officials, meetings with the community, negative socio-economic impacts, limited funds, geometric constraints and/or conflicts with community goals, all but the “No Build Alternative” and the “Build Alternative” were discarded.

1.4.4.2 Value Analysis Alternatives

The Value Analysis (VA) team identified an additional 11 alternatives for further development and consideration. Of these 11 alternatives, one will be considered during the construction phasing plan preparation and four have been incorporated into the Build Alternative to the greatest extent possible. The remaining six VA alternatives were considered but eliminated from further evaluation. These alternatives are discussed below.

VA Alternative 1: Jack Up the Existing 29th Avenue Overcrossing

This alternative would raise the existing 29th Avenue Overcrossing to meet the necessary vertical clearance. This alternative cannot be completed without correcting the functionally obsolete features of the existing overcrossing. In order to do so, the deck would need to be widened to provide standard shoulders and barrier rails, joint seals would need to be replaced, sidewalk spalls would be required to be repaired, and the approach slab problems would have to be addressed. Based on a structural assessment of the foundations and previous retrofit features, it is assumed that a new retrofit analysis would be necessary for raising the structure. It is likely that the existing retrofit features would not meet current standards and additional bent and footing retrofit would be required. It was determined that full replacement is the best retrofit for this structure; therefore, this alternative was eliminated from further evaluation.

VA Alternative 2: Northbound 23rd Avenue Off-ramp Underneath the 23rd Avenue Structure

This alternative would simplify the traffic movement at 23rd Avenue by reducing the number of signals and eliminating the u-turn movement. However, simplifying the

movement for westbound traffic to take 23rd Avenue encourages additional vehicles to exit at 23rd Avenue rather than at 29th Avenue. This would add additional vehicles to the failing weave on I-880 between 29th Avenue and 23rd Avenue. The alternative, also known as Option A under the Project Study Report prepared in 2007, was rejected by the Department geometrician prior to approval. The super-elevation transition from northbound I-880 to westbound 23rd Avenue does not meet design standards. The suggestion from the VA team was to provide a loop for the westbound traffic where the right movement would gradually roll out of the super-elevation. More than half of the traffic from the northbound I-880 off-ramp at 23rd Avenue is headed eastbound. This complicates the movement for these vehicles and puts these vehicles in conflict with the heavy northbound on-ramp traffic movement. This alternative was eliminated from further analysis.

VA Alternative 3: Make 29th Avenue a One-way Street

This alternative would make 29th Avenue a one-way street from the Park Street overcrossing to the east side of the 29th Avenue overcrossing and make the 29th Avenue overcrossing one-lane/one-way. Making the 29th Avenue Overcrossing one-way would help alleviate traffic conflicts at the “triangle,” located in Alameda. This option was to be used in combination with VA Alternative 1. If the existing structure was jacked up, then there would not be adequate space on the existing structure to maintain two-way traffic and enhance the pedestrian access to the Lazear Elementary School. As the option to jack up the existing structure was deemed not viable, this option is less desirable as it limits local circulation. In addition, this option would force all westbound traffic to exit at 23rd Avenue. This adds vehicles to the failing weave on I-880 between 29th Avenue and 23rd Avenue. Therefore, this alternative was eliminated from further analysis.

VA Alternative 4: Provide a Full Intersection on Fill on the East Side of I-880 at 23rd Avenue

This alternative would provide a full intersection at 23rd Avenue, eliminating the need for the u-turn movement to westbound 23rd Avenue. However, physical space is limited in the area and this alternative would require additional right-of-way that is not available in order to bring the off-ramp up to the appropriate elevation of the structure. This alternative was rejected from further analysis.

VA Alternative 5: Provide a Flyover for I-880 Northbound

This alternative would provide flyovers for I-880 northbound on- and off-ramps at 23rd Avenue and 29th Avenue. There is not enough physical space in the Project area to provide flyovers. This alternative was rejected from further analysis.

VA Alternative 7: Use Rubberized Asphalt

This alternative would use rubberized asphalt on the 23rd Avenue and 29th Avenue Overcrossings and along the on- and off-ramps for northbound I-880. This alternative would involve additional land closures during construction and would increase the potential for schedule delays. In addition, the alternative would increase the Project cost by more than \$800,000. This alternative was eliminated from further analysis because of budget; however, if additional money is identified, this alternative may be considered.

1.4.4.3 Soundwall Options 2 and 3 at the Shell Gas Station

Two additional options were studied for the soundwall along the Shell gas station as requested by the City of Oakland. Option 1 is the Alternative that the Project is moving forward with. Options 2 & 3 were requested by the City of Oakland as possible options for keeping the Shell gas station visible from the freeway. Option 2 would wrap the soundwall around the north and east property lines of the gas station, rather than the west and south property lines. There would be an opening in the wall provided for the Portwood Avenue driveway. The City would prefer Option 2 because it maintains the views of the Shell gas station, while maintaining access to the gas station from Portwood Avenue. There would still need to be a barrier between the on-ramp and Shell, as there would be no access allowed along the on-ramp. The noise consultant had great concerns with the noise increase to the neighborhood by allowing a gap in the soundwall; therefore, Option 3 was studied. Option 3 was the same as Option 2 except that it did not allow for access onto Portwood Avenue. Without access onto Portwood Avenue, it is likely that the Shell gas station would have difficulty operating. Therefore, soundwall options 2 & 3 were considered, but removed from further study.

1.4.4.4 Build Alternative (Option A)

Under the Build Alternative, a slight geometric deviation is included and identified as the Build Alternative (Option A). The Build Alternative (Option A) was considered and was included in the analysis for the technical studies. This option is identical to the Build Alternative except for the intersection of East 9th Street/29th Avenue/northbound 29th Avenue on-ramp. Under the Build Alternative (Option A), this intersection is proposed as a roundabout configuration.

By incorporating the roundabout, access into the Shell gas station would be provided. The Build Alternative (Option A) was specifically developed in response to the City of Oakland's request to permit a second access point into the Shell gas station.

1.5 PERMITS AND APPROVALS NEEDED

The following permits, review, and approvals would be required for Project construction:

Agency	Permit/Approval	Status
Federal Highway Administration	Air Quality Conformity Determination	Federal Highway Administration Determination completed May 29, 2009 (see Appendix J)
SHPO	Finding of No Adverse Effect	
Alameda County Congestion Management Agency, California Department of Transportation	Freeway Agreement	Superceding Freeway Agreement will be prepared and executed after completion and approval of the Final Environmental Document and Project Report.
California Department of Transportation, District 4	IS/EA Adoption Project Report Approval	
Regional Water Quality Control Board	NPDES General Construction Permit (99-08-DWQ) Water Discharge Permit	Application to be submitted during Final Design.
Federal Highway Administration	I-880 Access Modification Federal Funding	Final approval given upon completion of environmental process.
California Transportation Commission	State/Federal Funding Project Report Approval	
City of Oakland	Encroachment Permit	
City of Alameda	Encroachment Permit	
Private Property Owners	Right-of-Way Acquisition	
ACCMA	Project Approval/Construction	

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Sources: Project Report, April 2010. Ortho-photo flown September 2008.



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

Proposed Project Site Plan (Build Alternative)

Exhibit 1-4



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