

3.1 Traffic, Transit, Circulation, and Parking

This section describes the transportation study area in the study region and existing traffic and circulation conditions. It also identifies the potential traffic, transit, circulation, and parking impacts of the HST system in each identified corridor and at each HST station location option and compares the impacts of the HST system with the No Project Alternative at these locations.

3.1.1 Regulatory Requirements and Methods of Evaluation

A. REGULATORY REQUIREMENTS

NEPA and CEQA require that potential impacts of a proposed HST system on the traffic, transit, and circulation of the study region be examined as part of the program EIR/EIS process.

B. METHOD OF EVALUATION OF IMPACTS

The traffic, transit, circulation, and parking analyses focus on a broad comparison of potential impacts on traffic, transit, circulation, and parking along stations for the HST Alignment Alternatives and station location options. Potential impacts are compared to the No Project Alternative.

Highways, roadways, passenger transportation services (e.g., bus, rail, and transit facilities), goods movement, and parking issues are evaluated in this analysis. Transportation facilities, highways, and roadways included in the analysis serve as the primary means of existing (or planned future) access to the rail station location options. These facilities are within 1 mile (mi) (1.6 kilometers [km]) of the suburban rail stations location options or 0.25 mi (0.40 km) of downtown station location options.

Initial analysis identified primary routes to be considered for highways (as designated in the No Project Alternative) and for all modes of access to the HST station location options. Once primary routes were identified, screenlines or cordons combining segments of the primary access routes were established. These segments reasonably represent locations for evaluating the aggregate baseline traffic and public passenger transportation conditions (using data for 2005 and 2030) in the generalized peak hour. The use of screenlines or cordons rather than detailed traffic analysis is appropriate for the broad scale and program level of this analysis of roadway conditions in the vicinity of proposed HST station location options throughout the study region. Screenlines in the vicinity of proposed HST station location options were selected to represent typical peak-hour conditions.

To capture the effects of diversions to HST on intercity highway, intercity highway links were selected in each transportation corridor likely to be affected by HST. The data used in the evaluation of traffic volumes and capacities on the intercity highway links are typical values, based on averages over time and represented in traffic forecasting tools used by the regional transportation planning agencies. As such, the conditions indicated in the evaluation may not always reflect the experiences of travelers at any particular place at any specific time. For example, localized capacity restrictions (e.g., bottlenecks at a given interchange) are not well represented in those regional traffic models. In addition, incidents on the road, such as accidents and vehicle breakdowns (nonrecurring congestion), are not represented in regional traffic models. This unpredictable type of incident is responsible for the majority of congestion in urban highway networks. This section also reports intercity links by relatively long sections of highway that average out variations that occur at specific locations. The result of these limitations of the methods and data used in this analysis is that many times the levels of service shown in the evaluation may be more optimistic than what would actually be experienced on the roadway under the forecasted conditions. Thus, it is important to consider the differences between the alignment alternatives and station locations options being compared rather than focus on the absolute value of the indicators (i.e., volume-to-capacity ratio [V/C] or level of service [LOS]) (Table 3.1-1).

V/C is a standard level of service measure for roadways, defined as the number of vehicles that travel on a transportation facility divided by the full vehicular capacity of that facility (the number of vehicles the facility was designed to convey).

The impact analysis that follows is discussed under three different scenarios. The three scenarios, or conditions, are:

1. Existing (year 2005) or baseline conditions.
2. Future (year 2030) without the proposed HST project, or No Project conditions.
3. Future (year 2030) with the proposed HST project with two sets of alignment scenarios (Pacheco Pass compared to Altamont Pass alternatives).

Steps or methods used to arrive at the required data are outlined below.

- Intercity Links— Existing conditions were established for intercity highway links based on available counts of existing weekday peak-hour traffic volumes (California Department of Transportation 2005). Future No Project and project conditions were determined from forecasts of 2030 intercity traffic with and without the HST alternatives. This process involved a comparison of existing and forecasted future volumes to the capacity of these links to determine the V/C at the link level. Both base and high HST ridership forecasts were developed. Because the comparisons between No Project and project conditions were very similar for the two forecasts, this study presents results from the only the base forecast for the intercity highway links.
- Station Cordons— After V/C across each cordon for roadways (not intersections) was established for the weekday peak hour, the LOS for these roadways was determined using *2000 HCM* standards for capacity (Transportation Research Board 2000). Screenlines/cordons around stations are shown in Appendix 3.1-A.
- Transit Access—Existing and future No Project conditions were established through an inventory of available public transportation services at and adjacent to the station location options.
- Goods Movement—Existing and future No Project conditions for goods movement (truck freight) at weekday peak hour for locations in the area were identified as critical by regional goods movement studies.
- Parking Near Stations—Descriptions of parking conditions are based on 2002 parking supply and demand, local plans for major parking expansion, and adequacy of local parking codes for meeting the projected growth in demand in 2030 (without the HST).

Additional analysis was conducted for the No Project and project conditions at the HST station screenlines. Trip generation in the vicinity of HST station location options was calculated based on the forecast 2030 demand for high-speed rail. Results from the high ridership forecast were used in the analysis to give the worst-case traffic impacts around stations. The generated trips were added to the appropriate baseline volumes and distributed to the identified roadway screenlines. Next, the generated trips were distributed on selected segments/links on station routes and modes of access to station location options and similar facilities. Specific methods are detailed below.

- For each screenline or cordon, new ratios of demand-to-capacity were calculated. Demand is the baseline volume plus additional trips generated by the HST system.
- Future No Project link capacity conditions were established based on the available plans from local and regional agencies, and fiscally constrained elements of the relevant RTP.

- Link-level analysis of impacts was performed on roadways for generalized weekday peak-hour conditions. Capacity levels were based on the 2000 HCM methods. Future roadway V/C on selected segments compared future volumes with/without the proposed project with future capacity determined. Future V/C with/without the HST Alignment Alternatives was analyzed. This assessment was performed at a cordon level, aggregating the V/C on all major facilities accessing the stations.
- Cordon-level analysis was also performed for public transportation serving the stations, based on generalized weekday peak-hour service headway and capacity conditions.
- Impacts were determined by comparing qualitative future No Project transit service levels (as specified in relevant RTPs) with existing transit service levels and by comparing qualitative future HST Alternative transit load factors with future No Project transit load factors.
- Impacts on parking were calculated by comparing parking demand for both base and high forecasts to parking capacity. In general, the project would provide enough parking to meet demand. The exception is in San Francisco, where commercial parking operators are expected to provide parking at market rates.
- Goods movement impacts were determined through an assessment of the net impact of project alternatives on the segments.

Table 3.1-2 identifies impacts on intercity highways/roadways for selected intercity links in the affected transportation corridors. Impacts in the vicinity of HST station location options on highways, public transportation services, and parking facilities are described in Table 3.1-3 according to the potential extent of change to traffic, transit, circulation, and parking. Impacts are described by the V/C ratios or the transit load factors. For traffic, impacts are further described in terms of LOS¹ (LOS A to LOS F) (Table 3.1-1).

The final analytic step was to consider the mitigation strategies identified in the statewide program EIR/EIS and related findings and decision documents to avoid potential impacts related to traffic, circulation, or parking. Further refinement of these mitigation strategies will involve subsequent analysis of traffic, circulation, or parking in project-level environmental analyses prepared for sections of the HST program.

C. CEQA SIGNIFICANCE CRITERIA

Under CEQA, a proposed project should be analyzed for the potential effects listed below (California Department of Transportation 2003).

- An increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the V/C, or congestion at intersections).
- Either individually or cumulatively exceeding an LOS standard established by the county congestion management agency for designated roads or highways.
- A substantial increase in hazards attributable to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Inadequate parking capacity.
- Inadequate emergency access.

¹ Level of service is a qualitative measure used to describe the condition of traffic flow, ranging from excellent conditions at level of service (LOS) A to overloaded conditions at LOS F. LOS D is typically recognized as an acceptable service level in urban areas. The definition for each level of service for signalized intersections is based on the V/C ratio.

- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).
- Rail, waterborne, or air traffic impacts.

V/C ratios and LOS are defined quantitatively in Table 3.1-1.

Given the scale of the proposed high-speed rail system and the broad area considered in this document, virtually all of the criteria mentioned above potentially would be affected by the No Project Alternative and the HST Alternative Alignments at some location or locations in the system, and these criteria will be considered and applied in future project-level environmental reviews. For this analysis, this program-level document focuses on the criteria below.

- Traffic and LOS analysis of the following elements
 - Intercity highway links,
 - Screenlines of primary highways/roadways accessing HST station location options.

Under CEQA, the proposed project would have a significant impact related to transportation and traffic if the project would result in:

- Substantial increase in traffic on roadways that exceeds the V/C.
- Inadequate parking capacity.
- Substantial interference with goods movement.
- Substantial interference with or lack of connectivity with other transit systems.

**Table 3.1-1
Level of Service and Volume-to-Capacity Ratio Definition**

Level of Service	Volume-to-Capacity Ratio	Definition
A	0.000–0.600	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	0.601–0.700	VERY GOOD. An occasional approach phase is fully used; many drivers begin to feel somewhat restricted within groups of vehicles.
C	0.701–0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	0.801–0.900	FAIR. Delays may be substantial during portions of rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	0.901–1.000	POOR. Represents the maximum vehicles that intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	>1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board 1980.

3.1.2 Affected Environment

There are six corridors and 26 station location options, including alternate locations, in the study region. This section discusses the parking and transit services available at the station location options and briefly discusses the major roadways serving the proposed locations. The results of LOS analysis of the local streets surrounding the station are also included. The current traffic, transit, and parking conditions or utilizations are rated by volume to capacity ratio.

The first subsection describes the intercity highway corridors and goods movement in the region. The second subsection describes the transit providers in the study region, and the final subsection discusses the existing traffic, transit, circulation, and parking conditions at station location options by corridor in the study region.

A. INTERCITY HIGHWAY CORRIDORS AND GOODS MOVEMENT

The primary north-south highways in the Bay Area are US 101 and I-280 on the Peninsula and I-880 and I-680 in the East Bay. I-380 and State Route (SR) 87 provide east-west access on the San Francisco Peninsula. I-80 links San Francisco and Oakland via the Bay Bridge and continues to Sacramento. I-580, I-205, and SR 152 provide access to I-5 in the Central Valley, while I-5 and SR 99 provide north-south access in the Central Valley. Eighteen intercity highway links listed below were selected for analysis of HST impacts on intercity highways. The location of these links is illustrated by Figures 3.1-1 and 3.1-2.

1. US 101: San Francisco—SF Airport
2. US 101: SF Airport —Redwood City
3. US 101: Redwood City—I-880
4. US 101: I-880—San José
5. US 101: San José—Gilroy
6. US 101: Gilroy—SR 152
7. SR 152: US 101—I-5
8. SR 152: I-5—SR 99
9. I-80: SF—I-880
10. I-80: I-880—I-5
11. I-880: I-80—I-580
12. I-880: I-580—Fremont/Newark
13. I-880: Fremont/Newark—US 101
14. I-580: I-880 via SR 238—Livermore
15. I-580: Livermore—I-5
16. I-680: I-580—US 101
17. I-5: I-580—SR 140
18. SR 99: Ripon—Merced

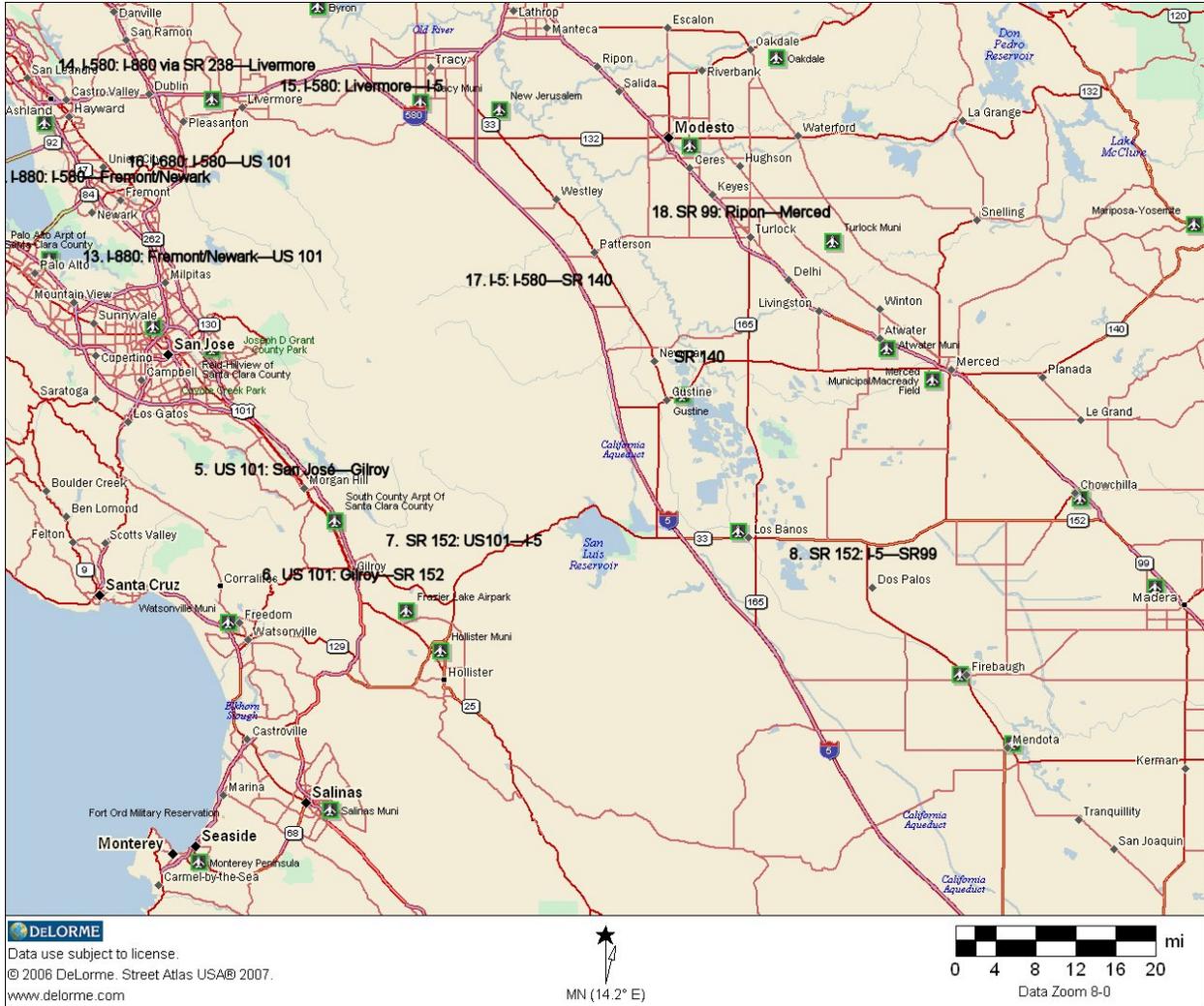
After a decade and half of rapid job growth in the Bay Area, analysis of 2005 peak-hour traffic volumes indicates that some freeway segments in the study corridors of I-80, US 101, I-880, I-580, and SR 152 are very congested, operating at LOS E or F in the generalized peak hour in the peak direction. Of the 18 highway links analyzed, four links operate at V/C approaching 1.0 and two links operate at V/C greater than 1.0, showing congested conditions (Table 3.1-2). Following a description of the transit providers in the study region, the existing conditions of the intercity highway links are explained in more detail under their respective study corridors in Subsection C, Study Corridors and

Potential High Speed Train Stations. Future conditions are discussed in Section 3.1.3, Environmental Consequences.

Vehicles for goods movements use two sets of roadways: the intercity freeway links and local roads to access their destinations. The only location where the HST Alignment Alternatives would affect the local roads would be in the vicinity of major goods movement destinations adjacent to the Port of Oakland. Goods movement is subjected to the same levels of congestion on the intercity highway network as other traffic.



**Figure 3.1-1
Bay Area Intercity Highway Links**



**Table 3.1-2
Impacts to 2030 Peak-Hour Traffic on Intercity Freeways from Diversion to HST**

LOCATION	2005 V/C, LOS ¹	2030 NO-BUILD V/C, LOS ¹ % CHANGE FROM EXISTING		2030 ALIGNMENT ALTERNATIVES							
				PACHECO PASS ALTERNATIVES				ALTAMONT PASS ALTERNATIVES			
				PEAK- PERIOD TRIPS DIVERTED ²	% CHANGE FROM NO- BUILD	V/C, LOS ¹	% CHANGE FROM NO- BUILD	PEAK- PERIOD TRIPS DIVERTED ²	% CHANGE FROM NO- BUILD	V/C, LOS ¹	% CHANGE FROM NO- BUILD
US 101: San Francisco—SF Airport	0.81 D	0.95 E	17.2%	(596)	-0.6%	0.92 E	-2.7%	(599)	-0.6%	0.92 E	-2.7%
US 101: SF Airport —Redwood City	0.97 E	1.03 F	6.3%	(442)	-0.4%	1.03 F	-0.4%	(388)	-0.3%	1.03 F	-0.3%
US 101: Redwood City—I-880	0.75 C	1.47 F	96.5%	542	0.5%	1.48 F	0.5%	601	0.6%	1.48 F	0.6%
US 101: I-880—San José	0.73 C	0.79 C	8.3%	(5,392)	-4.6%	0.75 C	-4.6%	(4,989)	-4.2%	0.76 C	-4.2%
US 101: San José—Gilroy ³	0.87 D	0.64 B	-26.7%	(4,948)	-4.0%	0.61 B	-4.0%	(2,015)	-1.6%	0.63 B	-1.6%
US 101: Gilroy—SR 152	0.72 C	1.17 F	64.0%	(2,986)	-3.7%	1.13 F	-3.7%	(1,524)	-1.9%	1.15 F	-1.9%
SR 152: US 101—I-5 ³	0.78 C	0.51 A	-34.9%	(612)	-4.2%	0.49 A	-4.2%	81	0.6%	0.51 A	0.6%
SR 152: I-5—SR 99 ³	0.59 A	0.46 A	-22.5%	(943)	-5.5%	0.43 A	-5.5%	(844)	-4.9%	0.43 A	-4.9%
I-80: SF—I-880	0.79 C	1.18 F	50.6%	(736)	-0.6%	1.18 F	-0.6%	(1,346)	-1.1%	1.17 F	-1.1%
I-80: I-880—I-5	0.81 D	0.98 E	19.9%	(2,545)	-3.7%	0.92 E	-5.6%	(3,007)	-4.4%	0.92 E	-6.2%
I-880: I-80—I-580	0.82 D	1.16 F	41.1%	(1,370)	-2.6%	1.13 F	-2.6%	(1,458)	-2.7%	1.13 F	-2.7%
I-880: I-580—Fremont/Newark	0.95 E	1.12 F	18.0%	(1,852)	-1.8%	1.10 F	-1.8%	(2,068)	-2.0%	1.10 F	-2.0%
I-880: Fremont/Newark—US 101	0.96 E	1.58 F	65.5%	(325)	-0.3%	1.58 F	-0.3%	(1,468)	-1.2%	1.57 F	-1.2%
I-580: I-880 via SR 238—Livermore	0.74 C	1.28 F	73.8%	(3,938)	-2.5%	1.25 F	-2.5%	(5,263)	-3.4%	1.24 F	-3.4%
I-580: Livermore—I-5	0.51 A	1.22 F	137.8%	(6,325)	-5.4%	1.15 F	-5.4%	(6,647)	-5.7%	1.15 F	-5.7%
I-680: I-580—US 101	1.06 F	1.34 F	25.8%	630	0.5%	1.34 F	0.5%	869	0.7%	1.35 F	0.7%
I-5: I-580—SR 140 ³	0.99 E	0.81 D	-17.6%	(7,897)	-20.2%	0.65 B	-20.2%	(7,342)	-18.8%	0.66 B	-18.8%

LOCATION	2005 V/C, LOS ¹	2030 NO-BUILD V/C, LOS ¹ % CHANGE FROM EXISTING		2030 ALIGNMENT ALTERNATIVES							
				PACHECO PASS ALTERNATIVES				ALTAMONT PASS ALTERNATIVES			
				PEAK- PERIOD TRIPS DIVERTED ²	% CHANGE FROM NO- BUILD	V/C, LOS ¹	% CHANGE FROM NO- BUILD	PEAK- PERIOD TRIPS DIVERTED ²	% CHANGE FROM NO- BUILD	V/C, LOS ¹	% CHANGE FROM NO- BUILD
SR 99: Ripon—Merced	1.04 F	1.36 F	30.9%	(1,847)	-2.8%	1.32 F	-2.8%	(1,943)	-3.0%	1.32 F	-3.0%

¹ Peak-hour V/C changes based on diversion to HST. LOS values are defined from V/C values as follows: up to 0.60=A, above 0.60 to 0.70=B, above 0.70 to 0.80=C, above 0.80 to 0.90=D, above 0.90 to 1.00=E, above 1.00=F

² The peak period is the sum of the AM and PM 3-hour peak periods. Where the percentage diversion is different than the V/C percentage change, it is because of unequal directional split of diversion.

³ Future capacity increases result in improved LOS between 2005 and 2030.

Source: Caltrans 2005 AADT, Cambridge Systematics (base forecast), Parsons, June 2007.

**Table 3.1-3
Impacts to Traffic, Transit, and Parking from HST Station Location Options**

Corridor/Station Location Options	HIGHWAY/STATION CONDITIONS/IMPACTS (V/C)				TRANSIT CONDITIONS/IMPACTS (V/C)			PARKING CONDITIONS/IMPACTS [Demand V/C]		
	2005 Conditions	2030 without HST Conditions	2030 HST Impacts		2005 Conditions	2030 without HST Conditions	2030 HST Impacts	2005 Conditions	2030 without HST Conditions	2030 HST Impacts
			Pacheco	Altamont						Pacheco/Altamont
San Francisco to San Jose: Caltrain										
Transbay Transit Center	0.80; LOS D	0.90; LOS D	1.08 LOS F	1.03 LOS F	>1	>1	>1	<1	<1	2,000 - 3,000 (<1) 1,500 - 2,100 (<1)
4th and King (Caltrain)	0.33; LOS A	0.40; LOS A	0.69 LOS B	0.61 LOS B	<1	<1	<1	<1	<1	2,000 - 3,000 (<1) 1,500 - 2,100 (<1)
Millbrae/SFO	0.63; LOS B	0.91; LOS E	0.96; LOS E	0.96; LOS E	<1	<1	<1	<1	<1	2,400 - 2,500 (<1) 2,100 - 2,500 (<1)
Redwood City (Caltrain)	0.61; LOS B	0.68; LOS B	0.72; LOS C	0.71; LOS C	<1	<1	<1	<1	<1	3,000 - 3,900 (<1) 2,300 - 3,000 (<1)
Palo Alto (Caltrain)	0.85; LOS D	0.47; LOS A	0.50; LOS A	0.49; LOS A	<1	<1	<1	<1	<1	3,000 - 3,900 (<1) 2,300 - 3,000 (<1)
Oakland to San Jose: Niles/I-880										
West Oakland/7th Street ²	0.15; LOS A	0.16; LOS A	0.32; LOS A	0.32; LOS A	<1	<1	<1	<1	<1	N/A ¹
12th Street/City Center ²	0.40; LOS A	0.45; LOS A	0.53; LOS B	0.53; LOS B	<1	<1	<1	<1	<1	N/A ¹
Coliseum/Airport ²	0.30; LOS A	0.45; LOS A	0.52; LOS A	0.52; LOS A	<1	<1	<1	<1	<1	N/A ¹
Union City (BART) ³	0.50; LOS A	0.55; LOS A	0.67; LOS B	0.67; LOS B	<1	<1	<1	<1	<1	3,000 - 3,900 (<1) 1,300 - 1,800 (<1)
Fremont (Warm Springs)	0.48; LOS A	0.46; LOS A		0.47; LOS A	<1	<1	<1	<1	<1	1,300 - 1,800 (<1)
San Francisco Bay Crossings										
Union City (Shinn)	0.31; LOS A	0.46; LOS A		0.49; LOS B	<1	<1	<1	<1	<1	1,300 - 1,800 (<1)
San Jose to Central Valley: Pacheco Pass										
San Jose (Diridon)	0.25; LOS A	0.48; LOS A	0.59; LOS A	0.58; LOS A	<1	<1	<1	<1	<1	7,200 - 9,800 (<1) 6,500 - 8,800 (<1)
Morgan Hill (Caltrain)	0.42; LOS A	0.59; LOS A	0.65; LOS B		<1	<1	<1	<1	<1	1,400 - 1,500 (<1)
Gilroy (Caltrain)	0.44; LOS A	0.67; LOS A	0.74; LOS B		<1	<1	<1	<1	<1	2,800 - 3,800 (<1)



Corridor/Station Location Options	HIGHWAY/STATION CONDITIONS/IMPACTS (V/C)				TRANSIT CONDITIONS/IMPACTS (V/C)			PARKING CONDITIONS/IMPACTS [Demand V/C]			
	2005 Conditions	2030 without HST Conditions	2030 HST Impacts		2005 Conditions	2030 without HST Conditions	2030 HST Impacts	2005 Conditions	2030 without HST Conditions	2030 HST Impacts	
			Pacheco	Altamont							Pacheco/Altamont
	LOS A	LOS B	LOS C								
East Bay to Central Valley: Altamont Pass											
Pleasanton (I-680/Bernal Rd)	0.47; LOS A	0.53; LOS A		0.70; LOS C	<1	<1	<1	<1	<1	6,900 - 9,100 (<1)	
Pleasanton (BART)	0.21; LOS A	0.44; LOS A		0.46; LOS A	<1	<1	<1	>1	>1	6,900 - 9,100 (<1)	
Livermore (Downtown)	0.46; LOS A	0.82; LOS D		1.10; LOS F	<1	<1	<1	NA	NA	6,900 - 9,100 (<1)	
Livermore (I-580)	0.86; LOS D	1.07; LOS F		1.38; LOS F	<1	<1	<1	NA	NA	6,900 - 9,100 (<1)	
Livermore (Greenville Road/UPRR)	0.21; LOS A	0.44; LOS A		0.71; LOS C	NA	NA	<1	NA	NA	6,900 - 9,100 (<1)	
Livermore (Greenville Road/I-580)	0.44; LOS A	0.50; LOS A		0.80; LOS C	NA	NA	<1	NA	NA	6,900 - 9,100 (<1)	
Tracy (Downtown)	0.34; LOS A	0.64; LOS B		0.74; LOS C	<1	<1	<1	<1	<1	1,200 - 1,700 (<1)	
Tracy (ACE)	0.01; LOS A	0.02; LOS A		0.26; LOS A	NA	NA	<1	NA	NA	1,200 - 1,700 (<1)	
Central Valley											
Modesto (Downtown)	0.53; LOS A	0.90; LOS D	0.92; LOS E	0.92; LOS E	<1	<1	<1	<1	<1	2,700 - 4,000 (<1) 2,800 - 4,100 (<1)	
Briggsmore (Amtrak)	0.59; LOS A	0.88; LOS D	0.91; LOS E	0.91; LOS E	<1	<1	<1	NA	NA	2,700 - 4,000 (<1) 2,800 - 4,100 (<1)	
Merced (Downtown)	0.95; LOS E	1.15; LOS F	1.16; LOS F	1.16; LOS F	<1	<1	<1	<1	<1	1,000 - 1,300 (<1) 1,200 - 1,600 (<1)	
Castle AFB	0.45; LOS A	0.63; LOS B	0.65; LOS B	0.65; LOS B	<1	<1	<1	NA	NA	1,000 - 1,300 (<1) 1,200 - 1,600 (<1)	
Note: ¹ Represents 'unavailable data'. ² Oakland Station conditions estimated from prior analyses because no current ridership forecasts are available. ³ Demand for Warm Springs under Altamont is used to approximate the parking demand at Union City because no forecasts are currently available. Parsons 2007											



Transit Providers in the Study Region

There are a number of transit providers in the region; the primary agencies in the study region are as follows:

- Municipal Railway (Muni), providing bus and light rail transit in San Francisco and bus service to parts of Daly City in San Mateo County.
- Bay Area Rapid Transit District (BART), providing rapid rail transit throughout Contra Costa, Alameda, and northern San Mateo Counties.
- Golden Gate Transit and Bridge District, providing ferries on the Bay and bus transit among Sonoma, Marin, and San Francisco Counties.
- Alameda County (AC) Transit, providing bus transit in Alameda County with express service into San Francisco via the Bay Bridge and limited express service to San Mateo County (via the San Mateo and Dumbarton bridges) and Santa Clara County.
- Santa Clara Valley Transportation Authority (SCVTA), providing bus and light rail transit in Santa Clara County, with limited connections to San Mateo County.
- Merced County Transit's "The Bus," providing bus transit service locally and beyond, with connections out of the Merced Transportation Center to Turlock, Atwater, Livingston, Los Banos, and Dos Palos.
- San Benito County Transit, providing shuttle bus service among Hollister, San Juan Bautista, Salinas, and south Santa Clara County.
- Caltrain, providing commuter rail service from Gilroy to San Francisco.
- San Mateo County Transit District (SamTrans), providing bus transit throughout San Mateo County and into parts of San Francisco and Palo Alto.
- Altamont Commuter Express (ACE), providing limited commuter rail service between Stockton and San Jose.
- Monterey-Salinas Transit (MST), serving Monterey County and southern Santa Cruz County via its 33 routes.
- Amtrak Capitols, providing limited commuter rail service between the Sacramento area and San José.
- Greyhound, providing limited intercity service throughout California and other states.
- Other transit providers in the region, including Livermore Amador Valley Transit (WHEELS), Western Contra Costa County Transit (WestCAT), San Joaquin Regional Transit, Stanislaus Regional Transit (StaRT), Ceres Area Transit (CAT), Ceres Dial-A-Ride, Riverbank-Oakdale Transit Authority (ROTA), and Modesto Area Express (MAX).

Table 3.1-4 lists the connecting transit services at the HST station location options.

**Table 3.1-4
Connecting Transit Service at HST Station Location Options**

Potential HST Stations	Connecting Transit Service
Transbay Transit Center	Muni 5, 6, 10, 14, 14L, 14x, 38, 38L, 76, 108; AC Transit C, CB, E, F, FS, G, H, J, L, LA, N, NL, NX, NX1, NX2, NX3, NX4, O, OX, P, S, SA, SB, U, V, W, Z, 800 SamTrans DX, FX, KX, MX, NX, PX, RX, 391, 292; Golden Gate Transit Service 10, 20, 30, 50, 60, 70, 80, 2, 4, 8, 18, 24, 26, 28, 32, 34, 38, 44, 48, 54, 56, 72, 74, 76, 78, 90, 93; WestCAT; Greyhound; Caltrain; BART
4 th & King	Muni 10, 15, 30, 45, 47, 80x, 81x, 82x, N-Judah and T-Third Light Rail, Caltrain
Millbrae	SamTrans MX, 242, 390, 391, Caltrain, BART
Redwood City	SamTrans KX, PX, RX, 270, 271, 390, 391, Caltrain
Palo Alto	SamTrans KX, PX, RX, 280, 281, 390, 391; SCVTA 22, 35, 88,522, Caltrain
San Jose	SCVTA 22, 63, 64, 65, 68, 180, 305, 522, Hwy. 17, Caltrain, ACE, Amtrak, DASH, LRT, MST 55 (Monterey to San Jose Express)
West Oakland	AC Transit 13, 14, 19, 62,; BART
Oakland City Center	AC Transit 1, 1R, 62, 72, 72R, 72M, 88; BART
Oakland Coliseum	AC Transit 45, 46, 56, 57C, 98; BART
Union City	AC Transit 97, 99, 211, 214, 216, 232, 332, 801 ; SCVTA DB, DB1, 1, 2, 3, 4; BART
Shinn	No existing facilities; closest transit connection available to this location is AC Transit route 216, which is about 0.6 miles away.
Warm Springs	No existing facilities; closest transit connection available to this location is AC Transit route 215 on Warm Springs Boulevard and route 218 on Grimmer Boulevard (both within 0.5 mile of the station location option.)
Morgan Hill	SCVTA 15, 121, Caltrain, MST 55
Gilroy	SCVTA 17, 19, 68, 121, Caltrain, Greyhound, San Benito Transit, MST 55.
Bernal/I-680	WHEELS 8, 53, 54.
Dublin/Pleasanton	County Connection, WHEELS 3, 8, 10, 12, 20, 51, 54, 70X, 604, San Joaquin Transit RTD 60, 71, BART
Livermore I-580	WHEELS 12, 12A, 12V, 15, 20
Livermore Downtown	WHEELS 10, 11, 12, 14, 18, 162, 163, Dart Livermore, Greyhound, Amtrak, ACE
Greenville I-580	No existing facilities; closest transit connections available to this location are SJRTD/SMART buses, WHEELS (Route 20X), MAX Commuter bus, Greyhound, Amtrak, Tri Delta transit and ACE, which is about 2 miles away.
Greenville UPRR	No existing facilities
Downtown Tracy	Tracer Route A, D/E and SJRTD Route 26
Tracy ACE	No existing facilities; closest transit connection available is Tracer's Route C and Route D/E, which are about 2 miles away.
Downtown Modesto	StaRT, CAT, Ceres Dial-A-Ride, ROTA, MAX Route 25.
Amtrak Briggsmore	MAX 21, 22, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39, 41, 42, AMTRAK, StaRT

Potential HST Stations	Connecting Transit Service
Castle AFB, Merced	Merced County Transit's "The Bus"
Downtown Merced	Merced County Transit's "The Bus"
Source: Muni, SamTrans, Santa Clara Valley Transportation Authority, AC Transit, Golden Gate Transit, Merced County Transit, Caltrain, BART, 2003.	

B. STUDY CORRIDORS AND POTENTIAL HIGH SPEED TRAIN STATIONS

San Francisco to San Jose Corridor

This corridor includes the areas on the west side of the San Francisco Bay along the Caltrain rail line, from the city of San Francisco to the city of San Jose HST station location options.

The major intercity highway links in the corridor are the US 101 freeway links. Some freeway links in this corridor are very congested, operating at LOS E in generalized peak hour in the peak direction. As illustrated in Table 3.1-2, the V/Cs of US 101 links in the study corridor vary from 0.72 (LOS C) to 0.97 (LOS E), showing a range travel conditions in the corridor.

Three HST stations are expected along this corridor. LOS of cordons around the station location options in the corridor varies from LOS A to LOS D (Table 3.1-3).

One station is being considered for downtown San Francisco, either at a new Transbay Transit Center or at the existing Caltrain terminus at 4th and King. Traffic, circulation, and parking conditions are slightly better at the 4th and King region than the Transbay Transit Center because the latter is situated at a comparatively busier urban location.

The second station is being considered at the existing Millbrae BART/Caltrain station close to the San Francisco International Airport. The third station option would be at the Redwood City or Palo Alto Caltrain stations. Traffic, circulation, and transit situations in these two areas are comparable. However, parking availability is better at the Redwood City station.

The existing conditions at these station locations are described in more detail below.

Transbay Transit Center, San Francisco

The Transbay Transit Center in San Francisco would be the northernmost HST station location option on the west side of San Francisco Bay and is located on Mission Street between First and Beale Streets. However, **San Francisco Transbay Terminal** is a transportation complex in San Francisco that currently serves as the San Francisco terminus for transbay buses from San Francisco north to Marin County, east to the East Bay, and south to San Mateo County and other long-distance buses. In addition to San Francisco's own Muni, its largest tenants are Golden Gate Transit, AC Transit, SamTrans, and Greyhound Bus Lines. The Transbay Transit Center is a separate future project that would include a bus terminal and a rail station for Caltrain service with or without the HST system. In addition to maintaining the current bus services, this proposed terminal would also include a tunnel that would extend the Caltrain commuter rail line from its current terminus at 4th and King Streets to the new Transbay Transit Center. The heavy rail portion of the terminal would be designed to accommodate the planned HST from Los Angeles via the Caltrain line, and thus the proposed HST would utilize the planned Caltrain station.

The major freeways serving the station area are US 101 and I-80. The one-way streets, Howard Street (westbound), First Street (southbound), and Fremont Street (northbound), are the major arterials serving the station area. Mission Street, another arterial serving the station area, also has a

bus lane in each direction. The cordon around this station location option operates at LOS D ($V/C = 0.80$).

The Transbay Transit Center is the San Francisco terminus of AC Transit's transbay bus routes and would become the primary terminus station for Caltrain service. Transit services are also provided by Golden Gate Transit, SamTrans, and Muni. BART is accessible within walking distance, and the Caltrain is accessible through connecting Muni services. See Table 3.1-4 for a detailed listing of intermodal connections to this location. Most of the public transit links in the station area operate at or above capacity during peak hours, and hence transit load factor or V/C is greater than one.

The fact that parking supply exceeds demand is primarily a function of the marketplace, which is to say that parking is available for a price. In this area around the Transbay Transit Center in San Francisco, parking occupancy is currently about 85%, partly because prices can run as high as \$30 per day, although nearby surface lots charge about half of that. In a situation like this, parking can provide enough revenue to ensure supply in the area, if not on the site. Hence currently, V/C is less than one indicating that parking supply exceeds demand.

4th and King, San Francisco

The station location option would be southwest of the Transbay Transit Center, 1.3 miles away. I-80 and I-280 are the major freeways serving this area. King Street is the major arterial, and Townsend and 4th Streets are the minor arterials serving the station area. The cordon around this station location option operates at LOS A ($V/C = 0.33$).

4th and King is also the current terminal station on the Caltrain line. It is served by MUNI bus transit and light rail transit. See Table 3.1-4 for a detailed listing of connections to this location. Most of the public transit links in the station area operate at or below capacity during peak hours, and hence transit load factor or V/C is less than one.

Caltrain does not own or have access to parking at this location. This area is in transition, and the parking situation may become like that in downtown in 20 years as the Mission Bay development builds out. Hence, in the future, high prices for parking would lead to less demand, which could ensure enough supply. Parking under baseline conditions is sufficient. Hence currently, V/C is less than one to indicate that parking supply exceeds demand.

Millbrae Station, San Francisco Airport

The Millbrae station location option is the existing BART/Caltrain station just north of Millbrae Avenue. The existing at-grade Millbrae BART/Caltrain station is located at 200 North Rollins Road. There are entrances to the station on both the east and west sides of the tracks. The station is wheelchair accessible and has bicycle lockers, ticket vending machines, and public telephones. This region is served primarily by US 101. SR 82 and Millbrae Avenue, a major arterial, provide access to the region. I-280 also provides freeway access to local arterials on the western edge of the city. East Millbrae Avenue is a major arterial east of SR 82 and a minor arterial west of SR 82. Trousdale Drive is a local street that serves the local traffic. California Drive is a minor arterial south of Trousdale Drive. The cordon around this station location option operates at LOS B ($V/C = 0.63$).

Transit access is by Caltrain, BART, and SamTrans routes MX, 242, 390, and 391. Most of the public transit links in the station area operate at or below capacity during peak hours, and hence transit load factor or V/C is less than one.

Approximately 3,000 parking spaces are available in a five-level parking structure and adjacent surface lot, both located on the east side of the station. Monthly reserved, daily (free), midday (free), and carpool (free) parking spaces are available in the parking structure and surface lots of the

existing BART/Caltrain station. The BART parking garage (3,000-car capacity) is sufficient to meet existing demand. Hence, V/C is less than one.

Redwood City

The Redwood City HST station location option is the existing Caltrain station located at 1 James Avenue. The main entrance to the station is on the west side of the tracks. The station is wheelchair accessible and has bicycle lockers, ticket vending machines, and public telephones. US 101 is the major freeway serving Redwood City. I-280 also provides freeway access to local arterials on the western edge of the city. SR 82, El Camino Real, provides access to the station area. Several arterials can be used by local traffic to access the station area. Broadway, Jefferson Avenue, and Middlefield Road are the minor arterials serving the area. Major local streets that serve the area are James and Hopkins. The cordon around this station location option operates at LOS B (V/C = 0.61).

Caltrain and SamTrans are the major transit service providers. Seven SamTrans routes and Caltrain connect to this location. See Table 3.1-4 for a detailed listing of connections to this location. Most of the public transit links in the station area operate at or below capacity during peak hours, and hence transit load factor or V/C is less than one.

Currently, parking at this location is sufficient to meet the existing demand. Hence, V/C is less than one.

Palo Alto

The Palo Alto HST station location option is the existing Caltrain station site located at 95 University Avenue. The station has a historical depot building, is wheelchair accessible, and has bicycle lockers, ticket vending machines, and public telephones. The Palo Alto HST station, an alternative to the Redwood City station, falls between US 101 and I-280. SR 82 is also used by local traffic to access the station area. Local shuttles connect different parts of the city to the Caltrain station. University Avenue and Embarcadero Road are the major arterials providing access to the station area. Arboretum Road, Palm Drive, and Alma Street are the collector streets feeding the station area. The cordon around this station location option operates at LOS D (V/C = 0.85).

SamTrans, SCVTA, and Caltrain provide transit access to the station area. See Table 3.1-4 for a detailed listing of connections to this location. Most of the public transit links in the station area operate at or below capacity during peak hours, and hence transit load factor or V/C is less than one.

The Caltrain station has surface parking lots on both sides of the railroad tracks. Approximately 385 parking spaces are provided in multiple surface lots adjacent to the station. Currently, there is just enough parking at this location to meet the existing demand. Hence, V/C is less than one.

Oakland to San Jose Corridor

This corridor includes the areas on the east side of San Francisco Bay along I-880 from the City of Oakland to the City of San Jose.

I-880 is the primary highway in this corridor. As shown in Table 3.1-2, I-880 freeway links are operating at V/C from 0.82 (LOS D) to 0.96 (LOS E), showing steady-flow to congested travel conditions.

Three or four HST stations are projected for this corridor. Cordons of all station location options along the corridor operate at LOS A. The northernmost terminal station on the Oakland to San Jose corridor would be adjacent to a BART station, either at West Oakland or at 12th Street/City Center. Traffic, circulation, and parking conditions are slightly better at West Oakland location than the 12th Street location because the latter is located at a busy urban commercial area. The second station in

this corridor is planned adjacent to the BART station at Oakland Coliseum, close to the Oakland International Airport. There would also be a station at either Union City or Warm Springs.

West Oakland

The West Oakland BART station is located at 1452 7th Street, is wheelchair accessible, and has eight bicycle lockers. The underground HST station location option is on 7th Street between Henry Street and Mandela Parkway, adjacent to the existing aboveground BART station. I-880 and I-980 are the major freeways feeding the region. Adeline Street, 7th Street, and 14th Street are the major arterials near the station area. Mandela Parkway is a minor arterial that serves the station area. Peralta and 8th Street are the local roads serving the area. To the west of Union Street, 8th Street is a one-way road (eastbound). To the east of Union Street, it is two-way. The cordon around this station location option operates at LOS A ($V/C = 0.15$).

Amtrak, AC Transit buses, and BART provide transit services to the station area. AC Transit routes 13, 14, 19, and 62 offer connections to this location. Most of the public transit links in the station area operate at or below capacity during peak hours, and hence transit load factor or V/C is less than one.

The existing West Oakland BART station is surrounded by fee and permit surface parking lots. Monthly reserved permit, daily fee, single day reserved permit, extended weekend, and midday parking is available in surface lots. Currently, parking at this location is sufficient to meet to the existing demand. Hence, V/C is less than one.

Oakland 12th Street/City Center

The existing underground BART station is located at 1245 Broadway. The underground HST station location option is along 12th Street between Broadway and Martin Luther King Junior Way adjacent to and on the west side of the 12th Street BART station. The station would be located in the City Center district, an urban commercial area. I-880 is six blocks south of the station location option. Broadway, San Pablo, Telegraph, and 14th Street are the major arterials serving the area. All four arterials are two-way streets. Webster (westbound) and Franklin (eastbound) provide local access and are one-way streets. The cordon around this station location option operates at LOS A ($V/C = 0.40$).

In addition to BART, the station would be served by AC Transit bus lines. See Table 3.1-4 for a detailed listing of connections to this location. Most of the public transit links in the station area operate at or below capacity during peak hours, and hence transit load factor or V/C is less than one.

Commercial parking lots, including a garage in the City Center complex, appear to provide sufficient parking. Hence, V/C is less than one.

Oakland Coliseum/Oakland Airport

The existing Oakland Coliseum BART/Amtrak station is located at 73rd Avenue and San Leandro Street. A pedestrian overpass links the BART and Amtrak Capitol Corridor platforms. The HST station location option is between 71st Avenue and 73rd Avenue, along the Amtrak railroad tracks. I-880 is the major freeway serving the Oakland Airport and Coliseum region. San Leandro Street and Hegenberger Road are the major arterials used for accessing the Oakland Airport and Coliseum region. 77th Avenue is a local street near the station area. The cordon around this station location option operates at LOS A ($V/C = 0.30$).

BART and AC Transit are the major transit service providers. Air-BART, a direct shuttle between the airport and the BART station, also aids transit. AC Transit Routes 45, 46, 56, 57C, and 98 provide connections to this location. Most of the public transit links in the station area operate at or below capacity during peak hours and hence transit load factor or V/C is less than one.

At the BART station there is a surface parking lot along Snell Avenue that is sufficient to handle the current demand. Hence, V/C is less than one.

Union City

The existing Union City BART station is located on a 14-acre site at Union Square and Decoto Road. The entrance to the station is on Union Square on the west side of the tracks. The station location option is on 11th Street just to the east of the existing BART station along the existing Niles Subdivision track. The major freeway serving the region is I-880. Other major roadways serving the region are Alvarado Niles, Decoto Road, and I-238. Decoto and Alvarado Niles are the major arterials leading to the station area. The cordon around this station location option operates at LOS A (V/C = 0.50).

Union City Transit, SCVTA, BART, and AC Transit serve the area. See Table 3.1-4 for a detailed listing of connections to this location. Most of the public transit links in the station area operate at or below capacity during peak hours, and hence transit load factor or V/C is less than one.

There are surface lots for monthly reserved, daily (free), extended weekend, midday (free), and long term parking. Currently parking at this location is sufficient to meet the existing demand. Hence, V/C is less than one.

Warm Springs

No station facilities exist at the Warm Springs station location, although a BART station is proposed for the location. The HST station location option is at the intersection of South Grimmer Road and Warm Springs Boulevard adjacent to the proposed BART station. The station location option falls within the Warm Springs Business District in the City of Fremont. I-680 and I-880 are the closest freeways, and Fremont Boulevard, Grimmer Boulevard, and Warm Springs Boulevard are the closest major arterials. The cordon around this station location option operates at LOS A (V/C = 0.48).

AC Transit Route 215 on Warm Springs Boulevard and Route 218 on Grimmer Boulevard are the closest transit connections available within half a mile of the station location option. These public transit links operate at or below capacity during peak hours, and hence transit load factor or V/C is less than one.

No public parking facilities exist at this location. However, demand for parking is low, and V/C is less than one.

San Francisco Bay Crossings Corridor – Shinn Station

These alignment alternatives include the San Francisco Bay crossings between the cities of San Francisco and Oakland near the San Francisco/Oakland Bay Bridge and between the cities of East Palo Alto and Newark south of the Dumbarton Bridge and into the City of Fremont. The latter comprises a station at Shinn, Union City. The V/C of the I-80 freeway link in this study corridor is 0.79 (LOS C).

There are no existing station facilities at the Shinn station location option. The station location option would be in the Centerville area of the City of Fremont. The station would be located along the existing UPRR and ACE/Capitol Corridor tracks at Shinn Street and Von Euw Com, just east of the BART track crossing. SR 84 is the closest freeway, and Shinn Street and Von Euw Com are the major arterials feeding this location. The cordon around this station location option operates at LOS A (V/C = 0.31).

The closest transit connection available to this location is through Route 216 of AC Transit, which is about 0.6 mile away. Because the demand for transit at this location is low, transit load factor or V/C is less than one.

No public parking facilities exist at this location. However, demand for parking is low, and V/C is less than one.

San Jose to Central Valley Corridor

This corridor includes the areas from the City of San Jose south to the City of Gilroy and east across the Diablo Range to the Central Valley. Three alignments are within this corridor: Pacheco, GEA North, and Henry Miller.

US 101 and SR 152 are the primary highways in this corridor. As shown in Table 3.1-2, the US 101 freeway links from San Jose to SR 152 operate at acceptable conditions (V/C varying from 0.72 to 0.87). SR 152 from US 101 to I-5 operates at LOS C conditions (V/C = 0.78)

Two station location options are considered in this corridor: the existing San Jose Diridon Caltrain terminal, and a station at either the existing Morgan Hill or Gilroy Caltrain stations. Cordons of all station location options along the corridor operate at LOS A.

San Jose

The station location option is the existing Diridon Station located at 65 Cahill Street, which serves as the central passenger rail depot for San Jose. The area is served by the I-880 and I-280 freeways and by the roadways San Carlos, Santa Clara, and SR 82. San Carlos, Park, and Santa Clara are the major arterials serving the area. Bird Avenue is a collector street feeding the area. The cordon around this station operates at LOS A (V/C = 0.25).

The Diridon Station provides service for the Capitol Corridor and Coast Starlight Amtrak routes, Altamont Commuter Express, Caltrain, and SCVTA light rail. A list of transit lines currently serving the location is provided in Table 3.1-4. Most of the public transit links in the station area operate below capacity during peak hours, and hence the transit load factor or V/C is less than one.

At the existing station, approximately 595 spaces are available for all-day parking in surface lots adjacent to the station. Because parking is sufficient to meet the demand, V/C is less than one.

Morgan Hill

Caltrain has a Morgan Hill station at 17300 Depot Street between East Main and East Dunne Avenues. The station is wheelchair accessible and has ticket vending machines, bicycle lockers, and public telephones. The station location option is the existing Morgan Hill Caltrain station. US 101 is the major freeway in the area. Monterey Street, Hale, and Dunne are the major arterials in the station area. Main Street is a minor arterial. The cordon around this station location option operates at LOS A (V/C = 0.42).

The station area is served by Caltrain, SCVTA, and MST. See Table 3.1-4 for a detailed listing of intermodal connections to this location. Most of the public transit links in the station area operate below capacity during peak hours and hence the transit load factor or V/C is less than one.

At the existing Caltrain station, all day parking is available in a total of 486 parking spaces, including 346 standard spaces, 131 compact spaces, 8 handicap spaces, and 1 handicap van accessible space. As there is sufficient parking at this location to meet the existing demand, V/C is less than one.

Gilroy

The Gilroy HST station location option is the existing Gilroy Caltrain station located at 7150 Monterey Street. US 101 is the major freeway and SR 152 the other major highway for accessing the area. Monterey Highway is the major arterial feeding the Gilroy station area. Tenth Street is a local road that would also be used by local traffic. As described by the cordon analysis (Table 3.1-3), the cordon around this station location option operates at LOS A (V/C = 0.44).

SCVTA, Caltrain, MST, San Benito County Transit, and Greyhound are the major transit service providers. See Table 3.1-4 for a detailed listing of intermodal connections to this location. Most of the public transit links in the station area operate below capacity during peak hours and hence the transit load factor or V/C is less than one.

At the existing Caltrain station, all day parking is available in a total of 471 parking spaces, including 464 standard spaces, 2 handicap spaces, 1 handicap van accessible space, and 4 passenger pick-up/drop-off spaces. Because there is sufficient parking at this location to meet the existing demand, V/C is less than one.

East Bay to Central Valley Corridor

This corridor includes the areas from the City of Fremont east through Niles Canyon and into the cities of Pleasanton, Dublin, and Livermore. East of the City of Livermore, the alignment alternatives in this corridor continue through the Altamont Pass and into the Central Valley via the cities of Tracy and Manteca.

I-580 and I-680 are the primary highways in this corridor. As shown in Table 3.1-2, these intercity freeway segments are operating at freeflow to congested conditions, with V/C ratios varying between 0.51 (LOS A) and 1.06 (LOS F).

Two stations are being considered for this corridor: one station in Dublin (BART station), Pleasanton (Bernal/I-680), or Livermore (Livermore or Greenville), and a second station in Tracy. Within Tracy, the two locations being considered are downtown Tracy and Tracy Altamont Commuter Express (ACE) close to Banta Road. Currently, all station cordons operate at LOS A.

Bernal/I-680, Pleasanton

Currently, no station facilities exist at the Bernal HST station location option. The station location option is along the UPRR in the City of Pleasanton. I-680 is the closest freeway for accessing the station. The major arterials feeding the Bernal station location option are Bernal Avenue, Main Street, and Sunol Boulevard. The cordon around this station location option operates at LOS A (V/C = 0.47).

Service to this location is provided by Livermore Amador Valley Transit Authority (WHEELS). Routes 8, 8A, 53, 54, and 602/606 connect to this location because all of these routes stop at locations that are a walkable distance from the proposed station location option and are therefore easily accessible. Most of the public transit links in the station location option area operate below capacity during peak hours, and hence the transit load factor or V/C is less than one.

There is no public parking available at or in the vicinity of this station location option. However, demand for parking is low, and hence V/C is less than one.

Dublin/Pleasanton

This station location option would be at the existing Dublin/Pleasanton BART station. Dublin/Pleasanton BART station is located at 5801 Owens Drive in Pleasanton between two interchanges at Dougherty Road and Hacienda Drive near I-580. Major arterials around this location are Owens Drive, Dublin Boulevard via Iron Horse Parkway, and Demarcus Boulevard. The cordon around this station location option operates at LOS A (V/C = 0.21).

The existing BART station is served by several bus connections, including County Connection, WHEELS, San Joaquin Regional Transit, and BART. Nine routes are served by WHEELS, all of which stop at the BART station. San Joaquin Regional Transit provides connection from the BART station to San Joaquin County. In addition, transit agencies such as County Connection and BART provide more connections to the surrounding regions. Therefore, as this location is served by more than one

transit agency; it is well connected with the surrounding region. For a detailed listing of connections to this location, refer to Table 3.1-4. Most of the public transit links in the station area operate at or below capacity during peak hours, and hence the transit load factor or V/C is less than one.

Monthly reserved, daily (free), extended weekend, midday (free), carpool (free), and long-term parking are all available just south of the station along Owens Drive and in two surface lots north of the station. A pedestrian underpass connects the parking areas on both sides of the tracks and serves as an entrance point to the station. The parking demand at this station exceeds capacity during peak hours, and hence V/C is greater than one.

Livermore I-580

There are no station facilities at the station location option along I-580 just west of the intersection with North Livermore Avenue. The closest major arterial to this location is North Livermore Avenue. The cordon around this station location option operates at LOS D (V/C = 0.86).

This station location option is served by Tri-Valley buses. Currently, routes 12, 12A, 12V, 15, and 20 stop at distances that are walkable to and from the station location option. These connections are provided by WHEELS. Most of the public transit links in the station location area operate below capacity during peak hours, and hence the transit load factor or V/C is less than one.

The station location option is in an area of undeveloped open space. North of I-580, the land is designated open space. There is currently no parking at this location. However, there is a park-and-ride lot nearby.

Downtown Livermore

The station location option is along the south side of the UPRR tracks between Murietta Boulevard and P Street. I-580 is the closest freeway for accessing the station. An ACE train station and Livermore Amador Valley Transit Authority (LAVTA) Transit Center are located less than 0.5 mile to the east of this Livermore station location option. The major arterials feeding this station location option are Stanley Boulevard and Murietta Boulevard. The cordon around this station location option operates at LOS A (V/C = 0.46).

Currently, this station location is served by Tri-Valley buses with additional ACE, Amtrak, and Greyhound connections available at the Livermore Transit Center, Dart Livermore, and ACE station. Seven routes are operated by WHEELS, all of which stop at the location. All of these buses stop at locations that are walkable from this location option and thus easily accessible. For a detailed listing of connections to this location, refer to Table 3.1-4. Most public transit links in the station location option area operate below capacity during peak hours, and hence the transit load factor or V/C is less than one.

The parking supply in downtown Livermore consists of on-street public parking and public parking garages.

Greenville I-580, Livermore

No station facilities exist at the Greenville I-580 HST station location option. Currently there are two ACE stations in Livermore, one on Vasco Road near Brisa Street, and another on Railroad Avenue adjacent to the transit center in downtown Livermore. The station location option would be adjacent to the southern edge of I-580 just east of the Greenville Road interchange. This is a greenfield site with no existing transit facilities or railroad right-of-way. Land use in the immediate vicinity of the station location option is primarily open space. I-580 is the closest freeway for accessing the station. The closest major arterial to this location is Greenville Road. The cordon around this station location option operates at LOS A (V/C = 0.44).

The station location option is not served by transit facilities. San Joaquin Regional Transit District (SJRTD)/SMART buses, WHEELS (Route 20X), MAX Commuter bus, Greyhound, Amtrak, Tri Delta Transit, and ACE offer service to locations that are about 2 miles away.

No public parking is available close to this location.

Greenville UPRR, Livermore

No station facilities exist at the Greenville UPRR HST station location option. Currently there are two ACE stations in Livermore, one on Vasco Road near Brisa Street and another on Railroad Avenue adjacent to the transit center in downtown Livermore. The station location option would be adjacent to Greenville Road just south of Patterson Pass Road. This is a greenfield site with no existing transit facilities or railroad right-of-way. Development of this site would require the placement of a new track and station facilities. I-580 is the closest freeway for accessing the station, and Greenville Road is the major arterial that would feed this location. The cordon around this station location option operates at LOS A ($V/C = 0.21$).

There are no transit services within half a mile of the station location option.

No public parking is available at or in the vicinity of this location option.

Tracy Downtown

The downtown Tracy HST station location option is along the UPRR right-of-way at East 6th Street just west of the intersection with North McArthur Drive. The station location option is at the southern end of the downtown area. I-205 is the closest freeway for accessing the station. The closest major arterial is Mc Arthur Road. The cordon around this station location option operates at LOS A ($V/C = 0.34$).

"Tracer," the City of Tracy's fixed bus route service, and SJRTD provide transit service to the station location option. Currently, Tracer's Route A and Route D/E (commuter) along with Route 26, an intercity route operated by SJRTD, serve the area. Bus stops for these routes are located within a brief walk of the station location option. Route 26 connects with Tracer in downtown Tracy and future Manteca transit buses in downtown Manteca. Most of the public transit links in the station area operate below capacity during peak hours, and hence the transit load factor or V/C is less than one.

Public parking lots are located on the east and west sides of Central Avenue at 6th Street, close to the station location option. Parking lots also are located behind the businesses on the north and south sides of 10th Street between B Street and Central Avenue. Currently, parking spaces seem adequate to serve the existing demand, and hence V/C is less than one.

Tracy ACE

The other Tracy station location option is along the ACE railroad right-of-way, west of South Banta Road and about 1.5 miles south of I-205. This station location option is approximately 3 miles east of the existing Tracy ACE station and is outside the city limits but within the City of Tracy sphere of influence. I-205 is the closest freeway for accessing the station. The closest major arterial is South Banta Road. The cordon around this station location option operates at LOS A ($V/C = 0.01$).

Tracer and ACE provide transit service in the general area. The closest transit connection available is the ACE train service and Route C and Route D/E, which are about 2 miles away.

The station site is in a designated industrial area and is surrounded by undeveloped land/farmland, with limited off-street parking. Because the area is undeveloped, there is very little parking demand at this location.

Central Valley Corridor

The Central Valley corridor includes the areas of the Central Valley from the City of Stockton south to the northern areas of Madera County. There are six alignment alternatives in the Central Valley corridor that follow the existing UPRR and BNSF rail lines.

I-5 and SR 99 are the primary highways in this corridor. As shown in Table 3.1-2, these intercity freeway segments operate at congested LOS with V/C varying from 0.99 (LOS E) to 1.04 (LOS F).

Four station location options are being considered in this corridor. The two locations being considered for the Modesto station are downtown Modesto or close to East Briggsmore Road. The second station in this corridor would be at Merced. The two locations being considered are downtown Merced and Castle AFB. All station cordons except downtown Merced operate at LOS A. The cordon surrounding the downtown Merced station location option operates at LOS E, showing congested travel conditions.

Modesto Downtown

No station facilities exist at the downtown Modesto HST station location option. The existing Amtrak station is located on the northeastern edge of the city off of E. Briggsmore Avenue/Parker Road. The downtown Modesto HST station location option is along the Southern Pacific rail line between Low Street and Olive Street and parallel to 8th Street in downtown Modesto.

Regional access to downtown Modesto is provided by SR 99, SR 132, and SR 108. These routes are located close to the station area. The roadway network in the downtown area is made up of a grid system with one-way roadway segments. Major east-west arterials in the downtown area are L Street (SR 132 and SR 108) and K Street (SR 108). These two streets form a one-way couplet with three lanes provided on each facility. The major north-south arterial is 9th Street (SR 132). Other roadway facilities that provide access to the station area include north-south 7th, 10th, 11th, and 12th Streets, and east-west oriented J Street. The cordon around this station location option operates at LOS A (V/C = 0.53).

The Downtown Transportation Center is located 1 block away at 9th and J Streets. With convenient access to the Downtown Transportation Center, connections can be made to StaRT, CAT, Ceres Dial-A-Ride, and ROTA. The downtown station site is located 2 blocks northwest of the MAX Center, the transfer point for 16 bus routes providing 26 buses in the AM peak hour. Most of the public transit links in the station area operate below capacity during peak hours, and hence the transit load factor or V/C is less than one.

Parking lots bound the downtown Modesto station area, with lots on 8th, 9th, K, and I Streets. A 700-space garage is on 10th Street. A small parking structure is on 11th street between J and I streets. In addition, the city-county building offers public parking and is located at the corner of 11th and K streets. There is also a 700-space parking garage at the corner of 12th and I Streets. With all of this parking available, V/C is less than one.

Amtrak Briggsmore (Modesto)

There is an existing Amtrak station located at E. Briggsmore Avenue/Parker Road. The suburban Modesto HST station location option is adjacent to the existing Amtrak station at the intersection of East Briggsmore Avenue and Santa Fe Avenue, approximately 5 miles northeast of downtown Modesto. The closest freeways to this location are SR 99, SR 132, and SR 108. East Briggsmore Avenue and Santa Fe Avenue are the two major arterials closest to this location. The cordon around this station location option operates at LOS A (V/C = 0.59).

MAX route 25 connects the Amtrak station with the Downtown Transportation Center. Currently, this location is served by 19 MAX routes and StaRT. Most of the public transit links in the station area operate below capacity during peak hours, and hence the transit load factor or V/C is less than one.

The area surrounding the East Briggsmore Avenue site is generally undeveloped, and public parking supplies are those provided at the Amtrak station (approximately 150 parking spaces).

Castle AFB, Merced

No station facilities exist at the Castle AFB HST station location option, which is in an area just west of the defunct Castle AFB airfield.

The AFB is located approximately 8 miles from downtown Merced, and approximately 10 miles from the new UC Merced Campus. The major access roads around this location are Headwind Drive, Shaffer Road, and Santa Fe Drive. The cordon around this station location option operates at LOS A (V/C = 0.45).

Merced County Transit's "The Bus" system operates locally and beyond, with connections out of the Merced Transpo Center to Turlock, Atwater, Livingston, Los Banos, and Dos Palos. Most of the public transit links in the station area operate below capacity during peak hours, and hence the transit load factor or V/C is less than one.

The areas surrounding the Castle AFB station and MCE area are currently undeveloped, with limited off-street parking supplies.

Merced Downtown

The downtown Merced HST station location option is on 16th Street between M and O Streets. The station area is currently occupied by a Southern Pacific Depot and is used for non-rail purposes and a regional bus transportation center. There is a historical Southern Pacific Company station in Merced at 15th Street between M and O Streets. SR 99 lies a block to the south. The closest major arterials are O Street, M Street, Main Street, and 16th Street. The cordon around this station location option operates at LOS E (V/C = 0.95).

Merced County Transit's "The Bus" system operates locally and beyond, with connections out of the Merced Transpo Center to Turlock, Atwater, Livingston, Los Banos, and Dos Palos. Most of the public transit links in the station area operate below capacity during peak hours, and hence the transit load factor or V/C is less than one.

Merced's downtown parking district provides approximately 1,400 public parking spaces. Currently the parking supply exceeds demand, and hence the V/C is less than one.

3.1.3 Environmental Consequences

This section describes the traffic, transit, circulation, and parking conditions under the No Project and the HST Alignment Alternatives. Subsections A and B below summarize the impacts (Tables 3.1-2 and 3.1-3) while Subsection C discusses impacts in detail by study corridor.

A. NO PROJECT ALTERNATIVE

The No Project Alternative would include programmed and funded transportation improvements to the existing transportation system that will be implemented and operational by 2030.

The primary differences between existing conditions and the No Project Alternative are the increased level of travel demand on local roads that lead to the stations and the implementation of new infrastructure. Improvements (programmed and funded) focus on existing modes of transportation;

therefore, the same modes of intercity transport will continue to be available. The programmed or funded transportation improvements assumed to be in operation by 2030 include some capacity improvements but generally no systemwide capacity improvements (e.g., major new highway construction) and will not result in a general improvement or stabilization of existing highways across the study area.

As discussed in Section 3.1.2, Affected Environment, six freeway links in the study area are very congested in 2005, operating at LOS E or F in the peak hour in the peak direction. V/Cs are expected to worsen on most links under the No Project Alternative. Despite planned highway capacity increases on most links, conditions are expected to improve only on four of the 18 links. Overall, traffic congestion is projected to worsen because travel rates (or the number of trips taken) are increasing by 2% per year at the gateways to the Bay Area. Traffic projections for the HST analysis show that commute trips into the Bay Area are expected to increase by 69% between 2005 and 2030. As a result, 13 of the 18 links are projected to operate at LOS E or F in 2030 (Table 3.1-2).

As described in Section 3.1.2, Affected Environment, some roadways leading to the station location options currently are congested. It should be noted that for some stations, even though the cordon surrounding station might operate at acceptable LOS, one or more roadways leading to the station location option could be operating at LOS E or LOS F (V/C greater than 0.9 or 1.0). These conditions are expected to deteriorate further under the No Project Alternative. Capacity under No Project conditions would be insufficient to accommodate the projected growth in traffic. V/Cs of cordons for all station location options in the study region would deteriorate under No Project conditions and are projected to experience an impact at the cordon level (Table 3.1-3).

Currently, parking lots in several of the BART and Caltrain stations are either at capacity or approaching capacity, with riders finding it hard to find parking spaces during peak hours. BART's strategic plan calls for improvements to station access by all modes through the promotion of alternatives to driving alone. This includes increasing the use of alternative modes of access including taxis, carpools, drop-off, shuttles, buses, walking, and bicycles to and from BART. As part of this, BART proposes to add additional parking spaces at selected existing stations to accommodate parking demand from the proposed BART to Silicon Valley extension. New parking facilities are planned as part of the new West Dublin/Pleasanton Station to add another 1,200 parking spaces. BART also plans to add another 500 parking spaces at the existing Dublin/Pleasanton Station in the future. Additional facilities may be constructed if infill BART stations are developed in the future. However, at this time there are no plans to significantly increase parking at existing BART stations.²

According to the Caltrain Capitol Improvements Plan, Caltrain proposes to add approximately as much parking as the increased demand in year 2020. Although this addition might improve the overall parking situation in the system, station-specific situations might not necessarily improve.

As a result, the parking situation at all the existing stations comprised within the above two systems would either remain the same or would deteriorate.

B. HIGH SPEED RAIL

Based on travel forecasts with and without HST alternatives, overall intercity highway conditions would improve with the HST. Table 3.1-2 illustrates the peak-period trips diverted on each link and the resulting changes in V/C. Of the 18 links analyzed, 15 or 16 links, depending on the alignment alternative, show V/C improvements compared with 2030 No Build conditions ranging from less than 1% to greater than 20%. The Pacheco Pass alternatives show improvement on 16 links, while the Altamont Pass alternatives show improvement on 15 links. The links that degrade in performance in

² Malcolm Quint, Principal Planner, San Francisco Bay Area Rapid Transit District, May 2007.

either case do so only slightly. The general intercity highway conditions would remain at poor LOS, however, with 12 or 13 links projected to experience LOS E or F in 2030 under the Pacheco Pass alternatives and Altamont Pass alternatives, respectively. The intercity highway links are explained in more detail under the pertinent corridor in Subsection C, Study Corridors and Potential High Speed Train Stations.

HST station trip generation was calculated based on the 2030 high demand forecast for HST service. The HST trips were then distributed to and from HST station location options. These trips are additions to the background traffic forecast (by the MTC travel model, or other travel models) for the arterial streets around each station.

The HST stations would have adverse impacts in some areas as a result of adding traffic to streets already congested with other traffic under the No Project Alternative in 2030. Note that the capacity of these arterial streets would be the same under both the No Project Alternative and the HST. A cordon analysis was conducted to see how the traffic operations on the streets vary under the two alternatives. This analysis looked at the traffic operations of the cordon surrounding the station area, as well as the individual streets in the cordon. Traffic operations in the cordon surrounding the station area would deteriorate slightly in all 26 locations, but would deteriorate from LOS D to LOS E or F in four cases or from LOS E or F to a worse LOS E or F in three cases. Subsection C below describes in more detail the differences in arterial operations at each station location option.

C. STUDY CORRIDORS AND POTENTIAL HIGH SPEED TRAIN STATIONS

By 2030, traffic conditions throughout the traffic study area are expected to worsen, and only limited improvements to transportation facilities are funded and programmed for implementation by 2030. Steadily increasing regional and urban traffic affects intercity commutes by delaying travelers where capacity is constrained. The HST would reduce long-term impacts on freeways and airports by diverting intercity automobile and airplane trips to the HST system. Table 3.1-2 lists the V/Cs and LOS of different highway links in the region under the No Project Alternative and two HST scenarios: the Pacheco Pass alternatives and the Altamont Pass alternatives.

Generally, public transit and goods movement are operating under the traffic conditions as other traffic. Compared to conditions under the No Project Alternative in 2030, V/C would improve on most intercity links under the HST alternatives. Goods movement would be generally improved by the HST, with the impacts following the freeway condition improvements resulting from diverted traffic.

The remainder of this section describes the conditions for the HST Alignment Alternatives and station location options and compares in more detail the relative differences between the No Project Alternative and the HST Alternatives. This section is organized by corridors and then by station. Tables 3.1-2 and 3.1-3 summarize the findings of this evaluation.

San Francisco to San Jose Corridor

This corridor includes the areas on the west side of San Francisco Bay along the Caltrain rail line from the city of San Francisco to the city of San Jose.

The intercity highway links in the corridor are the US 101 freeway links. Under the 2030 No Project Alternative, these links would operate at LOS C to F with volume to capacity ratio ranging from 0.79 to 1.47. The HST would alleviate some congestion on these freeway links by diverting some of the intercity automobile trips to the HST system, but it would increase the upper end of the V/C ratio to 1.48 from 1.47 in the No Project alternative. However, the lower end of the V/C ratio would decrease to 0.75 from 0.79 in the case of No Project. In the case of the Altamont Pass alternatives, the V/C for the US 101 link between San Francisco to San Francisco Airport would decrease by about 3% as compared to the No Project alternative.

Overall, there is a very slight difference in the effects of the two HST alternatives on V/C, and there is no difference in the LOS that ranges from C to F.

This corridor includes HST station location options in San Francisco (at the Transbay Transit Center or at 4th and King), Millbrae, and Redwood City or Palo Alto. With additional vehicles using the roadways to reach HST stations, LOS of these roadways would deteriorate compared to the No Project Alternative. The traffic impact on the cordon around the Transbay Transit Center would deteriorate from LOS D to LOS F. The impact on all other station cordons would be similar to or slightly worse as compared to the cordon traffic conditions under the No Project Alternative.

While at the comparatively busier urban location of the Transbay Transit Center the overall levels of operation would deteriorate from LOS D to LOS F under the No Project Alternative, at the 4th and King location the LOS would only deteriorate from LOS A to LOS B. Although there is no parking proposed at both these locations, as discussed in detail below, due to the high price of parking at these locations, sufficient parking would be available to accommodate the demand.

Traffic, circulation, and transit situations in Redwood City or Palo Alto Caltrain station location option areas are comparable, with slightly more base traffic on the streets feeding Redwood City station. Compared to the Palo Alto station location option, parking availability would be better at the Redwood City station and would remain so during No Project conditions. However, with the addition of HST traffic, neither station would be able to accommodate the parking demand even with the additional parking spaces proposed for the HST system.

Transbay Transit Center, San Francisco

By 2030 even without the HST, most of the roadways surrounding the station location option would operate near capacity. The cordon surrounding the station area would operate at LOS D (V/C = 0.90). With the addition of HST traffic, the Pacheco Pass alternatives would have a V/C of 1.08 (LOS F), and in the case of the Altamont Pass alternatives, the V/C would be 1.03 (LOS F).

The proposed Transbay Transit Center would be a major transportation hub in downtown San Francisco. SamTrans, AC Transit, Muni, Golden Gate Transit, Greyhound, and Amtrak buses would serve the Transbay Transit Center. A potential below-grade pedestrian route could connect the Transbay Transit Center to BART and the Market Street Muni subway lines. The Metropolitan Transportation Commission's Transbay Transit Center Improvement Plan details a new 1 million square foot bus and rail transit facility as well as new transit-oriented development surrounding the terminal. The terminal would include 30 bus bays on a single elevated bus level and 10 bus bays on a below grade mezzanine level plus an underground train station for future high-speed and conventional intercity and corridor rail service. Being in an urban hub, much of the HST station traffic would use transit services to access the station. Because the transit system in the region already would be operating at or above capacity during peak hours, this additional traffic would burden the transit lines further. Hence, the transit load factor or V/C would be greater than one.

With the addition of HST service to the Transbay Transit Center, the increase in parking demand would range from 2,000 to 3,000 spaces in the case of the Pacheco Pass alternatives and from 1,500 to 2,100 spaces in the case of the Altamont Pass alternatives. Because it is assumed that the private sector would respond to the demand at market rates and provide sufficient parking at or close to this location to accommodate the demand at this location, the V/C would be less than one. Basically, the assumption is that the HST riders have adequate parking if they pay \$25 per day, the current market rate for the area.

4th Street and King Street, San Francisco

In 2030 without an HST station, the cordon surrounding the area would operate at LOS A (V/C = 0.40). With the addition of HST traffic, in the case of the Pacheco Pass alternatives, the V/C be 0.69 (LOS B) and in the case of the Altamont Pass alternatives, the V/C would be 0.61 (LOS B).

4th and King is also a station on the Caltrain line. Passengers at the existing Caltrain station can transfer to various MUNI buses and the N-Judah or T-Line light rail. With these transit services in operation at this location, transit load factor or V/C would be less than one.

With the addition of an HST station, increase in parking demand would range from 2,000 to 3,000 spaces in the case of the Pacheco Pass alternatives and from 1,500 to 2,100 spaces in the case of the Altamont Pass alternatives. Because it is assumed that the private sector would respond to the demand at market rates and provide sufficient parking at or close to this location to accommodate the demand at this location, the V/C would be less than one. Basically, the assumption is that the HST riders have adequate parking if they pay \$25 per day, the current market rate for the area.

Millbrae Station, San Francisco Airport

By 2030 even without an HST station, most of the roadways surrounding the station location option would operate near capacity. The cordon surrounding the station would operate at LOS E (V/C = 0.91). With the addition of HST-related traffic, in the case of the Pacheco Pass or Altamont Pass alternatives, the V/C would be 0.96 (LOS E).

At this station location option, connections are available with BART, Caltrain, and SamTrans buses. Transit lines at this location operate at or below capacity, and therefore the transit load factor or V/C is less than one.

Parking is currently available in the parking structure and surface lots of the existing BART/Caltrain station. With the addition of an HST station, increase in parking demand would range from 2,400 to 2,500 spaces in the case of the Pacheco Pass alternatives and from 2,100 to 2,500 spaces in the case of the Altamont Pass alternatives. As part of this station location option, the parking area would be expanded by adding a new two-level parking garage on Sierra Avenue and Isabel Alley, although current extra capacity in the BART/Caltrain garage may make this addition unnecessary. There would be sufficient parking to accommodate the demand at this location and hence ensure that the parking V/C would be less than one.

Redwood City

By 2030 even without an HST station, most of the roadways surrounding this station location option would operate near capacity. The cordon surrounding the station area would operate at LOS B (V/C = 0.68). With the addition of HST-related traffic, in the case of the Pacheco Pass alternatives, the V/C would be 0.72 (LOS C), and in the case of the Altamont Pass alternatives, the V/C would be 0.71 (LOS C).

Connections available at this station include Caltrain and SamTrans. Transit lines would operate at or below capacity and hence the transit load factor or V/C is less than one.

With the addition of an HST station, increase in parking demand would range from 3,000 to 3,900 spaces in the case of the Pacheco Pass alternatives and from 2,300 to 3,000 spaces in the case of the Altamont Pass alternatives. If this HST rail station location option is selected, the existing surface parking area adjacent to the south side of the tracks off Brewster Avenue would be expanded to ensure sufficient number of spaces to meet the demand at this location. Therefore, the V/C would be less than one.

Palo Alto

By 2030 without an HST station, most of the roadways surrounding the station location option would operate below capacity. The cordon surrounding the HST station area would operate at LOS A ($V/C = 0.47$). Even with the addition of HST traffic, in the case of the Pacheco Pass alternatives, the V/C would be 0.50 (LOS A) and in the case of the Altamont Pass alternatives, the V/C would continue to be 0.49 (LOS A).

Intermodal connections available at this station include Caltrain, SamTrans, Dumbarton Express, SCVTA, Palo/Alto Crosstown/Embarcadero Shuttle, East Palo Alto Shuttle, and Stanford Marguerite Shuttle. These transit lines would operate at or below capacity, and hence the transit load factor or V/C is less than one.

With the addition of an HST station, increase in parking demand would range from 3,000 to 3,900 spaces in the case of the Pacheco Pass alternatives and from 2,300 to 3,000 spaces in the case of the Altamont Pass alternatives. The Caltrain station has surface parking lots on both sides of the railroad tracks. The HST station location option would include a 4-story parking facility on the western side of the tracks, in the southern portion of El Camino Park. This additional parking would be sufficient to accommodate the demand, and hence the V/C would be less than one.

Oakland to San Jose Corridor

This corridor includes the areas on the east side of San Francisco Bay along I-880 from the City of Oakland to the City of San Jose.

The intercity highway links in this corridor are the I-880 freeway links. With rising congestion, under the 2030 No Project Alternative, the I-880 freeway links in this segment would all operate at LOS F with volume to capacity ratio ranging from 1.12 to 1.58. The HST would alleviate some congestion on these freeway links by diverting some of the intercity automobile trips to the HST system. Although the freeway links would still operate at LOS F, for the Pacheco Pass alternatives, the V/C would range from 1.10 to 1.58 and for the Altamont Pass alternatives, the V/C would range from 1.10 to 1.57. In the case of the Altamont high alternative, the V/C s for the Interstate 880 links between I-80 and I-580 and between I-580 and Fremont/Newark would decrease by 3 and 2%, respectively.

Three HST stations are projected in this corridor: Oakland (West Oakland or 12th Street), Oakland Coliseum, and either Union City or Warm Springs.

The Oakland HST station location option would be adjacent to the BART station either at West Oakland or at 12th Street/City Center. Traffic, circulation, and parking conditions are slightly better at the West Oakland location than the 12th Street location because the latter is a busy urban commercial area. In the 12th Street station location option, a few roadway segments would operate at LOS F both with the No Project and with an HST station. The proposed HST system would provide parking at the Oakland City Center station sufficient to serve demand, and the V/C would be less than one. Even though the BART station at West Oakland has parking spaces, on weekdays these spaces would likely be used by the BART patrons. However, enough parking would be provided for HST users, and thus the V/C at this location would be less than one.

There is also a potential station location option at either Union City or Warm Springs. One or more streets in Warm Springs or Union City would operate at LOS E or LOS F. Sufficient parking would be provided to accommodate the demand at these stations.

West Oakland

In 2030 without an HST station, the cordon surrounding the station location option would operate at LOS A (V/C = 0.16). Even with the addition of the HST, under both the Pacheco Pass and Altamont Pass alternatives, V/Cs would be 0.32 (LOS A).

Passengers at the West Oakland station location option could connect to BART and AC Transit buses. Currently, AC Transit buses (Routes 13, 19, and 62) stop at the station site. BART is located adjacent to this site. Transit lines would operate at or below capacity, and hence the transit load factor or V/C is less than one.

The existing West Oakland BART station is surrounded by fee and permit surface parking lots. With the addition of an HST station in the area, parking demand would increase. The existing parking can only accommodate BART users and would not be adequate to serve the additional HST. However, enough parking would be provided for HST users, and thus the V/C at this location would be less than one.

Oakland 12th Street/City Center

In 2030 in the absence of an HST station, the cordon surrounding the station location option would operate at LOS A (V/C = 0.45). Even with the addition of the HST, under both the Pacheco Pass and Altamont Pass alternatives, V/Cs would be 0.53 (LOS A). Even though the cordon as a whole operates at acceptable LOS, the operations on southbound Franklin Avenue, south of 8th Street, would deteriorate from LOS C (V/C = 0.79) to LOS F (V/C = 1.06). Southbound Telegraph Avenue, south of Grand Avenue, would operate at LOS F both under the No Project Alternative and HST (V/C = 1.34 and 1.37, respectively). Similarly, northbound Webster Avenue, south of 8th Street, would operate at LOS F both under the No Project and HST (V/C = 1.18 and 1.45, respectively.)

Even with the addition of HST, the transit links are anticipated to operate at acceptable levels of service. Hence, the transit load factor or V/C is less than one.

The addition of an HST station in the area would increase parking demand as compared to the No Project Alternative. Development of this station location option includes four levels of underground parking. Assuming that these additional parking spaces would accommodate the increased demand, the V/C at this location would be less than one.

Oakland Coliseum/Oakland Airport

In 2030 in the absence of an HST station, the cordon surrounding the location would operate at LOS A (V/C = 0.45). Even with the addition of the HST, under both the Pacheco Pass and Altamont Pass alternatives, V/Cs would be 0.52 (LOS A).

Passengers at the Oakland Coliseum station can transfer to BART, Amtrak, AC Transit, and the AirBART shuttle to Oakland Airport. Even with the addition of HST, the transit links are anticipated to operate at acceptable levels of service. Hence, the transit load factor or V/C is less than one.

The addition of an HST station in the area would increase parking demand as compared to the No Project Alternative. In addition to the existing BART station parking along Snell Avenue, two new surface parking lots on either side of 73rd Avenue would be provided. Based on the assumption that these additional parking spaces would accommodate the increased demand, the V/C at this location would be less than one.

Union City

In 2030 in the absence of an HST station, the cordon surrounding the station location option would operate at LOS A (V/C = 0.55). With the addition of HST-related traffic, in the case of the Pacheco Pass alternatives, the V/C would be 0.67 (LOS B) and in the case of the Altamont Pass alternatives, the V/C would be 0.67 (LOS B). Even though the cordon as a whole operates at acceptable LOS, the

operations on southbound Decoto Road, south of Alvarado Niles Road, would worsen from LOS C (V/C = 0.79) to LOS E (V/C = 0.95).

Passengers at the Union City BART station would be able to connect to AC Transit, SamTrans, Union City Transit, Amtrak, and future Dumbarton service. Even with the addition of the HST, the transit links are anticipated to operate at acceptable levels of service. Hence, the transit load factor or V/C is less than one.

With the addition of an HST station, the increase in parking demand would range from 3,000 to 3,900³ spaces in the case of the Pacheco Pass alternatives and from 1,300 to 1,800 spaces in the case of the Altamont Pass alternatives. The HST station location option would include new parking spaces along the eastern side of the right-of-way in addition to the existing BART parking lot on the western side. Because of the provision of these additional parking spaces, the V/C at this station location option would be less than one.

Warm Springs

In 2030 in the absence of an HST station, the cordon surrounding the station location option would operate at LOS A (V/C = 0.46). Even with the addition of the HST, under both the Pacheco Pass and Altamont Pass alternatives, V/Cs would be 0.47 (LOS A). Even though the cordon as a whole operates at an acceptable LOS, the operations at southbound Warm Springs Boulevard, south of Grimmer Boulevard, would deteriorate from LOS C (V/C = 0.79) to LOS F (V/C = 1.10). Further, operations at southbound Fremont Boulevard, south of Grimmer Boulevard, would worsen from LOS B (V/C = 0.69) to LOS E (V/C = 0.91).

Plans for the new BART station at Warm Springs include access to SCVTA and Alameda–Contra Costa (AC) Transit buses. Buses would access the station via the surface parking lot from Grimmer Road. Adjacent to the parking lot for the HST station location option would be a bus transfer lot. Even with the addition of HST, the transit links are expected to operate at acceptable LOS. Hence, the transit load factor or V/C is less than one.

The new BART station is anticipated to provide approximately 2,040 parking spaces. A new HST station would include a surface parking lot that would be sufficient to meet the projected demand. The addition of an HST station in the area would increase parking demand by about 1,300 to 1,800 spaces in the Altamont Pass alternatives. BART environmental documents indicate that by 2025, BART parking would be fully utilized by BART patrons. However, since additional parking would be constructed so as to meet the HST parking demand, V/C would be less than one.

San Francisco Bay Crossings Corridor – Shinn Station

These crossing alignment alternatives include the San Francisco Bay crossings between the cities of San Francisco and Oakland near the San Francisco/Oakland Bay Bridge and between the cities of East Palo Alto and Newark south of the Dumbarton Bridge and into the City of Fremont. In the latter case, there is one proposed station at Shinn, Union City.

The intercity freeway link in this corridor is the Interstate 80 link that runs between San Francisco and I-880. Under the No Project alternative, this link operates at a V/C ratio of 1.18 (LOS F). All the other HST alternatives would operate at LOS F (V/C ranging from 1.17 to 1.18).

In 2030 in the absence of an HST station, the cordon surrounding the station location option would operate at LOS A (V/C = 0.46). Even with the addition of HST-related traffic, under both the

³ Demand for Warm Springs under Altamont is used to approximate the parking demand at Union City because no forecasts are currently available.

Pacheco as well as the Altamont Pass alternatives, the cordon surrounding the station area would operate at LOS A ($V/C = 0.49$).

Currently, the closest transit connection available near the station location option is 0.6 mile away and is provided by AC Transit bus route 216 along Peralta Boulevard (off Shinn Street). Connections with Amtrak Capitol Corridor and ACE would be established. Even with the addition of the HST, the transit links are anticipated to operate at acceptable levels of service. Hence, the transit load factor or V/C is less than one.

The addition of an HST station in the area would increase parking demand by about 1,300 to 1,800 spaces in the Altamont Pass alternatives. However, the Shinn station location option includes a surface parking lot at the intersection of Von Euw Com and Shinn Avenue. Based on the assumption that the additional parking spaces would accommodate the increased demand, V/C would be less than one.

San Jose to Central Valley Corridor

This corridor includes the areas from the City of San Jose south to the City of Gilroy and east across the Diablo Range to the Central Valley.

The intercity highway links in this corridor are the US 101 freeway and SR 152. Under the 2030 No Project Alternative, the US 101 freeway links between San Jose and Gilroy would operate at LOS B or F with V/C varying from 0.64 to 1.17. Under the same alternative, the SR 152 freeway links would operate at LOS A with V/C varying from 0.46 to 0.51.

With some automobile traffic diverted to the HST system, both links would operate at lower V/C s, as shown in Table 3.1-2. For the Pacheco Pass alternatives, the V/C for this corridor would range from 0.61 to 1.13 (LOS B to F) and for the Altamont Pass alternatives, the V/C for the corridor would range from 0.63 to 1.15 (LOS B to F). While the V/C s of the US 101 links from San Jose to Gilroy and Gilroy to SR 152 would decrease by 4% in the Pacheco Pass alternatives, the decrease would be about 2% under the Altamont Pass alternatives. V/C ratios of the SR 152 link between US 101 and I-5 decrease by 4% in the Pacheco Pass alternatives and increase by 0.6% in the Altamont Pass alternatives, as compared to the No Project alternative. The V/C ratios of the SR 152 link between I-5 and SR 99 decrease by 6% in the Pacheco Pass alternatives and by 5% in the Altamont Pass alternatives.

The station location options being considered in this segment are the existing San Jose Diridon Caltrain terminal and either the existing Morgan Hill or Gilroy Caltrain station. Traffic, transit, circulation, and parking conditions are similar for both Morgan Hill and Gilroy station options.

San Jose

In 2030 without an HST station, the cordon surrounding the station location option would operate at LOS A ($V/C = 0.48$). Even with the addition of HST-related traffic, the cordon surrounding the station area still would operate at LOS A (V/C ranging from 0.59 to 0.58 in the Pacheco and Altamont Pass alternatives, respectively). Even though the cordon as a whole operates at LOS A, a few roadways would operate at LOS E and F both under the No Project Alternative and with the HST system.

Diridon Station provides service for the Capitol Corridor and Coast Starlight Amtrak routes, ACE, Caltrain, and SCVTA light rail. Transit lines would continue to operate at acceptable levels, and therefore the transit load factor or V/C is less than one.

At the existing station, approximately 595 spaces are available for all day parking in surface lots adjacent to the station. With the addition of an HST station, increase in parking demand would range from 7,200 to 9,800 spaces in the case of the Pacheco Pass alternatives and from 6,500 to

8,800 spaces in the case of the Altamont Pass alternatives. However, this demand would be offset by the provision of additional parking, and hence the V/C would be less than one.

Morgan Hill

In 2030 without an HST station, the cordon surrounding the station location option would operate at LOS A (V/C = 0.59). With the addition of HST, in the case of the Pacheco Pass alternatives, the V/C would be 0.65 (LOS B).

Even though the cordon as a whole operates at acceptable LOS, westbound East Dunne Street would operate at LOS F both under the No Project Alternative and with the HST.

The Morgan Hill station location option is the existing Morgan Hill Caltrain station. The passengers at the Caltrain station can transfer to SCVTA buses. Transit lines would continue to operate at acceptable levels, and therefore the transit load factor or V/C is less than one.

At the Caltrain station, 486 parking spaces are currently available. With the addition of an HST station, increase in parking demand would range from 1,400 to 1,500 spaces in the case of the Pacheco Pass alternatives. This increased demand would be offset by additional parking that would be provided. Hence, V/C would be less than one.

Gilroy

In 2030 without an HST station, the cordon surrounding the potential station area would operate at LOS B (V/C = 0.67). With the addition of HST-related traffic, in the case of the Pacheco Pass alternatives, the V/C would be 0.74 (LOS C). Even though the cordon as a whole operates at acceptable LOS, segments of 10th Street would operate at LOS E or F both under the No Project Alternative and with the HST system.

The Gilroy station location option is the existing Gilroy Caltrain station. Passengers at the existing Caltrain station can transfer to SCVTA buses, the San Benito County Transit Shuttle, Monterey-Salinas Transit buses, and Amtrak motor coaches connecting to the Capitol Corridor trains in San Jose or Oakland. Transit lines would continue to operate at acceptable levels, and therefore the transit load factor or V/C is less than one.

At the Caltrain station, currently about 471 parking spaces are available. With the addition of an HST station, increase in parking demand would range from 2,800 to 3,800 spaces in the case of the Pacheco Pass alternatives. This increased demand would be offset by additional parking that would be provided. Hence, V/C would be less than one.

East Bay to Central Valley Corridor

This corridor includes the areas from the City of Fremont east through Niles Canyon and into the cities of Pleasanton, Dublin, and Livermore. East of the City of Livermore, the HST Alignment Alternatives in this corridor continue through the Altamont Pass and into the Central Valley through the cities of Tracy and Manteca.

The intercity highway links in this corridor are the I-580 and I-680 freeway links. Under the 2030 No Project Alternative, I-580 and I-680 freeway links would operate at LOS F with V/C varying from 1.22 to 1.34. With some automobile traffic diverted to the HST system, the links would operate at slightly lower V/Cs, as shown in Table 3.1-2, The V/C would range from 1.15 to 1.34 (LOS F) under the Pacheco Pass alternatives and from 1.15 to 1.35 (LOS F) under the Altamont Pass alternatives.

Under the Pacheco Pass alternatives, the V/Cs of the I-80 link between I-880 and I-5 decrease by 6 to 8% while those under the Altamont Pass alternatives decrease by 6 to 10%. The V/Cs of the freeway link, I-580 between I-880 to Livermore, would decrease by about 3% in the Pacheco and

Altamont Pass alternatives. While under the Pacheco Pass alternatives, the V/C of I-580 between Livermore and I-5 would decrease by 5%, the V/C under the Altamont Pass alternatives would decrease by 6%. Both sets of alternatives would cause a slight increase in traffic on I-680 between I-580 and US 101 due to traffic accessing East Bay HST stations.

This corridor includes a station location option in Dublin (BART station), Pleasanton (Bernal/I-680), or Livermore (Livermore or Greenville). Transit and parking conditions are similar for all station location options. However, arterial traffic conditions would be worse at the Livermore station location options. The cordon surrounding the Livermore I-580 station location option would operate at LOS F both under the No Project Alternative and with the HST.

The second HST station in this corridor would be at Tracy. The two station location options being considered are downtown Tracy and Tracy ACE close to Banta Road. Transit and parking conditions are similar for both locations. Traffic operations would be slightly worse under the downtown option because it is an urban area.

Bernal/I-680, Pleasanton

In 2030 without an HST station, the cordon surrounding the station location option would operate at LOS A (V/C = 0.53). With the addition of HST-related traffic, in the case of the Altamont Pass alternatives, the V/C would be 0.70 (LOS C).

Currently, the transit routes serving the station area are Tracer's Route A and Route D/E (commuter) along with Route 26, operated by SJRTD. Potential connections other than Tracer and SJRTD include ACE passenger rail service and proposed e-BART. Transit lines would continue to operate at acceptable levels, and hence the transit load factor or V/C is less than one.

With the addition of an HST station, increase in parking demand would range from 6,900 to 9,100 spaces in the case of the Altamont Pass alternatives. With the HST, these spaces would be provided in a parking garage located on the south side of the tracks, resulting in a V/C of less than one.

Dublin/Pleasanton

In 2030 in the absence of an HST station, the cordon surrounding the station location option would operate at LOS A (V/C = 0.44). Even with the addition of HST-related traffic, under the Altamont Pass alternatives, the cordon surrounding the station area would operate at LOS A (V/C = 0.46). Although the cordon as a whole operates at acceptable LOS, the operations on southbound Dougherty Road, north of I-580, and southbound Hacienda Drive, south of Dublin, would deteriorate from LOS D (V/C = 0.82) to LOS F (V/C = 1.08) and from LOS D (V/C = 0.89) to LOS F (V/C = 1.17), respectively.

Even with the addition of the HST, the transit links are anticipated to operate at acceptable levels of service. Hence, transit lines would continue to operate at acceptable levels, and the transit load factor or V/C is less than one.

The parking for BART would be consolidated on the north side of the station in a structure. With the addition of an HST station, increase in parking demand would range from 6,900 to 9,100 spaces in the case of the Altamont Pass alternatives. As part of the proposed project, additional spaces would be located on the south side of the HST station in a parking garage. The provision of these additional parking spaces would ensure that the V/C would be less than one.

Livermore I-580

In 2030 without an HST station, the cordon surrounding the station location option would operate at LOS F (V/C = 1.07). With the addition of HST-related traffic, the cordon surrounding the station area would operate at LOS F with a V/C of 1.38. Thus, the station cordon operates over capacity both under the No Project Alternative and with the HST system.

Even with the addition of the HST, the transit links are anticipated to operate at acceptable levels of service. Hence, transit lines would continue to operate at acceptable levels, and the transit load factor or V/C is less than one.

With the addition of an HST station, increase in parking demand would range from 6,900 to 9,100 spaces in the case of the Altamont Pass alternatives. As part of the proposed project, additional spaces would be provided in a parking garage. The provision of these additional parking spaces would ensure sufficient parking, and hence V/C would be less than one.

Downtown Livermore

In 2030 in the absence of an HST station, the cordon surrounding the station location option would operate at LOS D (V/C = 0.82). With the addition of HST-related traffic, the cordon surrounding the station area would operate at LOS F with V/C equal 1.10.

Even with the addition of HST, the transit links are anticipated to operate at acceptable levels of service. Hence, transit lines would continue to operate at acceptable levels, and the transit load factor or V/C is less than one.

With the addition of an HST station, increase in parking demand would range from 6,900 to 9,100 spaces in the case of the Altamont Pass alternatives. As part of the proposed project, additional spaces would be provided in a parking garage. The provision of these additional parking spaces would ensure sufficient parking, and hence V/C would be less than one.

Greenville I-580, Livermore

In 2030 without an HST station, the cordon surrounding the station location option would operate at LOS A (V/C = 0.50). With the addition of HST-related traffic, the cordon surrounding the station area would operate at LOS C with V/C just less than 0.80.

This HST station location option would be served by Tri-Valley buses. Connections with local and regional bus service would be available in the station parking area. Future transit services in the vicinity of the station location option could include BART with the proposed BART extension to Livermore. The City of Livermore General Plan advocates the extension of BART along the I-580 median to Greenville Road (Objective CIR-3.1, Action A3) (City of Livermore General Plan: 2003–2025, adopted February 9, 2004). BART has purchased land near the Greenville Road/I-580 interchange for a possible terminal yard and/or station. Hence, transit lines would continue to operate at acceptable levels, and the transit load factor or V/C is less than one.

With the addition of an HST station, increase in parking demand would range from 6,900 to 9,100 spaces in the case of the Altamont Pass alternatives. As part of the proposed project, additional spaces would be provided in a parking garage. The provision of these additional parking spaces would ensure sufficient parking, and hence V/C would be less than one.

Greenville UPRR, Livermore

In 2030 without an HST station, the cordon surrounding the station location option would operate at LOS A (V/C = 0.44). With the addition of HST-related traffic, the cordon surrounding the station area would operate at LOS C (V/C = 0.71). Even though the cordon as a whole operates at acceptable LOS, the operations on southbound Greenville Road would deteriorate from LOS C (V/C = 0.79) to LOS F (V/C = 1.11).

The station location option would be served by Tri-Valley buses. Connections with local and regional bus service would be available in the station parking area. Future transit services in the vicinity of this HST station location option could include BART with the proposed BART extension to Livermore. The City of Livermore General Plan advocates the extension of BART along the I-580 median to Greenville Road (Objective CIR-3.1, Action A3) (City of Livermore General Plan). BART has

purchased land near the Greenville Road/I-580 interchange for a possible terminal yard and/or station. Hence, transit lines would continue to operate at acceptable levels, and the transit load factor or V/C is less than one.

With the addition of an HST station, increase in parking demand would range from 6,900 to 9,100 spaces in the case of the Altamont Pass alternatives. As part of the proposed project, additional spaces would be provided in a parking garage. The provision of these additional parking spaces would ensure sufficient parking, and hence V/C would be less than one.

Tracy Downtown

In 2030 without an HST station, the cordon surrounding the station location option would operate at LOS B (V/C = 0.64). With the addition of HST-related traffic, the cordon surrounding the station area would operate at LOS C (V/C 0.74). Although the cordon as a whole would operate at acceptable LOS, traffic operations on McArthur Road would deteriorate from LOS C to LOS E and F (V/C 0.97 to 1.15).

Currently, the transit routes serving the station location option include Tracer's Route A and Route D/E (commuter) along with Route 26, operated by SJRTD. Potential connections other than Tracer and SJRTD include ACE passenger rail service and proposed e-BART. These transit lines would continue to operate at acceptable levels, and hence the transit load factor or V/C is less than one.

With the addition of an HST station, increase in parking demand would range from 1,200 to 1,700 spaces in the case of the Altamont Pass alternatives. As part of the proposed project, additional spaces would be provided in a parking garage on the south side of the tracks. The provision of these additional parking spaces would ensure sufficient parking, and hence V/C would be less than one.

Tracy ACE

In 2030 without an HST station, the cordon surrounding the area would operate at LOS A (V/C = 0.02). Even with the addition of HST-related traffic, the cordon surrounding the station area would operate at LOS A (V/C 0.26).

Currently, the closest transit connection available near the station location option is 2 miles away and is provided by local fixed-route bus service (Tracer). In the future, bus transfers to Tracer and intercity bus service operated by SJRTD would be available in addition to connections with ACE passenger rail service and proposed e-BART. These transit lines would continue to operate at acceptable levels, and hence the transit load factor or V/C is less than one.

With the addition of an HST station, increase in parking demand would range from 1,200 to 1,700 spaces in the case of the Altamont Pass alternatives. As part of the proposed project, additional spaces would be provided in a parking garage on the south side of the tracks. The provision of these additional parking spaces would ensure sufficient parking, and hence V/C would be less than one.

Central Valley Corridor

The Central Valley corridor includes the areas of the Central Valley from the City of Stockton south to the northern areas of Madera County.

The intercity highway links in this corridor are the I-5 and SR 99 freeway links. Under the 2030 No Project Alternative, the I-5 and SR 99 freeway links would operate at LOS D and F with V/C varying from 0.81 to 1.36. With some automobile traffic diverted to HST system, the freeway link SR 99 from Ripon to Merced would still operate at LOS F but that of I-5 from I-580 to SR 140 would operate at less congested levels (LOS B). For both the Pacheco and Altamont Pass alternatives, the V/C would range from 0.62 (LOS B) to 1.32 (LOS F). The V/C of the freeway link, I-5 from I-580 to SR 140,

would decrease by about 20%. However the percentage decrease for SR 99 from Ripon to Merced would be about 3%.

Two HST stations are being considered in this corridor—one at Modesto and another at Merced. The two locations being considered for the Modesto HST station are downtown Modesto or close to the East Briggsmore Road. Transit and parking conditions at the two station locations would be similar. Traffic conditions at downtown Modesto would be slightly worse because it is an urban location.

The second HST station in this corridor would be at Merced. The two locations being considered are downtown Merced and Castle AFB. Merced downtown station cordon would operate at LOS F under both alternatives, showing congested travel conditions. In comparison, the cordon for the AFB station location would be operating at LOS B. Transit and parking impacts are similar for the options.

Modesto Downtown

In 2030 without an HST station, the cordon surrounding the area would operate at LOS D (V/C = 0.90). With the addition of HST-related traffic, in both the Pacheco and Altamont Pass alternatives, the V/C would be 0.92 (LOS E).

Currently, the station location option is well served by transit lines. With convenient access to the Downtown Transportation Center, connections can be made to StaRT, CAT, Ceres Dial-A-Ride, and ROTA. These transit lines would continue to operate at acceptable levels, and hence the transit load factor or V/C is less than one.

With the addition of an HST station, increase in parking demand would range from 2,700 to 4,000 spaces in the case of the Pacheco Pass alternatives and from 2,800 to 4,100 spaces in the case of the Altamont Pass alternatives. As part of the proposed project additional parking spaces would be provided in a structure. The parking structure would be located between M and L Streets, adjacent to the north side of the tracks. This additional parking would be sufficient to accommodate the increased demand, and therefore V/C would be less than one.

Amtrak Briggsmore, Modesto

In 2030 without an HST station, the cordon surrounding the station location option would operate at LOS D (V/C = 0.88). With the addition of HST-related traffic, under both the Pacheco Pass and Altamont Pass alternatives, the cordon surrounding the station area would operate at LOS D (V/C 0.91).

Currently, the location option is well served by transit lines. MAX Route 25 connects the Amtrak station with the Downtown Transportation Center. These transit lines would continue to operate at acceptable levels, and hence the transit load factor or V/C is less than one.

With the addition of an HST station, increase in parking demand would range from 2,700 to 4,000 spaces in the case of the Pacheco Pass alternatives and from 2,800 to 4,100 spaces in the case of the Altamont Pass alternatives. As part of the proposed project, additional parking spaces would be provided in a structure. This additional parking would be sufficient to accommodate the increased demand, and hence V/C would be less than one.

Merced Downtown

By 2030 even without an HST station, most of the roadways surrounding the station area would be over-taxed and operate above capacity. The cordon surrounding the station location option would operate at LOS F (V/C = 1.15). With the addition of HST-related traffic, under both the Pacheco Pass and Altamont Pass alternatives, the cordon surrounding the station area would operate at LOS F (V/C = 1.16).

The station location option would be served by Merced County Transit buses. These would continue to operate at acceptable levels, and hence the transit load factor or V/C is less than one.

With the addition of an HST station, increase in parking demand would range from 1,000 to 1,300 spaces in the case of the Pacheco Pass alternatives and from 1,200 to 1,600 spaces in the case of the Altamont Pass alternatives. The proposed station would include additional parking spaces surrounding the station building and in a surface lot located on the north side of 15th Street between Canal and M Streets. This additional parking would be sufficient to accommodate the increased demand, and hence V/C would be less than one.

Castle AFB, Merced

By 2030, in the absence of the proposed project, the cordon surrounding the station location option would operate at LOS B (V/C = 0.63). With the addition of HST-related traffic, under both the Pacheco Pass and Altamont Pass alternatives, the cordon surrounding the station area would operate at LOS B (V/C 0.65).

The proposed station would be served by Merced Area Regional Transit System buses. These would continue to operate at acceptable levels, and hence the transit load factor or V/C is less than one.

With the addition of an HST station, increase in parking demand would range from 1,000 to 1,300 spaces in the case of the Pacheco Pass alternatives and from 1,200 to 1,600 spaces in the case of the Altamont Pass alternatives. The proposed station would include additional parking spaces to meet this demand in a surface lot. This additional parking would be sufficient to accommodate the increased demand, and hence V/C would be less than one.

3.1.4 Role of Design Practices in Avoiding and Minimizing Effects

Currently, regional planning agencies and the counties and cities in the regions have considerable flexibility to deal with identified traffic, transit, and parking impacts. The Authority would expect to participate in developing potential construction and operational mitigation measures in consultation with state, federal, regional, and local governments and affected transit agencies during project-level reviews.

Potential mitigation measures could be developed to improve access to the proposed stations. These improvements would be based on the forecast capacity deficiencies identified for the No Project Alternative and HST station options and possibly could employ some of the following approaches.

- Transportation System Management (TSM)/Signal Optimization (including retiming, rephrasing, and signal optimization); other measures may include turn prohibitions, use of one-way streets, and traffic diversion to alternate routes.
- Local spot widening of curves that allows for geometric improvements without significant right-of-way acquisition.
- Major intersection improvements (full lane widening), which require significant right-of-way.
- Acquisition to accommodate additional left-turn and/or through lanes.
- Consultation and coordination with public transit services to encourage the provision of adequate bus feeder routes to serve proposed station areas in order to mitigate potential transit impacts.
- Provision of additional parking facilities at HST stations with excess parking demand.

3.1.5 Mitigation Strategies and CEQA Significance Effects

Based on the analysis above, and considering the design practices described in Section 3.1.4, each of the HST Alignment Alternatives would have significant impacts related to traffic and transportation.

The CEQA significance criteria for traffic are explained in Section 3.1.1C, CEQA Significance Criteria. Around station location option areas, an increase in traffic and congestion is expected with the proposed HST. As explained in Section 3.1.3, Environmental Consequences, with the HST, cordon traffic operations at the following stations may constitute an impact: Transbay Transit Center, Millbrae, Livermore Downtown and I-580, Modesto Downtown, Briggsmore, and Merced Downtown. In these cases, traffic cordon conditions would deteriorate from LOS D to LOS E or F in four cases or from LOS E or F to a worse LOS E or F in three cases. Traffic effects of all other station location options would not constitute an impact. In some cases, however, even though the cordon itself would be operating at acceptable LOS, individual roadway segments would operate at congested conditions under the No Project Alternative and/or with the HST.

Except at the downtown San Francisco Transbay Transit Center station location option, transit services serving the proposed station areas would have enough capacity to meet the transit demand, and hence the impact attributable to additional HST traffic would be low. At the San Francisco station, transit lines would be operating above capacity during peak hours under the No Project Alternative. The additional HST traffic would deteriorate the conditions further. Hence, under both scenarios there would be impacts on transit. Mitigation strategies mentioned above (such as improving bus service near the location) could be applied to reduce this impact.

With the additional traffic accessing the stations with the HST system, it is anticipated that parking will be added at the stations that is sufficient to meet demand, and the impacts on parking at all stations would remain at V/C less than 1, except in downtown San Francisco, where private parking operators are expected to provide sufficient parking, albeit at \$25 per day. Thus, parking impacts would be less than significant at the HST stations.

No substantial interference with goods movement is anticipated, and connectivity with transit systems will be enhanced rather than suffer interference.

Program-level mitigation strategies would be further refined, and specific measures would be considered during project-level environmental reviews where impacts are found to be significant at the project level. Potential mitigation strategies to be considered during project-level environmental reviews would include the following, listed below by regional and local applications.

A. REGIONAL STRATEGIES:

- Coordination with regional transportation (highway and transit) planning (e.g., regional transportation plans, congestion management plans, freeway deficiency plans, etc.).
- Intelligent Transportation Systems Strategies (ITS).

B. LOCAL STRATEGIES:

- Provide additional parking.
- Consider offsite parking with shuttles.
- Share parking strategies.
- Implement parking permit plans for neighborhoods.
- Employ parking and curbside use restrictions.
- Develop and implement a construction phasing and traffic management plan.
- Widen roadways.
- Install new traffic signals.

- Improve capacity of local streets with upgrades in geometrics, such as providing standard roadway lane widths, traffic controls, bicycle lanes, shoulders, and sidewalks
- Install modifications at intersections, such as signalization and/or capacity improvements (widening for additional left-turn and/or through lanes)
- Coordinate and optimize signals (including retiming and rephrasing)
- Designate one-way street patterns near some station locations
- Implement turn prohibitions
- Use one-way streets and traffic diversion to alternate routes
- Work with public transportation providers to coordinate services and to increase service and/or add routes, as necessary, to serve the HST station areas.
- Minimize closure of any proximate freight or passenger rail line or highway facility during construction.

The above mitigation strategies would be refined and applied at the project level and are expected to substantially avoid or lessen impacts around station areas to a less-than-significant level in most circumstances. Planning multi-modal stations, coordinating with transit services, providing accessible locations and street improvements, and encouraging transit-oriented development in station areas would help to ease traffic constraints in station areas. At the project level, it is expected that for various HST station projects, impacts would be mitigated to a less-than-significant level, but it is possible that for some stations impacts would not be mitigated to the less-than-significant level. Sufficient information is not available at this programmatic level to conclude with certainty that the above mitigation strategies would reduce impacts around stations to a less-than-significant level in all circumstances. This document therefore concludes that traffic impacts around station areas may be significant, even with the application of mitigation strategies. Additional environmental assessment will allow a more precise evaluation in the second-tier, project-level environmental analyses. The co-lead agencies will work closely with local government agencies at the project level to implement mitigation strategies.

3.1.6 Subsequent Analysis

Subsequent multimodal access and circulation studies could be conducted at proposed station location options along proposed alignments as plans for alignments, stations, and operations are refined. Additional environmental analysis would be required in conjunction with these studies to ascertain the exact locations of potential project-generated traffic impacts and potential parking demand impacts and the potential effects on existing bus and rail transit ridership. Station area circulation studies would be expected as part of project-level environmental documentation.

