

# Chapter 1 — Proposed Project

## 1.1 Introduction to the Project

The California Department of Transportation (Caltrans), hereafter referred to as the Department, in cooperation with the Alameda County Congestion Management Agency (ACCMA), proposes to improve 13.1 miles of a westbound segment of Interstate 580 (I-580) in Alameda County. I-580 is a major inter-regional freeway route between the San Francisco Bay Area and the Central Valley, providing a vital link between the cities of Dublin, Livermore, and Pleasanton (the Tri-Valley Area). I-580 is also a major thoroughfare for commuters living outside of the Bay Area, and provides access for the movement of goods and freight into and out of the region. **Figure 1-1** shows the regional project location.

The alignment of the existing freeway imposes driving restrictions such as long delays from increased congestion. These are attributable to heavy commuter traffic during the weekday. Due to the continued projected growth for the Bay Area, an increase in congestion and delay is expected. According to the Metropolitan Transportation Commission's (MTC) travel projections, the number of commuters to and from the Bay Area will nearly double over the next 20 years. The largest increases in the number of commuters travelling from the Central Valley will be from San Joaquin, Stanislaus, and Merced counties travelling along I-580.

### STATE PLANNING

In July 2001, the I-580 HOV Lane Project was listed as project number 31 in AB 2928 (Torlakson). The bill was a comprehensive transportation-funding measure intended to relieve congestion in the state's transportation system. Study and construction of the eastbound and westbound high-occupancy vehicle (HOV) lanes from Tassajara Road/Santa Rita Road to Vasco Road was included in the bill, which identified the project as eligible for \$25 million in funding.

In November 2006, California voters passed Proposition 1B, which provided \$4.5 billion for the Corridor Mobility Improvement Account (CMIA). Appropriations for projects available for funding under the CMIA were released in early 2007. The I-580 HOV Lane Project received \$101.7 million of these funds, which will allow the project to proceed through the construction phase.

### REGIONAL PLANNING

MTC's *Transportation 2030 Plan for San Francisco Bay Area* and MTC's *Blueprint for the 21st Century, Phased Implementation Plan (2000)*, included the project to add HOV lanes on I-580, between Tassajara Road/Santa Rita Road and Vasco Road (MTC Project Reference Number 22013). The Blueprint identified transportation needs in rail, ferry, and rapid bus/HOV systems, focused on near-term relief to the most congested travel corridors, and supported expansion of the transit services in the region. It also indicated that one of the benefits achieved by projects included in the plan was to accelerate the expansion of the HOV system in order to promote the use of rapid bus service and carpools.

The project to widen I-580 by adding an HOV lane in each direction from Tassajara Road/Santa Rita Road to Vasco Road was also listed in MTC's 2005 (Amendment May 2007) *Regional*

*Transportation Plan for the San Francisco Bay Area* (RTP). The RTP specified how anticipated federal, state, and local transportation funds will be spent among competing projects in the nine-county Bay Area region during the next 25 years.

## **LOCAL PLANNING**

The Tri-Valley Transportation Council (TVTC), which represents Alameda and Contra Costa counties, the cities of Dublin, Livermore, Pleasanton, and San Ramon, and the Town of Danville, completed the *Tri-Valley Plan/ Action Plan for Routes of Regional Significance* in 1995 and was revised in 2000. In the revised 2000 plan, the I-580 HOV Lane Project remained on the list of 26 high-priority transportation improvements for the alleviation of congestion in the area. Funding for the improvements was set up through the Tri-Valley Development Fee, which is applied to and collected from new residential and commercial development.

In November 2000, Alameda County voters reauthorized Measure B. The measure submitted to voters extended the existing half-cent sales/use tax dedicated to local transportation projects, which included improvements on I-580.

In March 2004, Bay Area voters approved Regional Measure 2, increasing the tolls on state-owned bridges to \$3.00. The revenue from the increased tolls is dedicated to funding specific transportation capital projects and operating costs for selected transit operators. One of the projects funded by this measure is the design and construction of the I-580 Westbound HOV lane from Greenville Road to Santa Rita Road.

## **1.2 Purpose and Need**

### **PURPOSE**

Growth in the Tri-Valley region as well as rapid development of the Central Valley will continue to increase congestion in the I-580 corridor. The traffic operations analysis conducted for the project shows a projected increase in Passenger Hours Traveled from 3,149 to 7,183 from the current (2008) year to the 2035 forecast year. Passenger Hours of Delay are also projected to increase from 2,788 to 4,913 hours during the same period. The forecast figures are the values for a no-build project during peak-hour travel time. The Build Alternative addresses these issues by:

- Reducing westbound peak-period congestion and delay;
- Encouraging use of high-occupancy vehicles and transit;
- Supporting regional air quality attainment goals; and
- Improving safety for motorists and Department maintenance workers.



Source: BKF 2007, ESRI 2005

**I-580 Westbound HOV Lane Project EA/IS**

**Regional Project Location**

**FIGURE 1-1**

Source: Geografika Consulting 12.06.07

## **NEED**

### **Capacity, Transportation Demand, and Safety**

Two distinct peaks in traffic occur along westbound I-580 during the morning travel times. The first peak occurs at 5:00 a.m., with traffic originating from the Central Valley and traveling to the Bay Area. Freeway ramps within the corridor are lightly used during this time. The second peak period occurs from 7:00 a.m. to 8:00 a.m. Ramps are more frequently utilized when traffic from local communities starts to access the freeway. Traffic volumes from the Altamont Pass slightly decrease during this period.

The traffic analysis reported an average travel time of 43 minutes through the corridor distance of 17 miles (North Flynn Road to San Ramon Road). During peak morning travel times, a majority of the freeway sections operate at LOS F between the Greenville Road and Fallon Road interchanges, with speeds of 10 miles per hour (m.p.h.) to 40 m.p.h., except for the section between the Vasco Road on-ramp and First Street on-ramp, where the freeway operates at LOS D. Extended travel times and low travel speeds illustrate the amount of congestion and delay through the corridor, as the existing traffic demand exceeds freeway capacity.

Rapid growth in the Central Valley during recent years has increased the number of drivers traveling through the corridor, further increasing travel time and reducing travel speed. Ramp metering in the westbound direction has the potential to moderately reduce congestion by limiting the number of vehicles entering the facility during the peak commute hours. Ramp meters have been installed within the project corridor, and have been operating under a separate project since September 16, 2008.

However, without capacity and operation improvements, congested conditions and travel delay are expected to worsen in the future. Future travel time through the corridor in 2035 is expected to increase to 50 minutes during the morning peak period, with a 34-minute delay. Mainline speeds are projected to decrease to 21 mph. Forecasted conditions in the westbound direction show increased congestion occurring through most of the corridor.

Recent accident data within the study area were obtained from the Department's Traffic Accident Surveillance and Analysis System (TASAS). The compiled data includes the most recent three year period of incidents that occurred on the mainline and the ramps, from August 1, 2004 to July 31, 2007. A total of 1,791 collisions occurred along the freeway mainline during this time period, of which, 73 percent were rear-ended, with speed as the primary factor accounting for 69 percent of the incidents. The accident rate along the freeway mainline during this time period was 0.3 (accidents per three-year period) higher than that of the statewide averages. These observations indicate that traffic congestion with stop-and-go conditions contribute to a majority of the accidents within the project area. Capacity and operational improvements to the project area would alleviate congestion along the freeway, thereby reducing the stop-and-go conditions attributed to the accidents within the project area.

Some of the existing features on I-580 do not meet current design standards. Operational deficiencies include difficult weaving movements for traffic entering and exiting the freeway. To address this issue, westbound auxiliary lanes would be constructed to better accommodate weaving at the following locations:

- Vasco Road to First Street interchanges;
- First Street to North Livermore Avenue interchanges;
- 3,800 feet of auxiliary lane from the North Livermore Avenue westbound on-ramp; and
- 4,800 feet of auxiliary lane from the Airway Boulevard westbound on-ramp.

Additionally, shoulder widths would be improved, when possible, to meet at least the 10-foot minimum. This will allow disabled vehicles to seek refuge further away from moving traffic. Wider than normal 14-foot inside shoulders will be provided for California Highway Patrol (CHP) enforcement within the project limits wherever possible.

### **Declining Air Quality**

The Tri-Valley Area, a major residential and employment center, is located downwind of several major freeways and industrial areas. The mountains surrounding the area tend to trap pollutants such that vehicle emissions and other activities create unhealthful air that often exceeds U.S. Environmental Protection Agency (EPA) standards. Idle or slow-moving vehicles on I-580 during peak hours contribute to this problem.

The project area, located in the San Francisco Bay Area, is currently classified by the EPA as a moderate non-attainment area for ozone. Classifications do not only look at pollutant levels within a region, but their contributions to other regions as well. The neighboring San Joaquin Valley region, which sits downwind of the San Francisco Bay Area, is currently classified as severe.

Within the project limits, the vast majority of trips are made in single-occupancy vehicles. Although high-occupancy vehicles currently use the I-580 corridor, the lack of HOV lanes discourages ridesharing and transit use. Currently, no HOV lanes exist through the corridor. HOV lanes would provide drivers with an increased incentive to carpool by decreasing travel time, reducing stress from traffic, increasing fuel efficiency from less idling, and reducing wear-and-tear on personal vehicles through less braking. Similar benefits would extend to transit services, making them more attractive due to greatly reduced travel times. The project would support regional air quality attainment goals by reducing congestion and delay, particularly during the early morning hours when high volumes of westbound commuters idle in slow-moving traffic. Vehicle Hours of Travel would decrease almost 20 percent under the Build Alternative compared to the No-Build Alternative for the 2035 forecast year.

### **INDEPENDENT UTILITY AND LOGICAL TERMINI**

The project would construct a westbound HOV lane beginning west of the Greenville Road undercrossing and ending west of the San Ramon Road/Foothill Road overcrossing. As discussed previously, the entirety of this area of the I-580 corridor currently experiences congestion and traffic delays. The project area termini would be of sufficient length to address environmental matters on a broad scope. The project would result in improvements to the current traffic conditions along the I-580 corridor without any additional transportation improvements being made in the area. As such,

the project is considered to have independent utility. Furthermore, the project would not restrict considerations of alternatives for other reasonably foreseeable transportation improvements.

### **1.3 Project Description**

The project is located in eastern Alameda County, and covers a distance of 13.1 miles. Within the limits of the project are 11 full interchanges, and four auxiliary lanes to facilitate merging and weaving of vehicles. At most locations, the eastbound and westbound segments of I-580 are separated by an unpaved median with a three-beam barrier and intermittent stretches of oleander shrubs.

As previously noted, the alignment of the existing freeway imposes driving restrictions such as long delays from increased congestion. With the addition of the project roadway improvements (Build Alternative), freeway operations in the westbound direction would improve. The number of freeway bottleneck locations, as well as the queue lengths associated with congestion, would be reduced. The project would improve mainline operations by providing a facility to accommodate high occupancy vehicles. By moving the carpool vehicles to a dedicated lane, the mixed-flow lanes would have more capacity to serve single-occupancy vehicles and trucks.

### **Alternatives**

#### **BUILD ALTERNATIVE**

The Build Alternative would construct a westbound HOV lane along a 13.1-mile segment of I-580, beginning west of the Greenville Road undercrossing (post mile 8.29) and ending west of the San Ramon Road/Foothill Road overcrossing (post mile 21.43) in eastern Alameda County. **Figures 1-2a-f** depict the Build Alternative alignment. In addition to the HOV lane, the following construction activities are included in the Build Alternative:

- Constructing an auxiliary lane along I-580 Westbound between the Vasco Road and First Street interchanges;
- Constructing an auxiliary lane along I-580 Westbound between the First Street and North Livermore interchanges;
- Constructing 3,800 feet of auxiliary lane along I-580 Westbound from the North Livermore Avenue on-ramp;
- Constructing 4,800 feet of auxiliary lane along I-580 Westbound from the Airway Boulevard on-ramp;
- Widening the North Livermore Avenue undercrossing (Bridge No. 33-0153) in both eastbound and westbound directions;
- Widening two existing crossings of the Arroyo Las Positas (Bridge No. 33-0085 and No. 33-0203) at both the westbound and eastbound directions;

- Widening two existing bridge crossings over Tassajara Creek (Bridge No. 33-0015 L and No. 33-0015 R) in the median section in both the eastbound and westbound directions;
- Widening the Dougherty undercrossing (BART transit corridor) (Bridge No. 33-0150L) in the westbound direction;
- Extending the existing box culvert at Arroyo Seco Creek along the westbound direction;
- Constructing HOV preferential lanes at the eastbound and westbound on-ramps at Greenville Road, Vasco Road, First Street, and North Livermore Avenue, and the westbound on-ramp at Airway Boulevard;
- Modifying the ramp noses at interchange areas to accommodate an auxiliary lane, HOV preferential lane, and shoulder widening;
- Providing standard shoulder widths – a minimum of 10 feet – at all locations on the mainline east of the San Ramon Road/Foothill Road Overcrossing to west of Greenville Road Undercrossing interchange except at the following locations:
  - Between San Ramon Road/Foothill Road and Dougherty Road/Hopyard Road interchanges, proposed inside shoulder varies 2 to 10 feet;
  - Through the First Street interchange, proposed inside shoulder varies 5 to 10 feet; and
  - Between the Hacienda Drive interchange and the Tassajara Creek Bridge, proposed inside shoulder width varies 8 to 10 feet.
- An additional 4 feet will be provided at most locations on the inside shoulder within the project for (CHP) enforcement areas; there is not sufficient space within the entire project to provide a 14-foot shoulder at the following locations:
  - From San Ramon Road/Foothill Road to Hacienda Drive interchanges; and
  - From the Las Colinas Road overcrossing through the First Street interchange.

Wherever possible, the Build Alternative would also construct 4 feet of additional pavement width within the project limits along westbound I-580 in anticipation of a future High Occupancy Toll (HOT) lane project. This additional pavement would be built along the standard 10-foot outside shoulder. For the future HOT lane project, it is anticipated that the westbound I-580 travel lanes and outside shoulder would be restriped to provide a 4-foot buffer between the HOV lane and the innermost mixed-flow lane. This would allow for the future conversion of the HOV lane to a HOT lane. This environmental document evaluates the impacts of constructing the additional pavement;

however, subsequent environmental evaluation will be necessary prior to approval and implementation of a HOT lane project within the I-580 project area.

**Transportation System Management (TSM) and Transportation Demand Management (TDM) Alternatives**

Although Transportation System Management measures alone could not satisfy the purpose and need of the project, the following Transportation System Management measures have been incorporated into the Build Alternatives for this project:

- Addition of HOV preferential lanes at on-ramps;
- Addition of vehicle detectors to develop accurate traffic counts and support future use of ramp meters, including:
  - i. New Mainline loop detectors at Greenville Road on-ramp, Vasco Road on-ramp, and North Livermore on-ramp;
  - ii. New mainline loop detectors at Santa Rita Road off-ramp; and
  - iii. Perpetuation of existing vehicle detection system.

As previously noted, ramp meters have already been installed within the project corridor, and have been operating since September 16, 2008. The project would have to relocate these meters due to the impacts caused by construction work.

**Estimated Costs**

The estimated costs associated with the Build Alternative are summarized in Table 1-1. Costs represented in the table are based on the information provided in the *Draft Project Report* (September, 2008).

**Table 1-1: Preliminary Cost Estimate – Build Alternative**

Improvement	Estimated Costs
Roadway Items	\$103,852,000
Structure Items	\$27, 054,350
Right of Way	\$5,501,500
<b>Total</b>	<b>\$136, 407, 850</b>

Source: Caltrans, *Draft Project Report: I580 Westbound HOV Lane Project (2008)*.

**NO-BUILD ALTERNATIVE**

The No-Build Alternative is being evaluated in accordance with NEPA and CEQA requirements. This alternative serves as the base case to compare to the Build Alternative for the 2035 forecast year. Under the No-Build Alternative, it is assumed that all other currently planned and funded projects for the I-580 corridor would be constructed and operated by 2035. These include:

- I-580 Eastbound HOV Lane Project;

- Fallon Road interchange modification;
- Isabel Avenue Interchange Project (Portola Avenue interchange removal);
- I-580 Eastbound and Westbound auxiliary lanes between Airway Boulevard and Isabel Avenue;
- First Street interchange modification;
- Vasco Road interchange modification;
- Greenville Road interchange modification;
- Route 84 Expressway Widening Project; and
- Reconstruction of CHP building facilities along Westbound I-580.

## REJECTED ALTERNATIVES

The purpose and need statement defined for the I-580 HOV Lane Project (both eastbound and westbound) intends to “reduce peak period congestion and delay” and to “encourage use of high-occupancy vehicles and transit.” Other alternatives that had potential to reduce traffic congestion but did not include construction of an HOV lane were rejected as not meeting the purpose of the project.

Within the existing I-580 corridor, no other alternatives were possible because of the narrow right-of-way available and the developed land uses adjacent to the corridor. Therefore, no other alternatives were carried forward beyond initial screening of design constraints; the alternatives considered for the project include the No-Build Alternative and the Build Alternative as described above. The Build Alternative has been identified as the preferred alternative by default.

### 1.4 Permits and Approvals Needed

The project would be constructed almost entirely within the Department’s existing operational right-of-way. The permits that would be required from federal, state, and regional agencies to construct the Build Alternative are listed in **Table 1-2**. These permits would only be required upon final approval of the project; therefore, there are no current applications and/or submittals for the permits listed below:

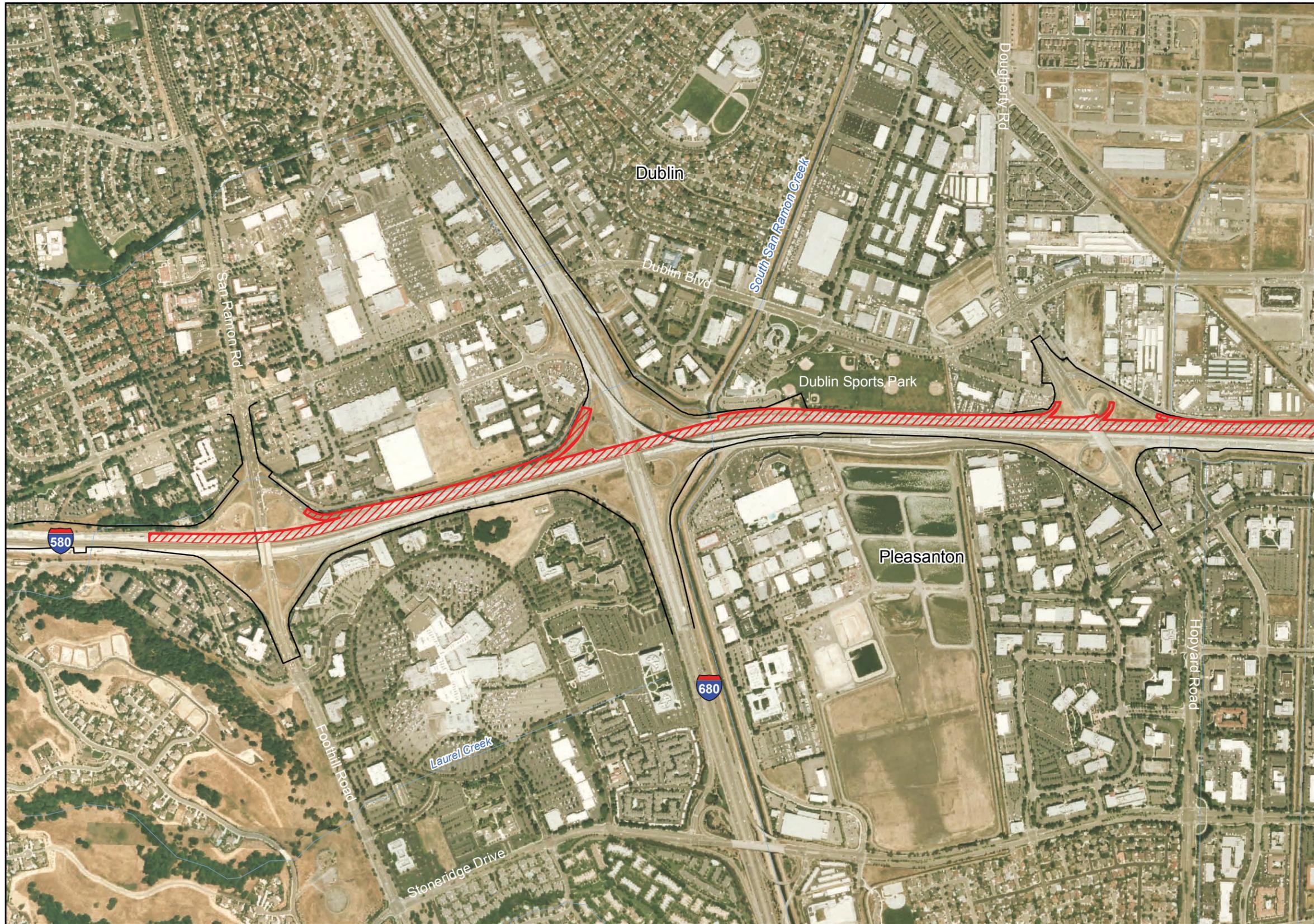
**Table 1-2: Anticipated Permits and Approvals Required**

Agency	Approval or Permit
U.S. Army Corps of Engineers (USACE)	A Nationwide 404 Permit or permits will be required for linear transportation projects (NWP 14) and/or for minor discharges into all waters of the U.S. (NWP 18).
U.S. Fish and Wildlife Service (USFWS) California Department of Fish and Game (CDFG)	The project will require concurrence from these agencies that it is not likely to adversely affect federal or State listed species including California red-legged frog, San Joaquin kit fox, vernal pool fairy shrimp, and California tiger salamander.

**Table1-2 Continued**

<b>Agency</b>	<b>Approval or Permit</b>
Regional Water Quality Control Board (RWQCB)	Water Quality Certification pursuant to Section 401 of the Clean Water Act (CWA) is required; prior to construction, the project will be required to prepare a Storm Water Pollution Prevention Plan (SWPPP) in conformance with the National Pollutant Discharge Elimination System (NPDES) or Countywide Non-point Source Permit for discharge of stormwater into surface waterways under the CWA.
California Department of Toxic Substances Control (DTSC)  (California Environmental Protection Agency [Cal EPA])	Agency approval of voluntary cleanup agreement, transportation plan, soil management plan, and health and safety plan for construction operations will be required depending on results of soil tests to be performed prior to construction; a remediation plan or variance for aerially-deposited lead may be required.

Source: ACCMA, 2008. Draft Project Report I-580 Westbound HOV Lane Project on Route I-580



**Legend**

- Interstate 580 West Bound HOV**
-  Project Limits
  -  Temporary Impact Areas
- Existing CalTrans ROW**
-  Existing Caltrans ROW
  -  Existing Operating ROW

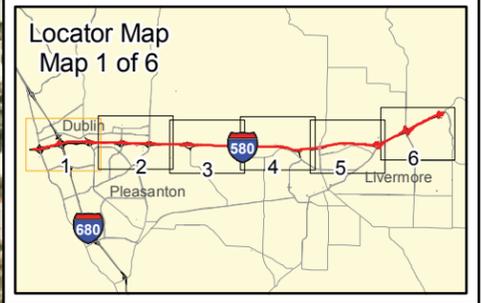


1 inch equals 1,000 feet

0 200 400 Meters

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Source: BKF 2007, ESRI 2005, NAIP 2006





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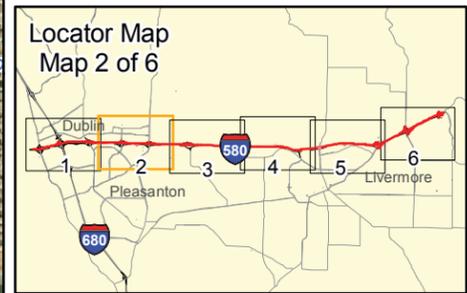


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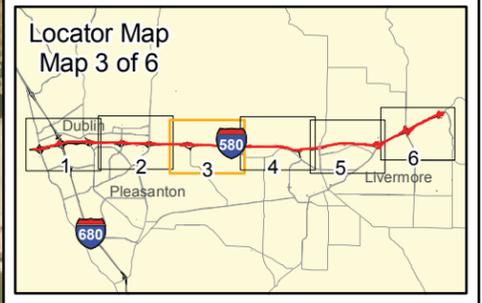


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Source: BKF 2007, ESRI 2005, NAIP 2006



Source: Geografika Consulting, 12.11.07



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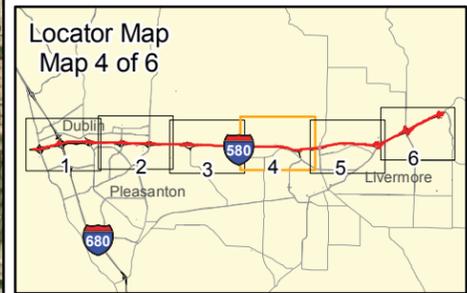


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Source: BKF 2007, ESRI 2005, NAIP 2006





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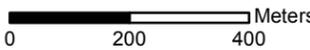
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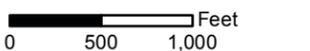
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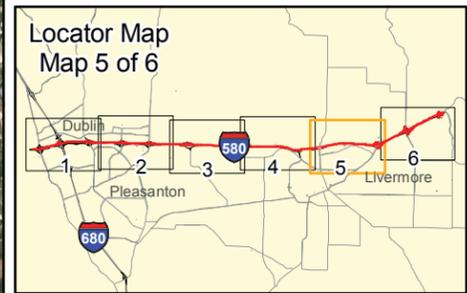


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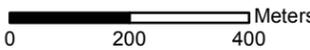


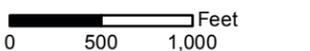


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