



INTERSTATE 280 TRANSPORTATION CONCEPT REPORT



View of I-280 looking north towards San Francisco

The Transportation Concept Report (TCR) is a Caltrans long-range planning document that informs the regional transportation planning process. The TCR provides information regarding route segments, including high priority projects for the highway through 2035, and existing and forecasted traffic data. Projects identified in the TCR will require environmental and engineering studies before final approval and are subject to change.

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Executive Summary

Interstate 280 (I-280) is a major south-north freeway connecting the city of San Jose in Santa Clara County and downtown San Francisco. The route traverses three counties: Santa Clara, San Mateo, and San Francisco. The corridor begins in the South Bay at the I-280/US 101/I-680 interchange and ends at Brannan Street in San Francisco, a distance of about 60 miles. The route intersects State Routes 87, 85, 17, 84, 92, I-380, and US 101 (in San Francisco), and Santa Clara expressways Oregon/Page Mill, Foothill, Lawrence, and San Tomas. I-280, US 101, and Caltrain run parallel for around 40 miles, comprising an approximately six to seven-mile wide multi-modal transportation corridor between San Francisco and the South Bay.



Figure ES 1: I-280 Corridor Overview

I-280 serves mainly regional travel. It is an officially designated State Scenic Highway for approximately 22 miles from the Santa Clara County line to the San Bruno city limits in San Mateo County. High Occupancy Vehicle (HOV) lanes extend through a section of the I-280 corridor in Santa Clara County. A northbound HOV lane exists between Leland Avenue in the City of San Jose and Magdalena Avenue in Los Altos and there is a southbound HOV lane between Magdalena Avenue and Meridian Avenue in San Jose.

I-280 is a highway alternative to US 101 for trips between the South Bay and San Francisco.

Corridor Concept

Table ES 1: Corridor Concept Summary

Segment by Post Mile	County	Description	Existing Facility (# of Lanes)	25-year Concept (# of Lanes)
A PM 0.00 to 10.74	SCL	I-280/US101/I-680 I/C* to SR 85	8-10F** (2 HOV)	8-10F (2 HOV/HOT)
B PM 10.74 to 20.62	SCL	SR 85 to SCL/SM County Line	6-8F (2 HOV)	6-8F (2 HOV)
C PM 20.62 to 10.82	SCL/SM	SCL/SM County Line to SR 92 I/C	8-10F	8-10F
D PM 10.82 to 21.02	SM	SR 92 I/C to I-380	8F	8F
E PM 21.02 to 27.43	SM	I-380 to SM/SF County Line	6-10F	6-10F
F PM 27.43 to R4.34	SM	SM/SF Co. Line to US 101 I/C	8F	8F
G PM R4.34 to T7.00	SF	US 101 I/C to SF (End of freeway)	4-8F	4-8F
H PM T7.00 to T7.54	SF	End of freeway to Brannan/King Street	4C***	4C

*I/C= Interchange
 ** F = Freeway
 ***C = Conventional Highway

Concept Rationale

Although future population, housing, and job growth along this corridor is projected, due to constraints in the corridor, the concept lane configuration of I-280 will remain unchanged from the existing condition. It is the Department's policy to manage the existing system to the extent feasible to accommodate future demand. This entails inclusion of High Occupancy Vehicle (HOV) facilities and Traffic Operation System (TOS) improvements. Future transit investments in the corridor, such as Caltrain electrification and other upgrades to increase service frequency and reliability, and the planned High Speed Rail (HSR) service connecting San Francisco via San Jose with the Central Valley and Southern California, may affect future traffic volumes on US 101 and I-280, especially for trips between San Francisco and San Jose.

Operational Strategies

The planned concept for I-280 will focus on operational strategies including TOS, ramp metering and HOV lanes. In lieu of constructing new freeways, alternatives to address congestion are being planned. It is the State's goal

to manage its existing system through various system management strategies, including Intelligent Transportation Systems (ITS). Examples of ITS include ramp metering, changeable message signs, and camera monitors. Figure 3 show existing and planned ITS components.

Individual strategies listed may or may not be applied to I-280 in its entirety.

- **Santa Clara County**
 - Complete and connect mainline High Occupancy Vehicle system within the corridor
 - Complete Ramp Metering network
- **San Mateo County**
 - Install Traffic Operations System (TOS) elements
 - Ramp Metering
- **San Francisco County**
 - Install Traffic Operations System (TOS) elements
 - Ramp Metering

Other Strategies

Transit, bicycle, and pedestrian strategies are aimed at integrating and enhancing networks along and across the I-280 Corridor.

Transit

Support operations and improvements/expansions of transit service and amenities. Work with transit operators on planning and implementation of projects to increase people throughput in the corridor such as HOV lanes and bypass lanes, park-n-ride facilities, bus signal priority, transit stops and shelters.

Bicycle

Incorporate bicycle facility design treatments (bike lanes or wider shoulders, ramp reconstruction to intersect at a 90-degree angle, bike lane striping to the left of right-turn-only lane, avoidance of dual right-turn lanes) into interchange reconfiguration/reconstruction projects.

Review and evaluate maintenance projects for the feasibility of incorporating striping and signage improvements to enhance bicycle access and safety at ramp intersections with local roads.

Pedestrian

Remove barriers to pedestrian circulation by squaring up ramp intersections to slow turning vehicles and shorten crossing distances, and by striping crosswalks at on and off-ramps along ramp termini to direct pedestrians and notify motorists of their presence as well as adding countdown signals.

Review and evaluate future interchange configuration/reconstruction projects with regard to the need to provide and connect sidewalks around ramp intersections, based on pedestrian demand. Analyze lane width of facility to consider addition of medians to provide a pedestrian refuge and calm traffic.

Work with local agencies on implementing planned and programmed pedestrian and bicycle network improvements. These may include on-street improvements or grade-separated facilities.

I. Corridor Planning Process

A Transportation Concept Report (TCR) defines the route concept or configuration for a State owned/operated facility with a 25-year planning horizon. This Caltrans long-range planning report informs the regional transportation planning process and provides information on a route's characteristics and its interregional role in the State Highway System (SHS). This TCR describes corridor characteristics such as the existing transportation network and land use, and plans for long-range corridor travel needs. It is not meant to be an encyclopedia of corridor information but, rather a statement by Caltrans on what the future facility should be to better manage projected travel demand.

TCRs are being developed for all 56 statutorily identified State Routes in District 4. This TCR provides a concept for I-280 which traverses San Francisco, San Mateo, and Santa Clara Counties.

While considering the transportation network of the corridor as a whole, including other modes, Caltrans recognizes that its authority generally lies within the State Highway System. This report's major emphasis is on State highway facilities.

Purpose and Need for a TCR

California's State Highway System needs long-range planning to guide the logical development of transportation systems as required by law and as necessitated by the public, stakeholders, and system users. The purpose of the TCR is to evaluate current and projected conditions along the route and communicate the vision for the development of each route during a 20 to 25 year planning horizon. The TCR is developed with the goals of increasing safety, improving mobility, providing excellent stewardship, and meeting community and environmental needs along the corridor through integrated management of the transportation network, including the highway, transit, pedestrian, bicycle, freight, operational improvements and travel demand management components of the corridor.

State's Interregional Responsibility

The SHS serves interregional, regional, and local travel demand. While this is not to preclude SHS access to specific destinations such as public facilities or major tourist attractions, development and modification of the SHS is conducted in the context of the mobility of regional and statewide to-and-through movement of people and goods.

California Senate Bill 45

California Senate Bill 45 (SB 45) establishes guidelines for the California Transportation Commission to administer the allocation of funds appropriated from the Public Transportation Account for capital transportation projects designed to improve transportation facilities.

Transportation Concept Report Consistency

A listing of Federal, State, and Regional transportation planning efforts and policies related to Transportation Concept Reports are included in Appendix B.

TCR preparation is guided by several levels of government policy and direction. Applicable Federal and State guidelines, such as *Moving Ahead for Progress in the 21st Century Act (MAP 21)*, *the California Transportation*

Plan (CTP) and the State's *Interregional Transportation Strategic Plan* are considered. The State Highway Operation and Protection Program (SHOPP), a program of maintenance, safety and rehabilitation improvements and the State Transportation Improvement Program (STIP), a multi-year capital improvement program of transportation projects are incorporated.

Concept Development

The concept takes into account factors that create interregional, regional, and local travel demand, including commuting, freight movement, recreational needs, and nearby land use.

The TCR is informed by:

- Current Caltrans statutes, policies, and directives
- Local, regional partnership input and corridor analyses
- California Transportation Plan, Interregional Transportation Improvement Program, Regional Transportation Plan, Interregional Transportation Strategic Plan and other approved transportation plans
- Information from Caltrans Traffic Operations plans developed for system-wide strategies
- Caltrans Freeway Agreements

II. Corridor Overview

Route Description

Interstate 280 (I-280) is a major south-north freeway connection between the city of San Jose in Santa Clara County and downtown San Francisco, traversing Santa Clara, San Mateo, and San Francisco Counties. The corridor begins in the South Bay at the I-280/US 101/I-680 interchange and ends at Brannan Street in San Francisco, a distance of about 60 miles. The route intersects State Routes 87, 85, 17, 84, 92, I-380, and US 101 (in San Francisco), and Santa Clara's expressways Oregon/Page Mill, Foothill, Lawrence and San Tomas. I-280, US 101, and Caltrain run parallel for around 40 miles, comprising an approximately six to seven-mile wide multi-modal transportation corridor between San Francisco and the South Bay.

Most of the facility was dedicated as the "Junipero Serra Freeway." I-280 traverses one of the region's most scenic landscapes with views of the Santa Cruz Mountains to the west and San Francisco Bay and the East Bay to the east. Signage unofficially designates the portion of the route between SR 85 and I-380 as the "World's Most Beautiful Freeway."

I-280 serves mainly regional travel. It is an officially designated State scenic highway for approximately 22 miles from the Santa Clara County line to the San Bruno city limits in San Mateo County.

HOV lanes extend through sections of the I-280 corridor in Santa Clara County. A northbound HOV lane exists between Leland Avenue in the City of San Jose and Magdalena Avenue in Los Altos and there is a southbound HOV lane between Magdalena Avenue and Meridian Avenue in San Jose. Expansion of the network is proposed to extend to the I-280/US 101 Interchange.

I-280 is a highway alternative to US 101 for trips between the South Bay and San Francisco.

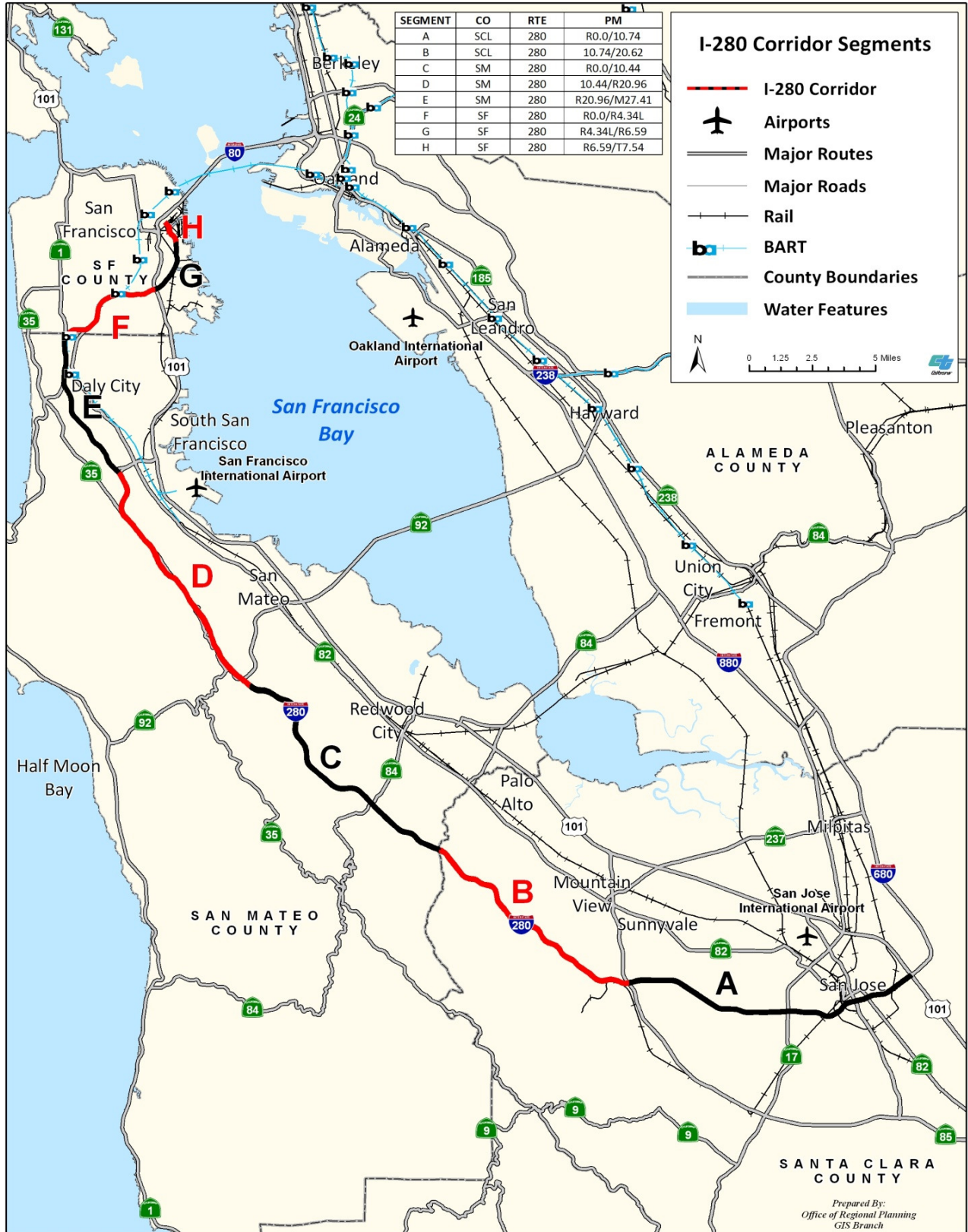
Route Segmentation

To perform an analysis of a transportation corridor, most corridors are divided into smaller segments based on criteria such as changes in terrain, changes in facility type or function, or county and district boundaries. This provides a more detailed level of planning and analysis of the corridor by examining its component parts. Segmentation should produce a consistent referencing system and information for decision-making. The following are some of the criteria used as a basis for dividing a route into route segments:

- District boundaries
- County boundaries
- Urban/Rural boundaries
- Major changes in traffic volumes
- Changes in the number of lanes
- Significant changes in grade/terrain
- Changes in route function including recreational, trucking, commuting, etc.
- Freeway Agreements

For the purpose of this report, I-280 was divided into eight segments, labeled A through H, as illustrated on the following I-280 Corridor Segment map. A detailed description and analysis of the individual segments is included in the Appendices section.

Figure 1: I-280 Corridor Segments Map



The I-280 Corridor segment limits A thru H are described as follows:

Table 1: Corridor Segment Limits

Segment	County	Description
A PM 0.00 to 10.74	SCL	I-280/US101/I-680 I/C* to SR 85
B PM 10.74 to 20.62	SCL	SR 85 to SCL/SM county line
C PM 20.62 to 10.82	SCL/SM	SCL/SM county line to SR 92 I/C*
D PM 10.82 to 21.02	SM	SR 92 I/C* to I-380
E PM 21.02 to 27.43	SM	I-380 to SM/SF county line
F PM 27.43 to R4.34	SM	SM/SF co. line to US 101 I/C*
G PM R4.34 to T7.00	SF	US 101 I/C* to SF @ End of Freeway
H PM T7.00 to T7.54	SF	End of Freeway to Brannan/King Street

*I/C= Interchange

Route Designations

Table 2: Route Designations

Freeway and Expressway system (F&E)	Entire Route
Functional Classification	Interstate
Trucking Designations	STAA (Surface Transportation Assistance Act) Route
Trucking Facilities	None (2004 Regional Goods Movement Study, MTC)
National Highway System (NHS)	Yes
Scenic Highway	22 miles officially designated from Santa Clara/San Mateo county line to the city of San Bruno limit. A portion of I-280 in Santa Clara county is eligible for scenic designation.
Lifeline Corridor	from US 101 in San Jose to US 101 in San Francisco
Traffic Operations System (TOS) Facilities	None
Interregional Road System (IRRS)	Non-IRRS Route
Metropolitan Planning Organization (MPO/Regional Transportation Planning Agency (RTPA)/Congestion Management Agency(CMA)	MPO/RTPA: Metropolitan Transportation Commission (MTC) CMA: San Francisco County Transportation Authority, City/County Association of Governments of San Mateo, and Santa Clara Valley Transportation Authority

Geometrics and Terrain

Specific geometrics and terrain information for the I-280 Corridor (also see Segments Maps, Appendix A):

Table 3: Geometrics and Terrain

Post Mile	Facility	Description
<i>Santa Clara County</i>		
PM 0 – 4.64	8-lane freeway	Flat terrain (urbanized setting)
PM 4.64 – 4.96	9-lane 2HOV freeway	Flat terrain (urbanized setting)
PM 4.96 – 11.70	7-lane 2HOV freeway	Flat terrain (urbanized setting)
PM 11.70 – 13.77	6-lane 2HOV freeway	Rolling terrain (rural/urbanized setting)
PM 13.77 – 20.00	7-8 lane freeway	Rolling terrain (rural/urbanized setting)
<i>San Mateo County</i>		
PM 0 – 10.40	8-10 lane freeway	Rolling terrain (rural/urbanized setting)
PM 10.40 – 17.90	8-lane freeway	Rolling terrain (urbanized setting)
PM 17.90 – 21.07	7-lane freeway	Rolling terrain (urbanized setting)
PM 21.07 – 21.31	8-lane freeway	Rolling terrain (urbanized setting)
PM 21.31 – 25.64	8-lane freeway	Rolling terrain (urbanized setting)
PM 25.64 – 25.94	9-lane freeway	Rolling terrain (urbanized setting)
PM 25.94 – 26.90	12-lane freeway	Rolling terrain (urbanized setting)
PM 26.90 – 27.38	6-lane freeway	Rolling terrain (urbanized setting)
<i>San Francisco County</i>		
PM 0 – 4.05	6-9 lane freeway	Rolling terrain (urbanized setting)
PM 4.05 – 7.20	4-6 lane freeway	Rolling terrain (urbanized setting)
PM 7.20 – 7.54	4-lane conventional	Flat terrain (urbanized setting)

Demographics

The appeal of an attractive living environment coupled with higher than average employment opportunities in the technology and aerospace fields fueled the observed economic growth of the mid seventies to early eighties. More recently, despite some job losses and reports of population movement to neighboring states, the region's population continues to grow. Natural births, a growing retirement population, and immigration are all factors which contribute to the region's continued population increase.

The following table includes demographic data for the counties traversed by I-280 (Santa Clara, San Mateo and San Francisco). The data collected from ABAG Projections 2009 show existing and projected (30-year planning horizon) growth shows that San Francisco County is projected to increase its population by 22 percent, San Mateo County by 23 percent and Santa Clara County by 38 percent. San Francisco and Santa Clara counties are projected to see employment grow by over 40 percent.¹

¹ New ABAG projections used in the May 2012 Regional Transportation Plan (RTP)/Sustainable Communities (SCS) Preferred Alternative uses higher household and employment figures for San Francisco and San Jose.

Table 4: Bay Area Population, Households, and Jobs Forecasts

COUNTY	POPULATION		% CHANGE	# HOUSEHOLDS		% CHANGE	# JOBS		% CHANGE
	2005	2035		2005	2035		2005	2035	
Alameda	1,505,300	1,966,300	31	543,790	707,960	30	730,270	1,039,680	42
Contra Costa	1,023,400	1,322,900	29	368,310	480,480	30	379,030	555,650	47
Marin	252,600	274,300	9	103,180	112,170	9	135,370	158,280	17
Napa	133,700	148,800	11	49,270	54,640	11	70,690	91,480	29
San Francisco	795,800	969,000	22	338,920	415,000	22	553,090	806,830	46
San Mateo	721,900	893,000	24	260,070	322,620	24	337,350	505,860	50
Santa Clara	1,763,000	2,431,400	38	595,700	827,330	39	872,860	1,412,620	62
Solano	421,600	506,500	20	142,040	171,290	21	150,520	211,880	41
Sonoma	478,800	561,500	17	181,800	211,290	16	220,460	325,110	47
Total	7,096,500	9,073,700	28	2,583,080	3,302,780	28	3,449,740	5,107,390	48

Source: ABAG

Land Use

Land use along I-280 varies between residential, commercial, industrial, and open space. In Santa Clara County, the freeway serves residential and commercial uses and high-tech industries. In San Mateo County residential, open space, and wetlands surround most of the corridor. In San Francisco County, residential and commercial as well as emerging production and industrial uses are found along the corridor as well as access to downtown and emerging employment centers in the South of Market and Mission Bay areas.

Sustainable Communities and Climate Protection Act Senate Bill (SB) 375 requires each region to meet State-established greenhouse gas (GHG) emission targets for automobiles and light trucks for 2020 and 2035. As part of this Senate Bill, the Sustainable Communities Strategy (SCS) enhances California's ability to reach its California Assembly Bill 32 (Global Warming Solutions Act) goals by promoting good planning with more sustainable communities. Metropolitan Planning Organizations (MPOs) must accurately account for the environmental benefits of more compact development and reduced vehicle miles traveled. If regions develop integrated land use, housing, and transportation plans that meet the SB 375 targets, new projects in these regions can be relieved of certain review requirements of the California Environmental Quality Act (CEQA).

Trip Information

Commuting

I-280 serves an alternative to US 101. Almost all of I-280 serves as a commute corridor between San Jose/Silicon Valley and San Francisco. The northernmost extension of I-280 is a spur directly into San Francisco and provides access to downtown and emerging employment centers in the South of Market and Mission Bay areas.

Services and Goods Movement

With I-280 neither traversing areas of significant freight movement or handling, nor connecting with major maritime, rail or intermodal based freight facilities, there is limited goods movement demand beyond basic service and delivery needs throughout the corridor. Also, the lack of a direct connection between I-280 and the Bay Bridge discourages many trucks from using I-280. Industrial uses along the eastern waterfront in San Francisco rely on the route for freight movement and additional truck traffic is expected with implementation of the Bayview Transportation Improvements Project, which will connect industrial operations in the Northern Gateway and South Basin, to local highways. Further south, US 101, given its access to denser and more varied land uses including freight facilities, Silicon Valley based manufacturing, and both San Francisco and San Jose International Airports, is the preferred corridor for the intermodal movement of freight.

Recreational

I-280 serves local, regional, and interregional recreational travel demand. I-280 accesses local parks, including the San Francisco State Fish and Game Refuge and the Crystal Springs Reservoir in San Mateo County, numerous open space preserves in the Santa Cruz Mountains, as well as destinations to the north in San Francisco.

Transit and Rail Service

Caltrain provides intercity rail along the Peninsula between San Jose and San Francisco. While the regular service takes 90 minutes between the two downtowns, Caltrain also provides a 60 minute “baby-bullet” service with limited stops.

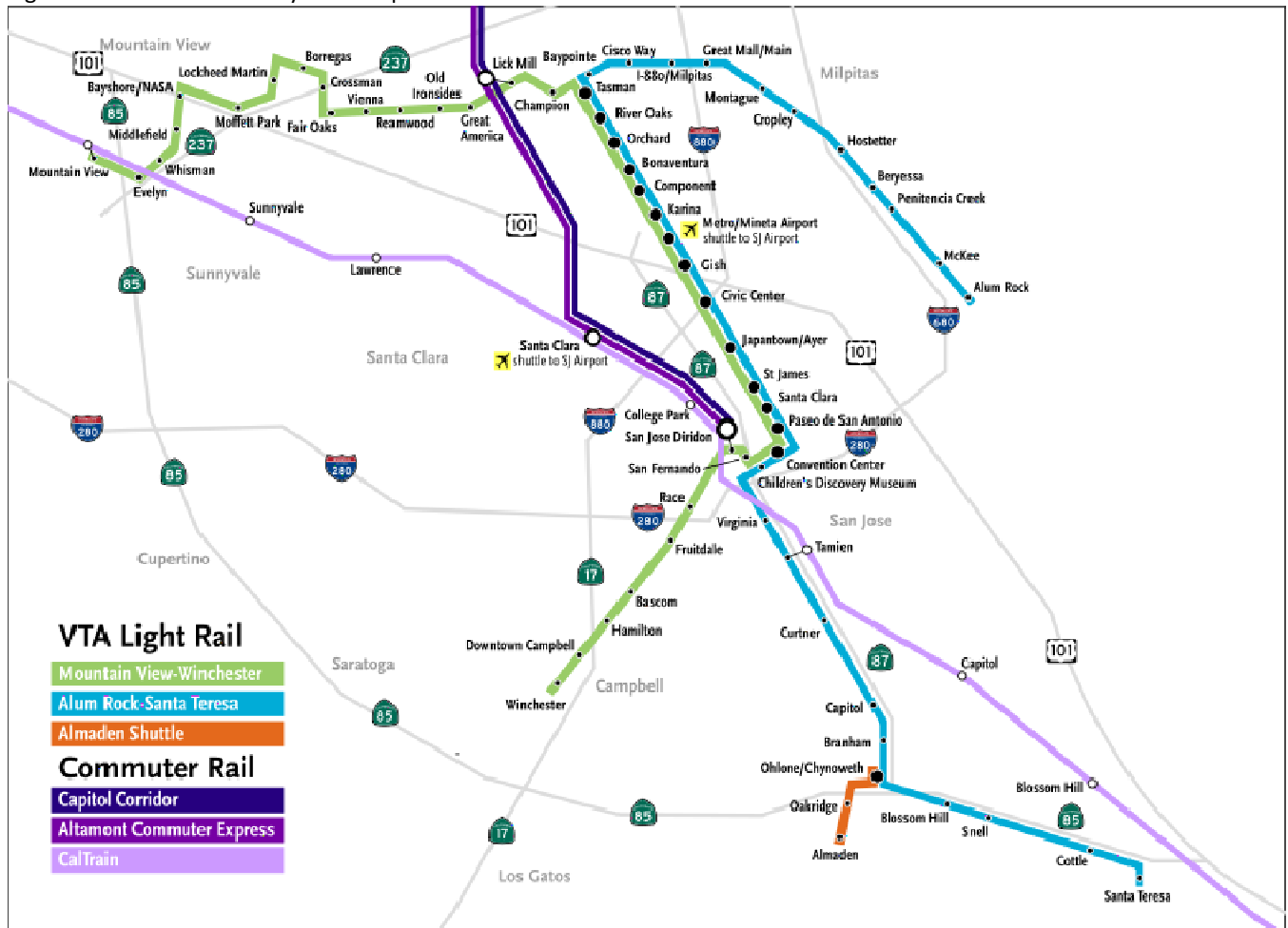
Current High-Speed Rail (HSR) plans call for electrification of rail service between San Jose and San Francisco, including modifications to rail bridges and grade-separated crossings to allow for higher speeds. Both HSR and Caltrain would be making use of the improved facilities, which will reduce train travel times in the corridor significantly.

The Santa Clara Valley Transportation Authority (VTA) has received federal funding to extend the Bay Area Rapid Transit (BART) from the Warm Springs BART Station to Berryessa Station in Santa Clara County. The BART extension through downtown San Jose to Diridon Station is planned as the second phase. Funding has not been fully secured for this phase. VTA is the lead agency working in cooperation with BART.

At the northern end of I-280, BART currently provides service between Millbrae/SFO and downtown San Francisco. Here BART travels most of its length near I-280.

In Santa Clara County the VTA operates a 42.2-mile light rail system. A portion of this light rail system intersects I-280 at SR 87 (Guadalupe Line) in downtown and the Vasona Segment parallels the beginning of I-280 in San Jose. VTA also operates bus line Rapid 522 paralleling I-280 from Palo Alto to the end of I-280.

Figure 2: Santa Clara VTA System Map



Source: Wikipedia

In San Mateo County, there are transit routes that service the Colma and Daly City BART stations. These transit routes either utilize the I-280 facility or operate parallel to it. Along I-280 in San Francisco, SamTrans services the Balboa Park BART station and has express bus service into downtown San Francisco. In San Francisco, I-280 is paralleled by various San Francisco Muni light rail lines, while Muni also operates express bus services into downtown.

Increasingly private companies such as Genentech, Apple, Google, Facebook, Yahoo and others provide shuttle services for their employees from various pick-up locations in San Francisco to employment campuses in the Silicon Valley via US 101 and I-280. San Francisco Muni service provides the 14X-MissionExpress, which enters I-280 traveling northbound at Alemany Blvd and continuous on I-280 to 6th Street.

Bicycle Facilities

Bicyclists are permitted on a section of I-280 in Segment D between Trousdale Drive and Hillcrest Boulevard (the local road alternative route on the east side of the freeway consists of a long detour with steep down- and uphill grades) and from Larkspur Drive to Route 35 (the parallel trail on the west side of the freeway is open from sunrise to sunset only). Bicycles are prohibited from using the remainder of the freeway.

Santa Clara County has established a system of "cross-county" bicycle corridors. One of these is the "I-280 Corridor to San Jose Airport", which parallels I-280 through the cities of San Jose, Santa Clara, Sunnyvale, and Palo Alto, and extends into San Mateo County (Menlo Park).

In San Mateo County, city streets to the east of the freeway and the more scenic route on the west side along Canada Road and the Crystal Springs Regional Trail provide travel options for bicyclists in the I-280 corridor roughly paralleling the freeway. A grade separated bicycle/pedestrian overcrossing exists at the I-280/SR92 interchange.

Several on-street bike routes (Class III) parallel I-280 in San Francisco. While San Francisco has a dense network of local roads paralleling the freeway, ramp intersections with city streets present challenges to bike connectivity.

Pedestrian Facilities

Many ramp intersections with local roads throughout the I-280 corridor present challenges for pedestrian movement. They create barriers to walking where housing, employment, and shopping destinations are located on both sides of the freeway (conflicts at free-flow on- and off-ramps, high motor vehicle speeds, absence of sidewalks and crosswalks). In order to connect destinations and neighborhoods and destinations in the corridor, pedestrian overcrossings exist, mostly in urban areas, at the following locations:

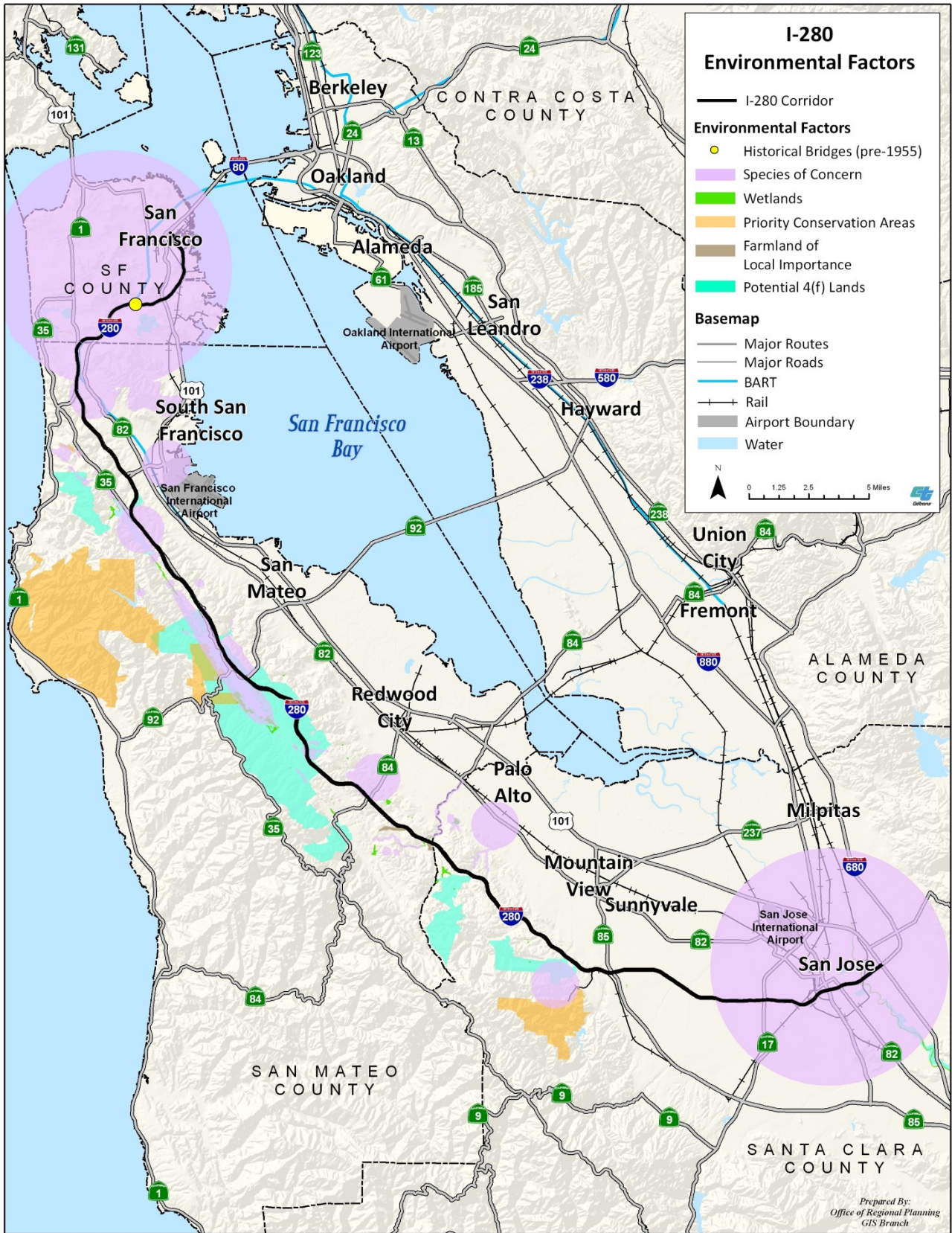
Table 5: Existing Pedestrian Overcrossings along I-280

Santa Clara County - City	Segment	Overcrossing Location
San Jose	A	Constance Dr. and Moorpark Ave Near San Tomas Expy
San Jose	A	Winchester Blvd. at Tisch Way
San Jose	A	Parkmoor Ave and Moorpark Ave Near I-880 I/C
Sunnyvale	A	Don Burnett Bicycle/Ped Bridge near I-280/SR 85 I/C
San Mateo County - City	Segment	Overcrossing Location
Unincorporated	D	I-280/SR 92 Interchange
San Francisco City and County	Segment	Overcrossing Location
n/o Monterey Blvd ramp	F	Stoneyford Ave and Gladstone Drive
s/o Monterey Blvd ramp	F	Theresa Street and Cotter Street
Near Geneva Ave s/b off-ramp	F	Havelock Street

Environmental Constraints

The following I-280 Corridor Environmental Constraints Map illustrates known environmental constraints identified within the corridor. These may include the presence of hazardous material or facilities, habitats of threatened or potentially threatened species, wetlands, historic bridges or other structures.

Figure 3: Environmental Constraints Map



III. Corridor Performance

Existing Conditions

I-280 has an Average Annual Daily Traffic (AADT) ranging from 29,000 to 116,300 vehicles per hour (VPH) (northbound and southbound), with truck volumes ranging from 0.9 to 3.3 percent. Volume/capacity ratio (V/C) is shown in Table 6 with the severely congested segments (V/C greater than 1) highlighted in red. Traffic volumes are highest in the Segment A of the corridor (Santa Clara County). Level of service (LOS) data show extended portions in the Santa Clara County with LOS F during peak hours, as well sections in San Mateo and San Francisco Counties. In addition, the SB direction approaching the beginning of HOV lane in San Jose is congested as well.

Table 6: I-280 Existing Traffic

2011											
Segment	Directional										Truck %
	NB AM pk hr	SB AM pk hr	NB PM pk hr	SB PM pk hr	NB AM pk hr V/C	SB AM pk hr V/C	NB PM pk hr V/C	SB PM pk hr V/C	NB AADT	SB AADT	
A	8,117	7,023	8,445	8,721	0.97	0.84	1.01	1.04	116,018	108,446	3.1%
B	6,636	6,274	6,002	7,018	0.70	0.66	0.64	0.74	72,976	67,888	3.3%
C	4,757	7,499	7,228	5,048	0.57	0.89	0.86	0.60	59,846	57,386	2.3%
D	5,371	7,330	7,291	4,954	0.64	0.87	0.87	0.59	61,594	58,547	1.7%
E	5,976	7,560	7,669	6,834	0.71	0.90	0.91	0.81	91,405	93,120	0.9%
F	7,466	4,638	4,979	7,586	0.89	0.55	0.59	0.90	85,954	89,144	1.7%
G	7,352	3,040	4,678	5,535	1.17	0.48	0.74	0.88	62,921	53,490	2.5%
H	3,260	1,600	2,200	2,886	0.78	0.38	0.52	0.69	31,375	29,120	2.1%

Source: Caltrans, District 4

VTA 2011 Monitoring Report

As the responsible Congestion Management Agency (CMA) for Santa Clara County, the SCVTA undertakes the analysis of all Congestion Management Program (CMP) roadways on an annual basis. Each year, VTA produces a Monitoring and Conformance Report that documents the CMP conformance findings². I-280 has 44 total freeway miles in Santa Clara County. In 2011, 52% of these freeway miles operated at LOS³ F at some point during the day as highlighted in red in Tables 7 and 8. The tables show AM and PM peak period LOS for the I-280 segments in Santa Clara County.

² Aerial photography is used to collect traffic data to document congestion on all of Santa Clara County’s freeway system, including I-280. The photographs are analyzed to determine the peak period vehicle density that is used to determine Level of Service.

³ Level of service (LOS) is a measure to determine the effectiveness of highways by categorizing traffic flow with corresponding driving conditions. The Highway Capacity Manual and AASHTO Geometric Design of Highways and Streets ("Green Book") list the following levels of service: A=Free flow; B=Reasonably free flow; C=Stable flow; D=Approaching unstable flow; E=Unstable flow; F=Forced or breakdown flow.

Table 7: Santa Clara County I-280 AM LOS (2011)

I-280 Freeway LOS - AM Peak Period in Santa Clara County (2011)									
Dir	From/To	From/To	Miles	Number of Lanes			Peak Time	LOS	
				Total	Mixed	HOV		Mixed	HOV
EB	Alpine Rd	Page Mill Rd	2.25	4	4	-	08:00-08:20	C	-
EB	Page Mill Rd	La BARRANCA Rd	1.73	4	4	-	09:00-09:20	C	-
EB	La BARRANCA Rd	El Monte Rd	1.6	4	4	-	09:20-09:40	C	-
EB	El Monte Rd	Magdalena Ave	0.95	4	4	-	08:00-08:20	D	-
EB	Magdalena Ave	Foothill Expwy	2.65	4	3	1	08:00-08:20	D	B
EB	Foothill Expwy	SR 85	0.7	4	3	1	08:40-0900	C	B
EB	SR 85	De Anza Blvd	1.31	4	3	1	08:40-0900	C	A
EB	De Anza Blvd	Wolfe Rd	1.06	4	3	1	08:00-08:20	D	B
EB	Wolfe Rd	Lawrence Expwy	1.24	4	3	1	08:00-08:20	C	B
EB	Lawrence Expwy	Saratoga Ave	1.19	4	3	1	08:00-08:20	D	A
EB	Saratoga Ave	Winchester Blvd	1.37	4	3	1	08:00-08:20	D	A
EB	Winchester Blvd	I-880	0.55	4	3	1	08:00-08:20	C	B
EB	I-880	Meridian Ave	1.4	5	4	1	08:00-08:20	C	B
EB	Meridian Ave	Bird Ave	1.07	4	4	-	08:00-08:20	D	-
EB	Bird Ave	SR 87	0.35	4	4	-	09:00-09:20	C	-
EB	SR 87	10th Street	1.2	4	4	-	07:20-07:40	C	-
EB	10th Street	McLaughlin Ave	0.92	4	4	-	09:00-09:20	C	-
EB	McLaughlin Ave	US 101	0.37	4	4	-	07:20-07:40	B	-
WB	US 101	McLaughlin Ave	0.37	4	4	-	07:20-07:40	F	-
WB	McLaughlin Ave	10th Street	0.92	4	4	-	08:00-08:20	F	-
WB	10th Street	SR 87	1.2	4	4	-	07:20-07:40	F	-
WB	SR 87	Bird Ave	0.35	4	4	-	07:20-07:40	F	-
WB	Bird Ave	Meridian Ave	1.07	4	4	-	07:20-07:40	F	-
WB	Meridian Ave	I-880	1.4	5	4	1	07:00-07:20	F	D
WB	I-880	Winchester Blvd	0.55	4	3	1	08:00-08:20	F	E
WB	Winchester Blvd	Saratoga Ave	1.37	4	3	1	08:00-08:20	F	D
WB	Saratoga Ave	Lawrence Expwy	1.19	4	3	1	08:00-08:20	F	E
WB	Lawrence Expwy	Wolfe Rd	1.24	4	3	1	08:00-08:20	F	E
WB	Wolfe Rd	De Anza Blvd	1.06	4	3	1	09:20-09:40	E	E
WB	De Anza Blvd	SR 85	1.31	4	3	1	08:40-0900	E	D
WB	SR 85	Foothill Expwy	0.7	4	3	1	08:40-0900	F	D
WB	Foothill Expwy	Magdalena Ave	2.65	4	3	1	08:00-08:20	D	D
WB	Magdalena Ave	El Monte Rd	0.95	4	4	-	09:20-09:40	D	-
WB	El Monte Rd	La BARRANCA Rd	1.6	4	4	-	08:00-08:20	D	-
WB	La BARRANCA Rd	Page Mill Rd	1.73	4	4	-	07:20-07:40	D	-
WB	Page Mill Rd	Alpine Rd	2.25	4	4	-	08:00-08:20	C	-

Source: VTA, 2011 CMP Monitoring and Conformance Report

Table 8: Santa Clara County I-280 PM LOS (2011)

I-280 Freeway LOS - PM Peak Period in Santa Clara County (2011)									
Dir	From/To	From/To	Miles	Number of Lanes			Peak Time	LOS	
				Total	Mixed	HOV		Mixed	HOV
EB	Alpine Rd	Page Mill Rd	2.25	4	4	-	16:40-17:00	C	-
EB	Page Mill Rd	La Barranta Rd	1.73	4	4	-	18:00-18:20	E	-
EB	La Barranta Rd	El Monte Rd	1.6	4	4	-	17:20-17:40	F	-
EB	El Monte Rd	Magdalena Ave	0.95	4	4	-	18:00-18:20	F	-
EB	Magdalena Ave	Foothill Expwy	2.65	4	3	1	17:00-17:20	E	B
EB	Foothill Expwy	SR 85	0.7	4	3	1	17:00-17:20	F	B
EB	SR 85	De Anza Blvd	1.31	4	3	1	17:00-17:20	F	B
EB	De Anza Blvd	Wolfe Rd	1.06	4	3	1	16:40-17:00	F	D
EB	Wolfe Rd	Lawrence Expwy	1.24	4	3	1	17:00-17:20	F	D
EB	Lawrence Expwy	Saratoga Ave	1.19	4	3	1	16:40-17:00	F	D
EB	Saratoga Ave	Winchester Blvd	1.37	4	3	1	16:20-16:40	E	D
EB	Winchester Blvd	I-880	0.55	4	3	1	18:00-18:20	F	F
EB	I-880	Meridian Ave	1.4	5	4	1	18:00-18:20	F	F
EB	Meridian Ave	Bird Ave	1.07	4	4	-	17:00-17:20	F	-
EB	Bird Ave	SR 87	0.35	4	4	-	17:00-17:20	F	-
EB	SR 87	10th Street	1.2	4	4	-	16:40-17:00	F	-
EB	10th Street	McLaughlin Ave	0.92	4	4	-	16:40-17:00	E	-
EB	McLaughlin Ave	US 101	0.37	4	4	-	16:20-16:40	D	-
WB	US 101	McLaughlin Ave	0.37	4	4	-	16:40-17:00	C	-
WB	McLaughlin Ave	10th Street	0.92	4	4	-	16:40-17:00	D	-
WB	10th Street	SR 87	1.2	4	4	-	17:20-17:40	D	-
WB	SR 87	Bird Ave	0.35	4	4	-	17:20-17:40	F	-
WB	Bird Ave	Meridian Ave	1.07	4	4	-	17:20-17:40	D	-
WB	Meridian Ave	I-880	1.4	5	4	1	17:20-17:40	C	A
WB	I-880	Winchester Blvd	0.55	4	3	1	17:20-17:40	D	B
WB	Winchester Blvd	Saratoga Ave	1.37	4	3	1	17:20-17:40	D	A
WB	Saratoga Ave	Lawrence Expwy	1.19	4	3	1	18:20-18:40	D	A
WB	Lawrence Expwy	Wolfe Rd	1.24	4	3	1	18:00-18:20	D	A
WB	Wolfe Rd	De Anza Blvd	1.06	4	3	1	17:00-17:20	D	A
WB	De Anza Blvd	SR 85	1.31	4	3	1	17:00-17:20	D	A
WB	SR 85	Foothill Expwy	0.7	4	3	1	17:20-17:40	C	A
WB	Foothill Expwy	Magdalena Ave	2.65	4	3	1	17:00-17:20	C	A
WB	Magdalena Ave	El Monte Rd	0.95	4	4	-	17:20-17:40	C	-
WB	El Monte Rd	La Barranta Rd	1.6	4	4	-	17:20-17:40	C	-
WB	La Barranta Rd	Page Mill Rd	1.73	4	4	-	17:20-17:40	C	-
WB	Page Mill Rd	Alpine Rd	2.25	4	4	-	17:00-17:20	D	-

Source: VTA, 2011 CMP Monitoring and Conformance Report

San Mateo County 2011 Congestion Management Plan

The C/CAG, as the CMA for San Mateo County, is required to prepare and adopt a CMP on a biennial basis. The purpose of the CMP is to identify strategies to respond to future transportation needs, develop procedures to alleviate and control congestion, and promote countywide solutions. As part of that effort, the I-280 freeway segments were evaluated to determine the LOS for each segment.

In San Mateo County I-280 is a eight-lane freeway from the Santa Clara County line north to the I-280/SR 1 interchange except

- Between Edgewood Road and the SR 92 interchange where it is a ten-lane facility for about two miles;
- Through the I-380 interchange, northbound I-280 has three lanes, while southbound I-280 widens to include a fifth, auxiliary lane.

From the SR 1 interchange (south) to the SR 1 interchange (north) I-280 has twelve lanes. North of I-280 it is a six-lane freeway, it widens to eight lanes at the San Francisco County line.

Table 9 below lists the LOS for the I-280 segments as reported in the San Mateo County 2011 CMP.

Table 9: San Mateo County I-280 LOS (2011)

I-280 Freeway Peak Hour LOS in San Mateo County (2011)					
Route	TCR Corridor Segment	Roadway Segment Description	LOS Standard	2011 LOS	
				Observed	With Exemption ⁴
I-280	E	San Francisco County Line to SR 1 (north)	E	E	-
	E	SR 1 (north) to SR 1 (south)	E	A/B	-
	E/D	SR 1 (south) to San Bruno Avenue	D	F	D
	D	San Bruno Avenue to SR 92	D	D	-
	C	SR 92 to SR 84	D	A/B	-
	C	SR 84 to Santa Clara County Line	D	E	A

Source: C/CAG, Final San Mateo County CMP 2011

San Francisco County 2011 Congestion Management Plan

As the CMA for San Francisco County, the SFCTA is responsible for developing and adopting the CMP for San Francisco, which must be updated every two years.

The Authority conducted roadway LOS monitoring on the designated CMP network in Spring 2011. The report also defines other performance measures including travel times for transit as well as the ratio of automobile to transit travel times on a given facility. Regional and local transit use I-280.

Table 10 below presents the LOS monitoring results for the I-280 freeway segments in San Francisco County.

⁴ CMP-enabling legislation allows for LOS to be adjusted by accounting for interregional trips (trips that originate from outside the county). For those CMP segments found with a LOS below the set standard, the county travel demand model is used to determine the proportion interregional trips and LOS is then adjusted accordingly.

Table 10: San Francisco County I-280 LOS (2011)

2011 San Francisco County I-280 Peak Hour LOS						
Route	AM/PM	Roadway Segment Description	Direction	Distance (miles)	Average Speed (mph) 2011	2011 LOS (HCM - 1985)
I-280	AM	Junipero Serra to Weldon	E	4.29	37.5	E
		Weldon to 6th/Brannan	NE	3.35	28.1	F
		6th/ Brannan to Weldon	W	3.35	55.1	B
		Weldon to Junipero Serra	SW	4.29	60.6	A
	PM	Junipero Serra to Weldon	E	4.29	61.3	A
		Weldon to 6th/Brannan	NE	3.35	35.6	E
		6th/ Brannan to Weldon	W	3.35	41.5	D
		Weldon to Junipero Serra	SW	4.29	50.6	C

Source: SFCTA, San Francisco County 2011 CMP

The 2011 CMP indicates LOS F during the AM peak period for I-280, for the segment between Weldon to 6th Brannan. Although this has dropped two grades from the LOS D (41.6 mph) in the 2009 CMP, I-280 measured LOS F (29.1 mph) during the baseline 1991 monitoring cycle and is therefore exempt from constituting a deficiency. The sections with LOS F conditions are viewed by SFCTA as having chronic congestion and the city continues to work on congestion management strategies, especially in light of the challenge of planned future growth.

Forecast Future Conditions

Future condition forecasts are from MTC's 2009 Travel Demand Model. A V/C ratio⁵ exceeding 1.0 is equivalent to LOS F, suggesting traffic demand on a given facility exceeds available capacity. I-280 is anticipated to experience a significant increase in traffic volumes during both the Year 2035 AM and PM peak hours, with V/C at or exceeding 1.0 in several segments.

⁵ Volume-to-capacity ratio (V/C Ratio): For the purposes of congestion calculations in this regional analysis, congestion levels are defined as: V/C Ratio greater than 1.0 = Severe Congestion; V/C Ratio of 0.75 to 1.0 = Heavy Congestion; V/C Ratio of 0.5 to 0.74 = Moderate Congestion; V/C Ratio of less than 0.5 = Low or No Congestion

Table 11: I-280 Future Traffic Projections

Forecast Future Conditions – 2035											
Segment	Directional										Truck %
	NB AM peak hr	SB AM peak hr	NB PM peak hr	SB PM peak hr	NB AM peak hr V/C	SB AM peak hr V/C	NB PM peak hr V/C	SB PM peak hr V/C	NB AADT	SB AADT	
A	10,435	9,029	11,052	10,333	1.24	1.07	1.32	1.23	150,496	133,996	3.1%
B	7,875	7,875	7,088	7,875	0.83	0.83	0.75	0.83	90,625	84,306	3.3%
C	6,235	8,400	8,400	5,979	0.74	1.00	1.00	0.71	74,674	71,604	2.3%
D	6,991	8,400	8,400	5,851	0.83	1.00	1.00	0.70	76,490	72,706	1.7%
E	7,834	8,400	8,400	8,400	0.93	1.00	1.00	1.00	119,725	125,179	0.9%
F	8,400	5,480	6,016	8,400	1.00	0.65	0.72	1.00	102,705	106,516	1.7%
G	7,350	3,595	5,106	6,043	1.17	0.57	0.81	0.96	71,565	60,838	2.5%
H	3,915	1,921	2,421	3,174	0.93	0.46	0.58	0.76	36,098	33,503	2.1%

Source: Caltrans, District 4

IV. Key Corridor Issues

Capacity Issues

Future conditions projected for the year 2035 show peak hour congestion in most corridor segments. These projections do not incorporate growth anticipated to occur with implementation of Plan Bay Area, in particular in the urban cores of San Francisco and San Jose. Further detailed studies and resources will be needed to identify long-term impacts on the corridor and develop improvement options together with regional and local partner agencies.

Alternative Travelway

South of I-380 in San Mateo County, I-280 has excess capacity while US 101 is often highly congested. Via US 101 the trip between I-380 and downtown San Jose is 35 miles long. It is about eight miles longer when traveling on I-280. I-280 may have some appeal as an alternative for trips between San Francisco and San Jose destinations. Improvements (real-time traffic info, changeable message signs) should be considered to attract vehicles away from US 101. For destinations in between, however, the distance between the two freeways is too long in most parts for I-280 to function as a reliever route.

Interchanges with Local Road Networks

The Balboa Park Station Area Circulation Study is one currently ongoing example study along I-280 in San Francisco that aims to identify circulation modifications to the local road network where it intersects with freeway on- and off-ramps. This includes an evaluation of the need and feasibility to modify ramps in order to improve station access and reduce conflicts of freeway-bound traffic with pedestrians and buses. Another study, also in San Francisco, looks at reconfiguring the San Jose Avenue interchange for improved multimodal connectivity and traffic safety within this key regional-to-local connection.

Bicycle Facilities

San Francisco has a dense network of local roads paralleling the freeway, but many ramp intersections with city streets still present challenges to bike connectivity. Similarly, Santa Clara and San Mateo County bicycle plans identify freeway over/undercrossings as major barriers for bicycle (and pedestrian) travel. These crossings were often not designed with bicycle circulation in mind (conflicts at free-flow on- and off-ramps, high motor vehicle speeds, absence of bike facilities through intersections, less than four feet shoulder width). The respective county bicycle plans provide further details regarding the bicycle network as well as critical connections and issues along and across the I-280 corridor.

Pedestrian Movement

Many ramp intersections at city streets along the I-280 corridor present challenges for pedestrian movement and create barriers to walking where housing, employment, and shopping destinations are located in walking distance on both sides of the freeway. The most common pedestrian movement issues along the I-280 Corridor are conflicts at loop on- and off- ramps, locations with large corner radii and long crossing distances, high motor

vehicle speeds, and where sidewalks and crosswalks are missing. The table in Appendix D summarizes pedestrian issues at specific I-280 intersections in urban locations of the corridor.

Wildlife Crossing

A federally-funded Transportation Enhancement study is underway to examine wildlife use, habitat connectivity, and wildlife-vehicle collisions along I-280 in San Mateo County with emphasis on a 17-mile portion between Hillside Drive in Hillsborough and Woodside Road in Woodside. I-280 poses a barrier to wildlife movement and wildlife-vehicle conflicts. This study assesses the extent and causes of wildlife-traffic conflicts. Recommendations to improve connectivity and to reduce collisions with wildlife along the I-280 corridor will be proposed.

V. Corridor Concept

Table 12: Corridor Concept Summary

Segment	County	Segment Description	Existing Facility	25-year Concept
A	SCL	I-280/US101/I-680 I/C to SR 85	8-10F (2HOV)	8-10F (2HOV)
B	SCL	SR 85 to SCL/SM county line	6-8F (2HOV)	6-8F (2HOV)
C	SCL/SM	SCL/SM county line to SR 92 I/C	8-10F	8-10F
D	SM	SR 92 I/C to I-380	8F	8F
E	SM	I-380 to SM/SF county line	6-10F	6-10F
F	SM	SM/SF co. line to US 101 I/C	8F	8F
G	SF	US 101 I/C to SF @ End of Freeway	4-8F	4-8F
H	SF	End of Freeway to Brannan/King Street	4C	4C

* I/C= Interchange
 ** F = Freeway
 *** C = Conventional Highway

Concept Rationale

Although future population, housing, and job growth along this corridor is projected, due to constraints in the corridor, the concept lane configuration of I-280 will remain unchanged from the existing condition. It is the Department's policy to manage the existing system to the extent feasible to accommodate future demand. This entails inclusion of High Occupancy Vehicle (HOV) facilities and Traffic Operation System (TOS) improvements.

Future transit investments in the corridor, such as Caltrain electrification and other upgrades to increase service frequency and reliability, and the planned High Speed Rail (HSR) service connecting San Francisco via San Jose with the Central Valley and Southern California, may affect future traffic volumes on US 101 and I-280, especially for trips between San Francisco and San Jose.

Operational Strategies

The planned concept for I-280 will focus on operational strategies including TOS, ramp metering, and HOV lanes. In lieu of constructing new freeways, alternatives to address congestion are being planned. It is the State's goal to manage its existing system through various system management strategies, including Intelligent

Transportation Systems (ITS). Examples of ITS include ramp metering, changeable message signs, and camera monitors. Figure 3 shows existing and planned ITS components.

Individual strategies listed may or may not be applied to I-280 in its entirety.

- **Santa Clara County**
 - Complete and connect mainline High Occupancy Vehicle system within the corridor
 - Complete Ramp Metering network
- **San Mateo County**
 - Install Traffic Operations System (TOS) elements
 - Ramp Metering
- **San Francisco County**
 - Install Traffic Operations System (TOS) elements
 - Ramp Metering

Figure 4: I-280 Traffic Management System Map



Other Strategies

Transit, bicycle, and pedestrian strategies are aimed at integrating and enhancing networks along and across the I-280 Corridor.

Transit

Support operations and improvements/expansions of transit service and amenities. Work with transit operators on planning and implementation of projects to increase people throughput in the corridor such as HOV lanes and bypass lanes, park-n-ride facilities, bus signal priority, transit stops and shelters.

Bicycle Facilities⁶

Incorporate bicycle facility design treatments (bike lanes or wider shoulders, ramp construction to intersect at a 90-degree angle, bike lane striping to the left of right-turn-only lane, avoidance of dual right-turn lanes) into intersection improvement and interchange reconstruction projects. As part of project development, determine appropriate bicycle facility in corporation with local agencies.

Review and evaluate maintenance projects for the feasibility of incorporating striping and signage improvements to enhance bicycle access and safety at ramp intersections with local roads.

Ensure that bicycle improvements projects by others are considered in project development and design. These may include on-street improvements or grade-separated facilities. The bicycle plans for San Francisco, San Mateo, and Santa Clara Counties identify projects of particular importance to the further development of their respective networks. For specific details regarding the county bicycle plans refer to:

City and County of San Francisco: <http://www.sfmta.com/cms/bproj/bikeplan.htm>

San Mateo County: <http://sanmateocountybikepedplan.org/>

Santa Clara County: http://www.vta.org/projects/bikeplan_2000.pdf

Pedestrian Facilities

Remove barriers to pedestrian circulation by squaring up ramp intersections to slow turning vehicles and shorten crossing distances, and by striping crosswalks at on and off-ramps along ramp termini to direct pedestrians and notify motorists of their presence as well as adding countdown signals.

Review and evaluate future interchange configuration/reconstruction projects with regard to the need to provide and connect sidewalks around ramp intersections, based on pedestrian demand. Analyze lane width of facility to consider addition of medians to provide a pedestrian refuge and calm traffic.

Work with local agencies on implementing planned and programmed pedestrian and bicycle network improvements. These may include on-street improvements or grade-separated facilities.

⁶ Many of the bicycle and pedestrian treatments presented here are from "Caltrans' Complete Intersections: A Guide to Reconstructing Intersections and Interchanges for Bicyclists and Pedestrians" (2010).

Planned and Programmed Projects

The following table is a list of planned and programmed projects in the I-280 corridor as listed in the Plan Bay Area (PBA) draft report and the SHOPP⁷. Not listed here are planned off-system investments that could potentially affect the I-280 corridor.

Table 13: Programmed Projects in the I-280 Corridor

Santa Clara County I-280 STIP and SHOPP Projects						
County	Route	Program	Description	Project Cost	Project Type	RTP ID#
SCL	280	STIP	Improve I-280 downtown access between 3rd Street and 7th Street	\$31 mil	HWY	21704
SCL	280	STIP	Construct second exit lane on I-280 to Foothill Expressway	\$2 mil	HWY	22010
SCL	280	STIP	Improve interchange at Oregon-Page Mill/I-280	\$7 mil	HWY	22854
SCL	280	STIP	Improve braided ramps on northbound I-280 between Foothill Expressway and Route 85	\$102 mil	HWY	240473
SCL	280	STIP	Implement express lanes on I-280 between Leland Avenue and Magdalena Avenue	\$60 mil	HWY	240513
SCL	280	STIP	Implement express lanes on I-280 between US 101 and Leland Avenue	\$25 mil	HWY	240514
SCL	280	STIP	Implement express lanes on I-280 between El Monte Road and Magdalena Avenue	\$14 mil	HWY	240515
SCL	280	STIP	Improve interchange at I-280/Senter Road	\$52 mil	HWY	240671
SCL	280	STIP	Implement Lawrence Expressway/I-280 interchange project	\$3 mil	HWY	240710
San Mateo County I-280 STIP and SHOPP Projects						
County	Route	Program	Description	Project Cost	Project Type	RTP/EA #
SM	280	STIP	Improve local access at I-280/I-380 from Sneath Lane and San Bruno Avenue to I-380	\$4.68 mil	HWY	21609
SM	280	STIP	Modify and reconstruct I-280/Route 1 interchange in northbound and southbound directions, including braided ramps	\$20.00 mil	HWY	21615
SM	280	STIP	Add auxiliary lane in each direction on I-280 between Westborough and Hickey Boulevard	\$14.00 mil	HWY	22230
SM	280	STIP	Provide overcrossing at I-280/John Daly Boulevard	\$1.40 mil	HWY	240161
SM	280	STIP	Implement adaptive signal system between I-280 and Santa Cruz Avenue	\$1.85 mil	HWY	240169
SM	280	SHOPP	Seismic Retrofit Overcrossing	\$1.17 mil	HWY	0G7100

⁷ State Highway Operation and Protection Program

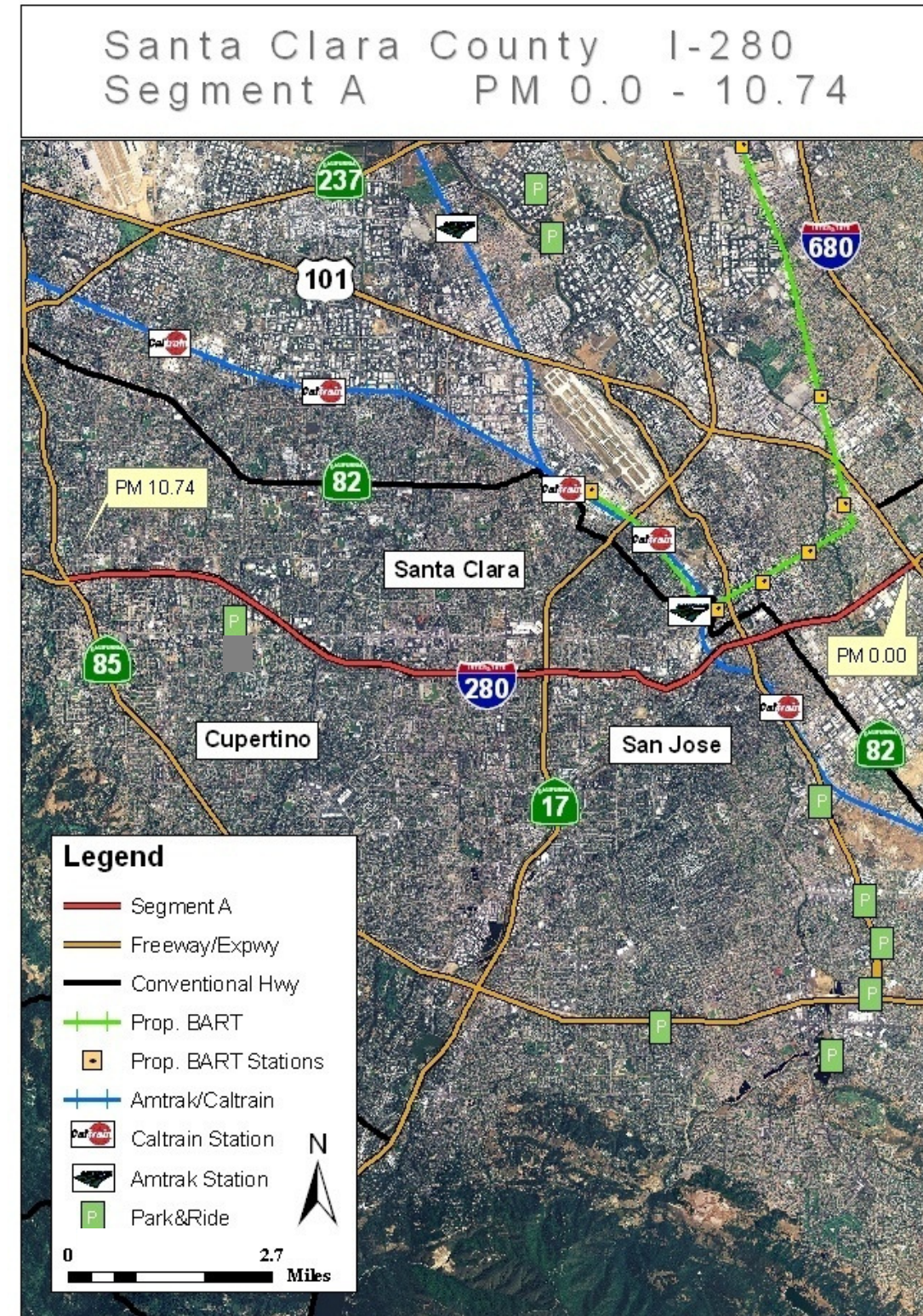
SM	280	SHOPP	Cold plane and HMA HC	\$1.00 mil	HWY	4G4101
SM	280	SHOPP	SM 280 Jack Pipe Backfill	\$1.25 mil	HWY	4G5900
SM	280	SHOPP	SM 280 Replacement Landscaping	\$1.70 mil	HWY	2708U1
San Francisco County I-280 STIP and SHOPP Projects						
County	Route	Program	Description	Project Cost	Project Type	RTP ID#
SF	280	STIP	Implement Geneva Transit Preferential Streets improvements on Geneva Ave from Ocean Ave to Prague (incl. BRT on Geneva Ave)	\$81.00mil	Off System	240328
SF	280	STIP	Widen I-280/Mariposa off-ramp	\$7.00 mil	HWY	240349
SF	280	STIP	Construct HOV Ramp on I-280 and 6th Street (Planning, Preliminary Engineering, and Environmental)	\$2.00 mil	HWY	240525
SF	Various	STIP	Manage freeways and expressways in San Francisco (incl. non-ITS elements, performance monitoring, and corridor studies)	\$3.00 mil	Hwy	240542
SF	280	SHOPP	SF 280 Bridge Rehab	\$8.98 mil	HWY	2A490K
SF	280	SHOPP	SF 280 Upgrade Bridge Rails	\$16.15 mil	HWY	1A551K
SF	280	SHOPP	SF 280 Reconstruct Bridge Hinges	\$9.00 mil	HWY	4A5100

V. Appendices

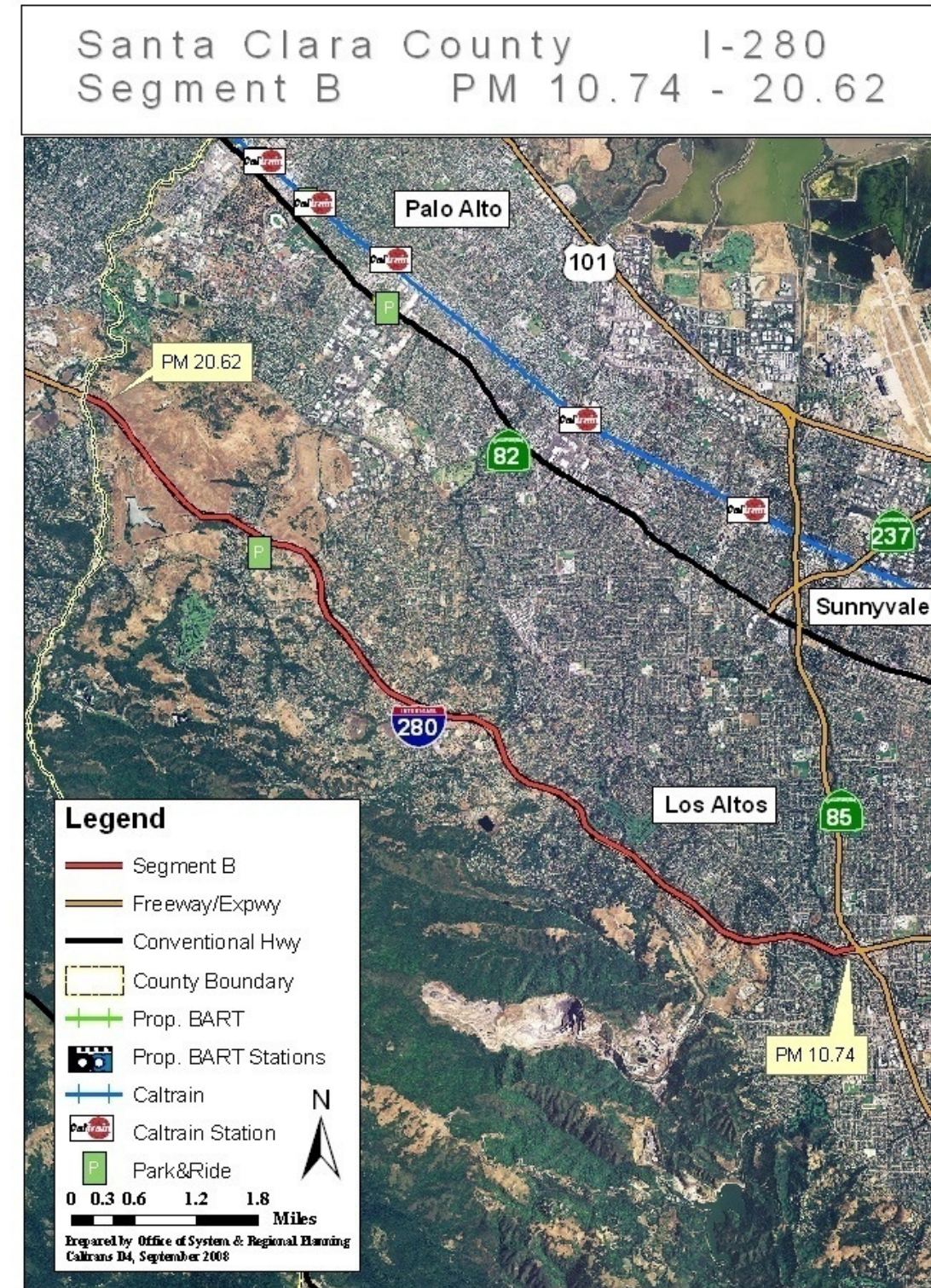
Appendix A

I-280 SEGMENT A DATA

Features	Data
County/City	Santa Clara, San Jose
Facility Type	Freeway
Existing Facility	8-10 lane freeway (2HOV)
25 Year Concept	8-10 lane freeway (2HOV)
Segment Characteristics	
Segment Limits	I 280/US 101/I 680 I/C to SR 85
Begin/End Post Mile	R0.0 to 10.74
Length	10.74
Geometric /Terrain	Flat
HOV Lanes (PM to PM)	Yes, PM L4.7 – 10.74
Truck Weigh Stations	None
Truck Parking	None
TOS element	Ramp Metering, CMS, CCTV, HAR, EMS
Multi Modal	
Bicycle Facilities	Bicycles not permitted in this segment
Transit Oriented Developments (TODs)	None
Park and Ride Lot	None
Traffic Data	
AADT 2011 (Annual Average Daily Traffic)	NB 116,018 SB 108,446
AADT 2035 (Annual Average Daily Traffic)	NB 150,496 SB 133,996
Peak Hour Volumes 2011 (Dir AM/PM)	NB 8,117/8,445 SB 7,023/8,721
Peak Hour Volumes 2035 (Dir AM/PM)	NB 10,435/11,052 SB 9,029/10,333
V/C Ratio 2011 AM/PM	NB 0.97 / 1.01 SB 0.84 /1.04
V/C Ratio 2035 AM/PM	NB 1.24 /1.32 SB 1.07 /1.23
LOS 2011 (Level of Service)	D-F
LOS 2035	F
Truck Volumes 2011	NB 3,597 SB 3,362
Truck Traffic: Truck Percentage of AADT	3.1%
Accident Data	
per million vehicle miles (Jan 1,2008-Dec 31, 2010)	
Fatality + Injury Rate %	0.27 (5 fatalities; 668 accidents w/ injuries)
Statewide Fatality + Injury Rate	0.29
Total Accident Rate	0.95
Statewide Total Accident Rate	0.94



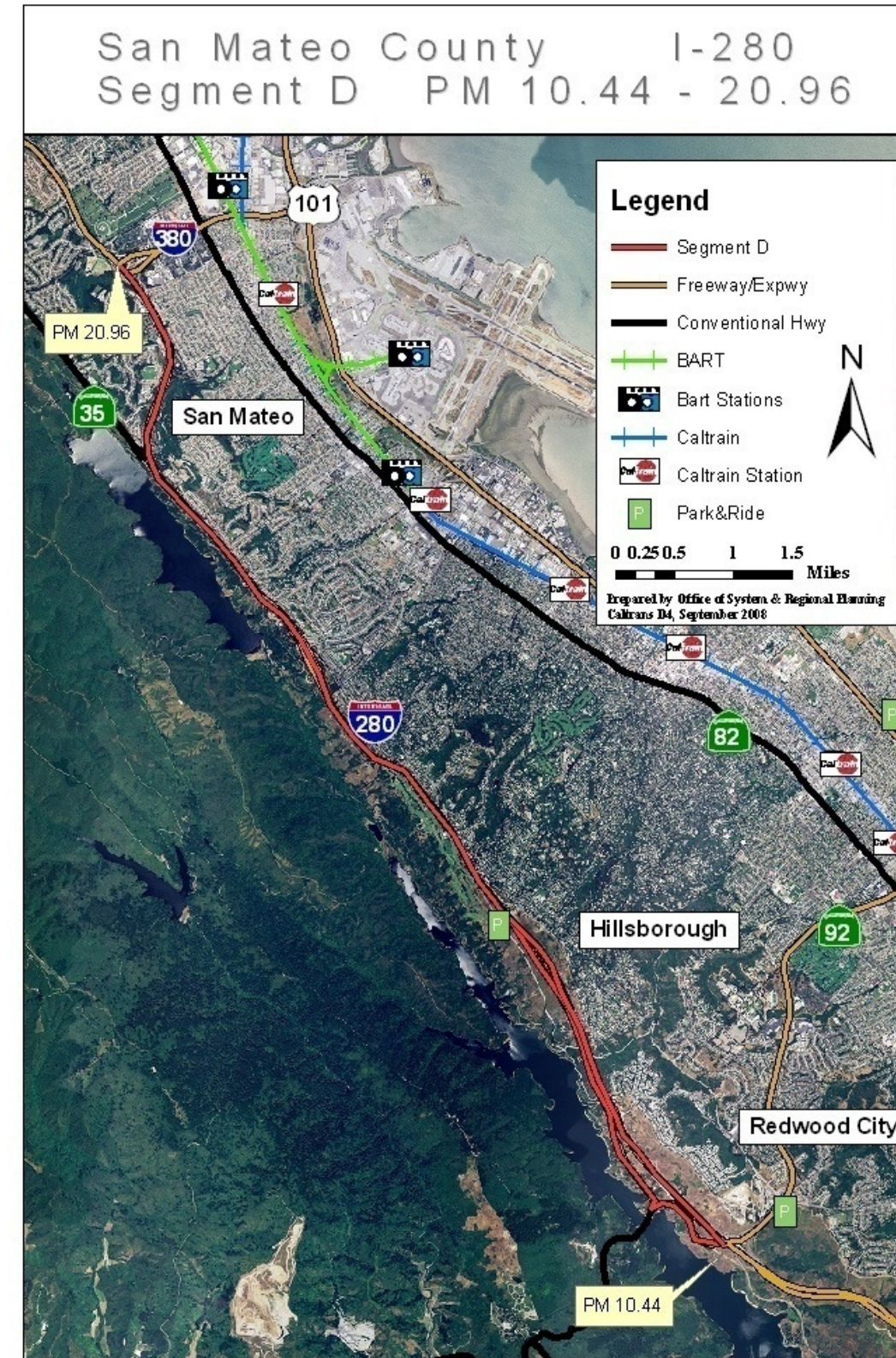
I-280 SEGMENT B DATA	
Features	Data
County, City	Santa Clara, Sunnyvale
Facility Type	Freeway
Existing Facility	6-8 lane freeway (2HOV)
25 Year Concept	6-8 lane freeway (2HOV)
Segment Characteristics	
Segment Limits	SR 85 to SM/SCL county line
Begin/ End Post Mile	10.74 to 20.62
Length	10 miles
Geometric/ Terrain	Flat & Rolling
HOV Lanes (PM to PM)	Yes PM 10.74 to 14.0
Truck Weigh Stations	None
Truck Parking	None
TOS element	Ramp Metering, CCTV, CMS, EMS
Multi Modal	
Bicycle Facilities	Bicycles not permitted in this segment
Transit Oriented Development (TOD)	None
Park and Ride Lot	Page Mill Rd in Los Altos Hills, 40 spaces, SCL PM 18.4
Traffic Data	
AADT 2011 (Annual Average Daily Traffic) (Dir AM/PM)	NB 72,976 SB 67,888
AADT 2035 (Dir AM/PM)	NB 90,625 SB 84,306
Peak Hour Volumes 2011 (Dir AM/PM)	NB 6,636/6,002 SB 6,274/7,018
Peak Hour Volumes 2035 (Dir AM/PM)	NB 7,875/7,088 SB 7,875/7,875
V/C Ratio 2011 AM/PM	NB 0.70 / 0.64 SB 0.66 / 0.74
V/C Ratio 2035 AM/PM	NB 0.83 / 0.75 SB 0.83 / 0.83
LOS 2011 (Level of Service)	C-D
LOS 2035	D
Truck Volumes 2011	NB 2,408 SB 2,240
Truck Traffic: Truck % of AADT	3.3%
Accident Data	
per million vehicle miles (Jan 1,2008-Dec 31, 2010)	
Fatality + Injury Rate %	0.09 (1 fatality; 111 accidents with injuries)
Statewide: Fatality + Injury Rate	0.22
Total Accident Rate	0.27
Statewide: Total Accident Rate	0.70



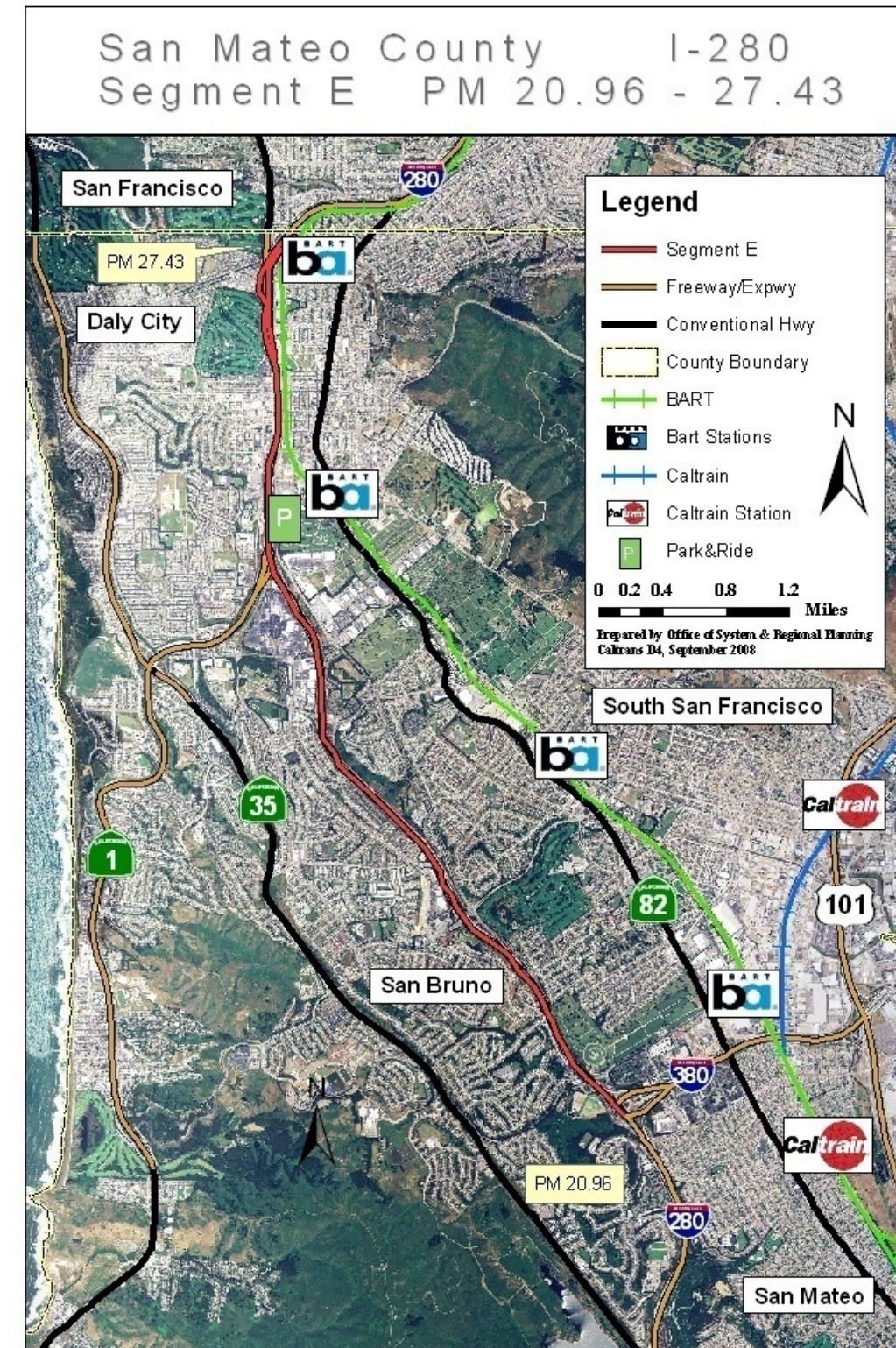
I-280 SEGMENT C DATA	
Features	Data
County, City	San Mateo, Woodside
Facility Type	Freeway
Existing Facility	8-10 lane freeway
25 Year Concept	8-10 lane freeway
Segment Characteristics	
Segment Limits	SM/SCL co. line to SR-92 I/C
Begin/ End Post Mile	20.62/0.00 to SM co. 10.82
Length	10+ miles
Geometric/ Terrain	Rolling
HOV Lanes (PM-PM)	None
Truck Weigh Stations	None
Truck Parking	None
TOS element	Ramp metering, CMS, CCTV, EMS
Multi Modal	
Bicycle Facilities	Bicycles not permitted in this segment
Transit Oriented Development (TOD)	None
Park and Ride Lot	Woodside Road in Woodside, 29 spaces, SM, PM 3.3 Edgewood in San Carlos, 44 spaces, SM, PM 6.7 Ralston in Belmont, 25 spaces, SM, PM 7.9
Traffic Information	
AADT 2011 (Annual Average Daily Traffic) (Dir AM/PM)	NB 59,846 SB 57,386
AADT 2035(Dir AM/PM)	NB 74,674 SB 71,604
Peak Hour Volumes 2011 (Dir AM/PM)	NB 4,757/7,228 SB 7,449/5,048
Peak Hour Volumes 2035 (Dir AM/PM)	NB 6,235/8,400 SB 8,400/5,979
V/C Ratio 2011 (Volume/Capacity) AM/PM	NB 0.57 / 0.86 SB 0.89 / 0.60
V/C Ratio 2035 AM/PM	NB 0.74 / 1.00 SB 1.00 / 0.71
LOS 2011 (Level of Service)	C-D
LOS 2035	D-E
Truck Volumes 2011	NB 1,388 SB 1,331
Truck % AADT Total	2.3%
Accident Data	
per million vehicle miles (Jan 1,2008-Dec 31, 2010)	
Fatality + Injury Rate %	0.08 (1 fatality; 97 accidents with injuries)
Statewide: Fatality + Injury Rate	0.20
Total Accident Rate	0.22
Statewide: Total Accident Rate	0.60



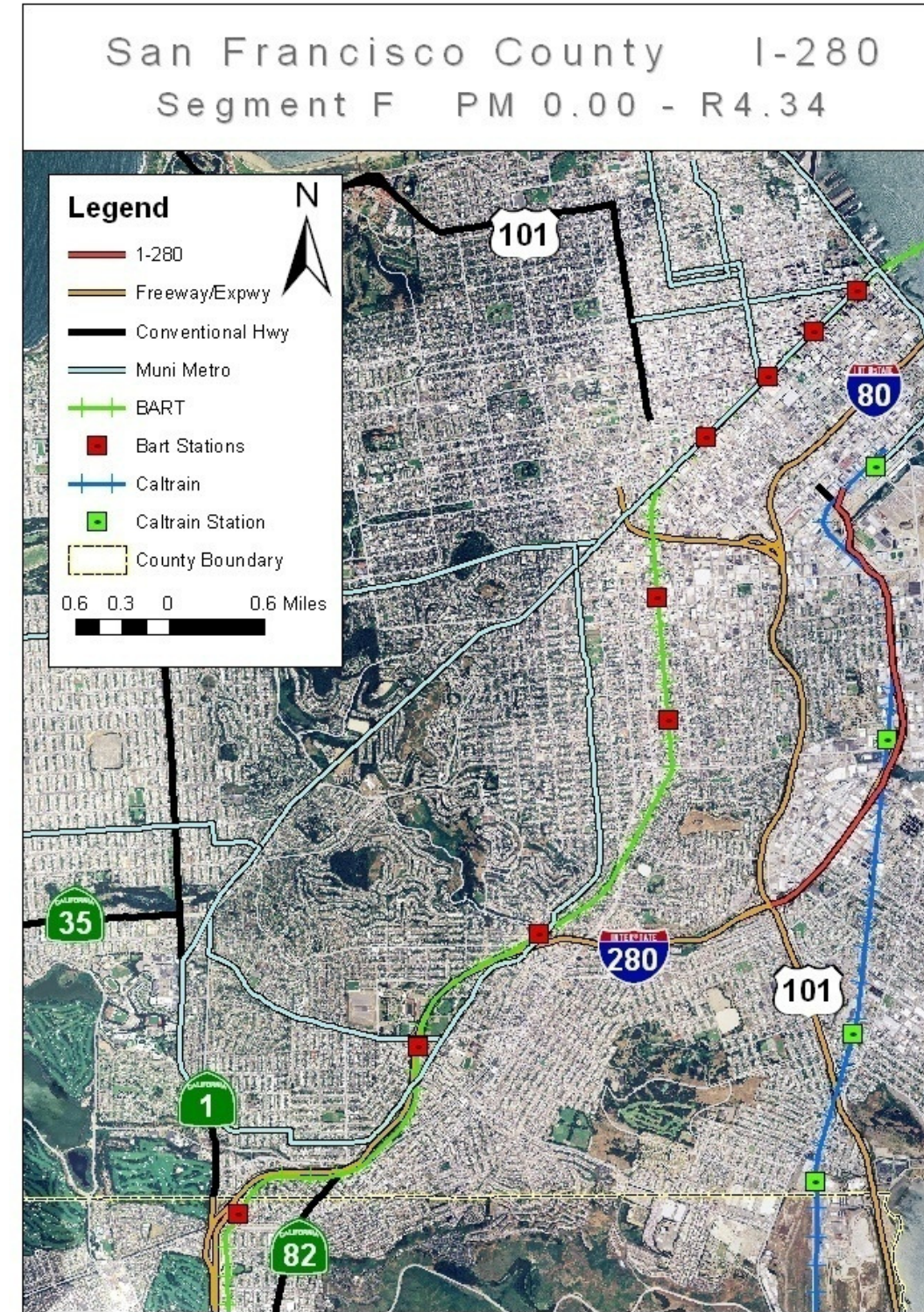
I-280 SEGMENT D DATA	
Features	Data
County, City	San Mateo, Redwood City- Hillsborough
Facility Type	Freeway
Existing Facility	8 lane freeway
25 Year Concept	8 lane freeway
Segment Characteristics	
Segment Limits	SR 92 I/C to I 380
Begin/ End Post Mile	10.82 to 21.02
Length	10.5 miles
Geometric/ Terrain	Rolling
HOV Lanes (PM-PM)	None
Truck Weigh Stations	None
Truck Parking	None
TOS element	Ramp metering, CCTV, CMS, EMS
Multi Modal	
Bicycle Facilities	Bicycles permitted: Trousdale Dr. to Larkspur Dr. PM 17.17 – 18.52
Transit Oriented Development	None
Park and Ride Lot	Hayne Road, in Hillsborough, 24 spaces PM 14.2
Traffic Information	
AADT 2011(Annual Average Daily Traffic) (Dir AM/PM)	NB 61,594 SB 58,547
AADT 2035 (Dir AM/PM)	NB 76,490 SB 72,706
Peak Hour Volumes 2011 (Dir AM/PM)	NB 5,371/7,291 SB 7,330/4,954
Peak Hour Volumes 2035 (Dir AM/PM)	NB 6,991/8,400 SB 8,400/5,851
V/C Ratio 2011 AM/PM	NB 0.64 / 0.87 SB 0.87 / 0.59
V/C Ratio 2035 AM/PM	NB 0.83 / 1.00 SB 1.00 / 0.70
LOS 2011	C-D
LOS 2035	D-E
Truck Volumes 2011	NB 1,053 SB 1001
Truck % of AADT	1.7%
Accident Data per million vehicle miles (Jan 1,2008-Dec 31, 2010)	
Fatality + Injury Rate %	0.09 (2 fatalities; 104 accidents with injuries)
Statewide: Fatality + Injury Rate	0.22
Total Accident Rate	0.23
Statewide: Total Accident Rate	0.71



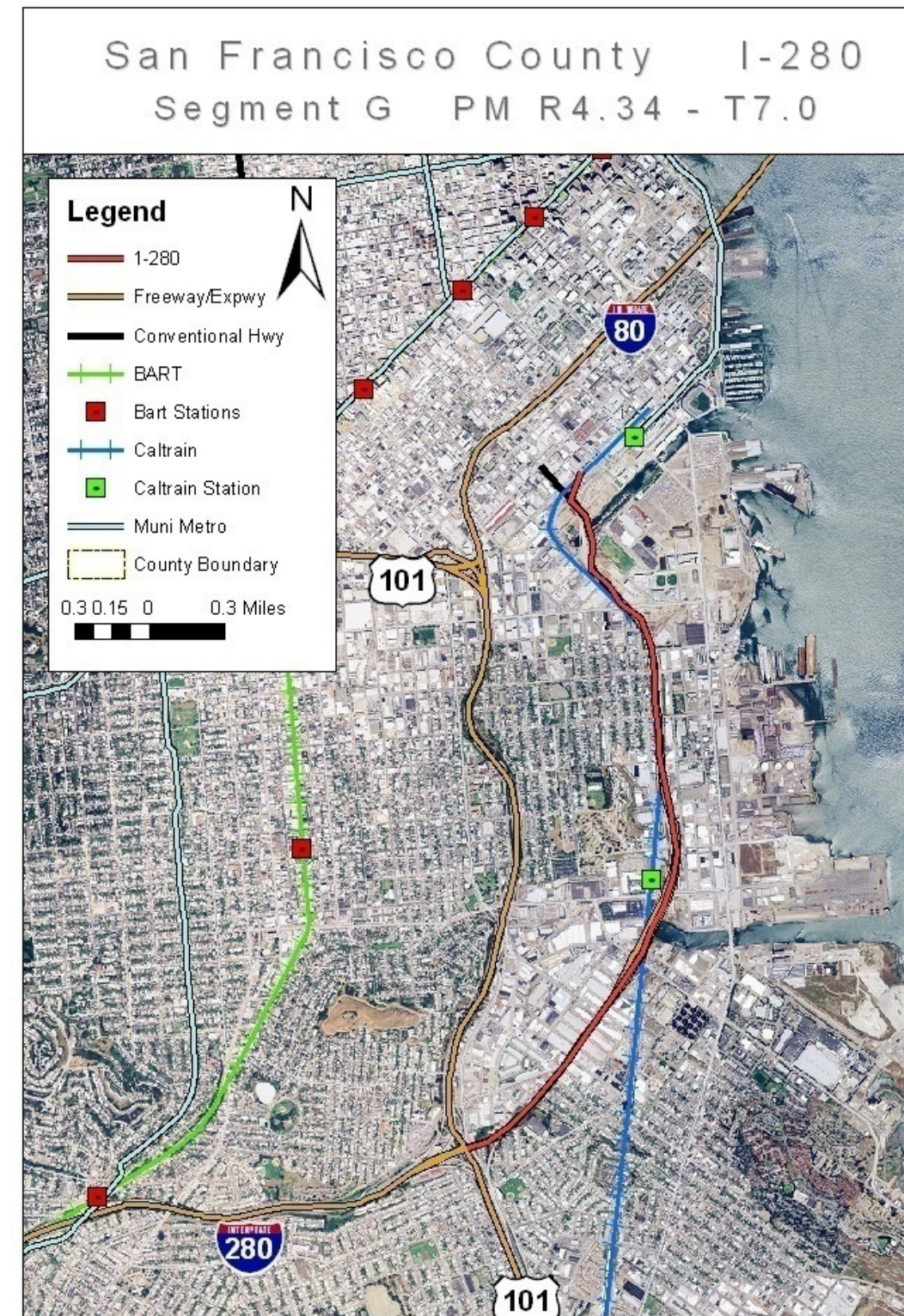
I-280 SEGMENT E DATA	
Features	Data
County, City	San Mateo, Daly City – S. San Francisco
Facility Type	Freeway
Existing Facility	6-10 lane freeway
25 Year Concept	6-10 lane freeway
Segment Characteristics	
Segment Limits	I-380 to SF/SM co. line
Begin/ End Post Mile	21.02 to 27.43
Length	6+ miles
Geometric/ Terrain	Rolling
HOV Lanes (PM-PM)	None
Truck Weigh Stations	None
Truck Parking	None
TOS element	Ramp metering, CCTV, CMS
Multi Modal	
Bicycle Facilities	Bicycles not permitted on freeway in this segment
Transit Oriented Development	Daly City Bart Station
Park and Ride Lot	None
Traffic Information	
AADT 2011 (Annual Average Daily Traffic)	NB 91,405 SB 93,120
AADT 2035	NB 119,725 SB 125,179
Peak Hour Volumes 2011 (Dir AM/PM)	NB 5,976/7,669 SB 7,560/6,834
Peak Hour Volumes 2035 (Dir AM/PM)	NB 7,834/8,400 SB 8,400/8,400
V/C Ratio 2011 (AM/PM)	NB 0.71 / 0.91 SB 0.90/0.81
V/C Ratio 2035 (AM/PM)	NB 0.93/1.00 SB 1.00/1.00
LOS 2011	D-E
LOS 2035	E
Truck Volumes 2011	NB 832 SB 847
Truck % of AADT	0.9%
Accident Data	
per million vehicle miles (Jan 1,2008-Dec 31, 2010)	
Fatality + Injury Rate %	0.21 (3 fatalities; 286 accidents w/injuries)
Statewide Fatality + Injury Rate	0.30
Total Accident Rate	0.64
Statewide Total Accident Rate	1.00



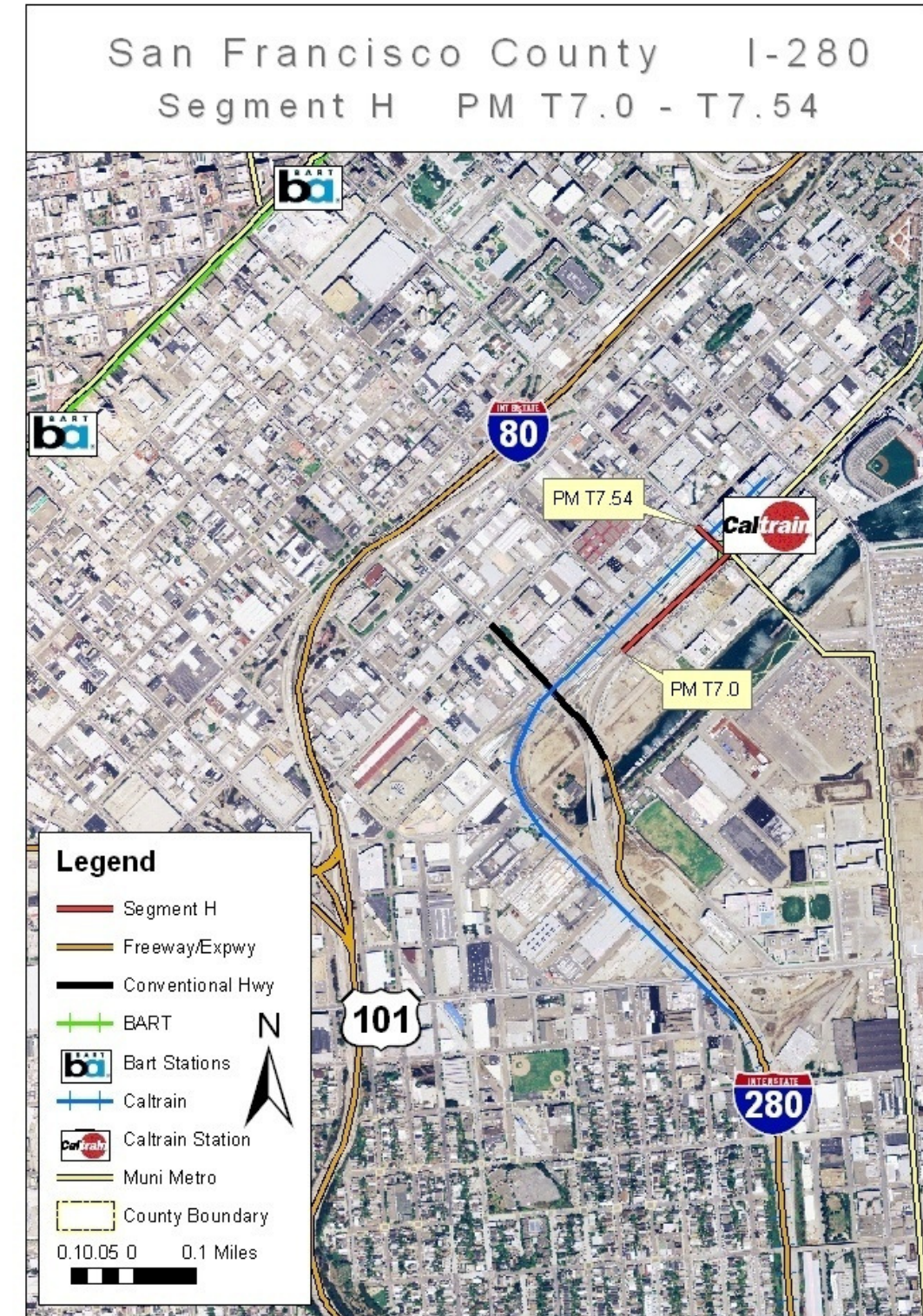
I-280 SEGMENT F DATA	
Features	Data
County, City	San Francisco, San Francisco
Facility Type	Freeway
Existing Facility	8 lane freeway
25 Year Concept	8 lane freeway
Segment Characteristics	
Segment Limits	SF/SM co. line to US 101 I/C
Begin/ End Post Mile	27.43/0.00-R4.34
Length	4+ miles
Geometric/ Terrain	Rolling
HOV Lanes (PM-PM)	None
Truck Facilities: Weigh Stations	None
Truck Facilities: Truck Parking	None
TOS element	CCTV, CMS, EMS, HAR
Multi Modal	
Bicycle Facilities	Bicycles not permitted on freeway in this segment
Transit Oriented Development (TOD)	Glen Park Bart Station, Balboa Park Bart Station
Park and Ride Lot	None
Traffic Information	
AADT 2011 (Annual Average Daily Traffic)	NB 85,954 SB 89,144
AADT 2035	NB 102,705 SB 106,516
Peak Hour Volumes 2011 AM/PM	NB 7,466/4,979 SB 4,638/7,586
Peak Hour Volumes 2035 AM/PM	NB 8,400/6,016 SB 5,480/8,400
V/C Ratio 2011 AM/PM	NB 0.89/0.59 SB 0.55/0.90
V/C Ratio 2035 AM/PM	NB 1.00/0.72 SB 0.65/1.00
LOS 2011	C-D
LOS 2035	C-E
Truck Volumes 2011	NB 1,470 SB 1,524
Truck % of AADT	1.7%
Accident Data	
per million vehicle miles (Jan 1,2008-Dec 31, 2010)	
Fatality + Injury Rate %	0.32 (6 fatalities; 239 accidents with injuries)
Statewide: Fatality + Injury Rate	0.30
Total Accident Rate	0.90
Statewide: Total Accident Rate	0.96



I-280 SEGMENT G DATA	
Features	Data
County, City	San Francisco, San Francisco
Facility Type	Freeway
Existing Facility	4-8 lane freeway
25 Year Concept	4-8 lane freeway
Segment Characteristics	
Segment Limits	US 101 I/C to SF @ 6 th St
Begin/ End Post Mile	R4.34 to T7.00
Length	3 miles
Geometric/ Terrain	Rolling
HOV lanes (PM-PM)	None
Truck Weigh Stations	None
Truck Parking	None
TOS element	CCTV, CMS
Multi Modal	
Bicycle Facilities	Bicycles not permitted on freeway in this segment
Transit Oriented Development (TOD)	None
Park and Ride Lot	None
Traffic Information	
AADT 2011 (Annual Average Daily Traffic)	NB 62,921 SB 53,490
AADT 2035	NB 71,565 SB 60,838
Peak Hour Volumes 2011 AM/PM	NB 7,352/4,678 SB 3,040/5,535
Peak Hour Volumes 2035 AM/PM	NB 7,350/5,106 SB 3,595/6,043
V/C Ratio 2011 AM/PM	NB 1.17/0.74 SB 0.48/0.88
V/C Ratio 2035 AM/PM	NB 1.17/0.81 SB 0.57/0.96
LOS 2011	B-F0
LOS 2035	C-F0
Truck Volumes 2011	NB 1,573 SB 1,337
Truck % of AADT Total	2.5%
Accident Data	
per million vehicle miles (Jan 1,2008-Dec 31, 2010)	
Fatality + Injury Rate %	0.21 (0 fatality; 63 accidents w/injuries)
Statewide: Fatality + Injury Rate	0.24
Total Accident Rate	0.59
Statewide: Total Accident Rate	0.76



I-280 SEGMENT H DATA	
Features	Data
County, City	San Francisco, San Francisco
Facility Type	Freeway
Existing Facility	4 lane Fwy/Conventional
25 Year Concept	4 lane Fwy/Conventional
Segment Characteristics	
Segment Limits	SF @ 6 th to Brannan St.
Begin/ End Post Mile	T7.0 - T7.54
Length	0.5 mile
Geometric/ Terrain	Flat
Highway Facility: Additional Configuration	Conventional
HOV Lanes (PM-PM)	None
Truck Weigh Stations	None
Truck Parking	None
TOS element	CCTV,CMS
Multi Modal	
Bicycle Facilities	Bicycles not permitted on freeway in this segment
Transit Oriented Development (TOD)	Caltrain and Muni Station
Park and Ride Lot	None
Traffic Information	
AADT 2011 (Annual Average Daily Traffic)	NB 31,375 SB 29,120
AADT 2035	NB 36,098 SB 33,503
Peak Hour Volumes 2011 AM/PM	NB 3,260/2,200 SB 1,600/2,886
Peak Hour Volumes 2035 AM/PM	NB 3,915/2,421 SB 1,921/3,174
V/C Ratio 2011 AM/PM	NB 0.78/0.52 SB 0.38/0.69
V/C Ratio 2035 AM/PM	NB 0.93/0.58 SB 0.46/0.76
LOS 2011	B-D
LOS 2035	B-E
Truck Volumes 2011	NB 649 SB 603
Truck % of AADT Total	2.1%
Accident Data	
per million vehicle miles (Jan 1,2008-Dec 31, 2010)	
Fatality + Injury Rate %	0.27 (0 fatalities; 9 accidents with injuries)
Statewide: Fatality + Injury Rate.	0.71
Total Accident Rate1	0.58
Statewide: Total Accident Rate	1.75



Appendix B

The following is a listing of federal, State, and regional transportation planning efforts and policies related to this Transportation Concept Report.

Federal

Moving Ahead for Progress in the 21st Century Act (MAP-21), P.L. 112-141, was signed into law in July 2012. This act will provide funding for surface transportation programs for fiscal years (FY) 2013 and 2014. MAP-21 is the first long-term highway authorization enacted since 2005. MAP-21 creates a streamlined, performance-based, and multimodal program to address the many challenges facing the U.S. transportation system. These challenges include improving safety, improving and/or maintaining infrastructure condition, reducing traffic congestion, improving efficiency of the system and freight movement, protecting the environment, and reducing delays in project delivery.

Federal Transportation Improvement Program (FTIP) - All federally funded projects, and regionally significant projects (regardless of funding), must be listed in the FTIP per federal law. A project is not eligible to be programmed in the FTIP until it is programmed in the State Transportation Improvement Program (STIP) or in the State Highway Operations and Protection Program (SHOPP). Other types of funding (Federal Demonstration, Congestion Mitigation and Air Quality (CMAQ), Transportation Enhancement Activities (TEA), or Surface Transportation Program (STP) must be officially approved before the projects can be included in the FTIP.

State

California Transportation Plan (CTP) - The California Transportation Plan 2035 focuses on plans, policies, and processes that address the provisions of MAP 21. It is a statewide, long-range transportation policy plan that provides for the movement of people, goods, services, and information. The CTP offers a blueprint to guide future transportation decisions and investments that will ensure California's ability to compete globally, provide safe and effective mobility for all persons, better link transportation and land use decisions, improve air quality, and reduce petroleum energy consumption. An update of the CTP is currently underway and is expected to be finalized in 2015.

Interregional Transportation Strategic Plan (ITSP) –The Interregional Transportation Strategic Plan (ITSP) provides guidance for the identification and prioritization of interregional State highway projects with regard to the statutorily-identified Interregional Road System (IRRS) and interregional transportation modes, in particular intercity passenger rail. The IRRS serves interregional movement of people and goods. The ITSP is the counterpart to the Regional Transportation Plans prepared by the Regional Transportation Planning Agencies in California. Caltrans prepared the last ITSP in 1998, an update of the Plan is currently underway.

State Transportation Improvement Program (STIP) - The State Transportation Improvement Program (STIP) is a multi-year capital improvement program of transportation projects on and off the State Highway System, funded with revenues from the Transportation Investment Fund and other funding sources. The California Transportation Commission (CTC) biennially adopts and submits to the Legislature and Governor a STIP. The STIP is a resource management document to assist state and local

entities to plan and implement transportation improvements and to utilize available resources in a cost-effective manner.

Interregional Transportation Improvement Program (ITIP) – The Interregional Transportation Improvement Program (ITIP) is a state-funding program. Caltrans nominates and the California Transportation Commission approves a listing of interregional highway and rail projects for 25 percent of the funds to be programmed in the STIP (the other 75% are Regional Improvement Program funds). The purpose of the ITIP is to improve interregional mobility for people and goods in the State of California. As an interregional program the ITIP is focused on increasing the throughput for highway and rail corridors of strategic importance outside the urbanized areas of the state. The ITIP complements regional congestion reduction activities focused within the urbanized areas of the state. A sound transportation network between, and connecting, urbanized areas, ports and borders is vital to the state’s economic vitality.

State Highway Operation and Protection Program (SHOPP) - Caltrans prepares the SHOPP for the expenditure of transportation funds for improvements necessary to preserve and protect the State Highway System. The SHOPP is a four-year funding program. SHOPP projects are limited to capital improvements relative to maintenance, safety, and rehabilitation of State highways and bridges.

Senate Bill (SB) 45 (1997) – California’s Senate Bill 45 stipulates that the State will nominate transportation improvements that facilitate the movement of people and goods between the State’s transportation regions as well as to and through the State. The State is responsible for developing highway system performance standards, that will accommodate interregional travel demand, and specifying corridor facility concepts that improve interregional travel on the State Highway System. The corridor concepts included in Transportation Concept Reports reflect the State’s vision regarding System accommodation of interregional, regional and local travel needs.

Senate Bill 375 - California’s 2008 Senate Bill 375 requires each of the state’s 18 metropolitan areas to reduce greenhouse gas (GHG) emissions from cars and light trucks. It also states that each region must develop a Sustainable Communities Strategy (SCS) that promotes compact, mixed-use commercial and residential development that is walkable and bikeable and close to mass transit, jobs, schools, shopping, parks, recreation and other amenities.

California Interregional Blueprint (CIB)

The California Interregional Blueprint informs and enhances the State’s transportation planning process. Similar to requirements for regional transportation plans under Senate Bill 375, SB 391 requires the State’s long-range transportation plan to meet California’s climate change goals under Assembly Bill 32. In response to these statutes, Caltrans is preparing a state-level transportation blueprint to inform CTP 2040 and articulate the State’s vision for an integrated, multi-modal interregional transportation system that complements regional transportation plans and land use visions. The CIB will integrate the State’s long-range multi-modal plans and Caltrans-sponsored programs to enhance our ability to plan for and monitor the transportation system as a whole, while meeting the GHG-reduction targets resulting from SB 375.

California Strategic Growth Plan - The Governor and Legislature have initiated the first phase of a comprehensive Strategic Growth Plan to address California’s critical infrastructure needs over the next 20 years. California faces over \$500 billion in infrastructure needs to meet the demands of a population expected to increase by 23 percent over the next two decades. In November 2006, the voters approved

the first installment of that 20-year vision to rebuild California by authorizing a series of general obligation bonds totaling \$42.7 billion.

District System Management Plan (DSMP) - The District System Management Plan (DSMP) is a long-range (20 year) strategic and policy planning document that presents the long range goals, policies, and programs the district intends to follow in maintaining, managing, and developing the transportation system. It serves as a resource for informing federal, state, regional, and local agencies, and the public and private sector of the plans the district intends to follow in its partnership role with local and regional agencies.

Goods Movement Action Plan (GMAP) - The Goods Movement Action Plan (GMAP) was issued by the California Business, Transportation and Housing Agency (Agency) and the California Environmental Protection Agency (Cal EPA) in two phases in 2005 and 2007. It was a major milestone in statewide policy and planning for freight transportation, trade corridors, and related air quality issues. The GMAP helped guide project selection for the allocation of funds under the \$2 billion Trade Corridors Improvement Fund (TCIF) program, authorized by the voter-approved Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act of 2006 (Proposition 1B).

Caltrans Deputy Directive 64 R1: Complete Streets – Integrating the Transportation System - Caltrans fully considers the needs of non-motorized travelers (including pedestrians, bicyclists and persons with disabilities) in all programming, planning, maintenance, construction, operations and project development activities and products. The intent is to plan for multimodal transportation facilities.

State Assembly Bill 32 - Global Warming Solutions Act - This bill requires the State's greenhouse gas emissions to be reduced to 1990 levels by the year 2020. Caltrans' strategy to reduce global warming emissions has two elements. The first is to make transportation systems more efficient through operational improvements. The second is to integrate emission reduction measures into the planning, development, operations and maintenance of transportation elements.

Caltrans - Climate Action Plan - Greenhouse gas (GHG) emissions and the related subject of global climate change are emerging as critical issues for the transportation community. The California Department of Transportation (Caltrans) recognizes the significance of cleaner, more energy efficient transportation. On June 1, 2005 the State established climate change emissions reduction targets for California which lead to development of the Climate Action Program. This program highlights reducing congestion and improving efficiency of transportation systems through smart land use, operational improvements, and Intelligent Transportation Systems (objectives of the State's Strategic Growth Plan). The Climate Action Plan approach also includes institutionalizing energy efficiency and GHG emission reduction measures and technology into planning, project development, operations, and maintenance of transportation facilities, fleets, buildings, and equipment.

Corridor Mobility Improvement Account (CMIA) - The California Transportation Commission adopted the \$4.5 billion Corridor Mobility Improvement Account (CMIA) program, the first commitment of funds from the \$19.9 billion transportation infrastructure bond approved by California voters as Proposition 1B in November 2006. The statewide CMIA program includes nearly \$1.3 billion in Bay Area projects, plus an additional commitment of \$405 million through the State Highway Operations and Protection Program (SHOPP) for replacement of Doyle Drive in San Francisco. This brings the total amount programmed for Bay Area transportation projects to roughly \$1.7 billion. *Source: www.mtc.ca.gov*

Corridor System Management Plans (CSMP) - CSMPs were developed for corridors that received funding from the Corridor Mobility Improvement Account (CMIA). They were required by the California Transportation Commission per resolution adopted in 2007 stating that "...the Commission expects Caltrans and regional agencies to preserve the mobility gains of urban corridor capacity improvements over time that will be described in Corridor System Management Plans (CSMPs)." The CSMP incorporated detailed operational analysis into corridor planning through performance assessments, analysis and evaluation, leading to recommending system management strategies for a corridor.

Trade Corridors Improvement Fund (TCIF) - In November 2006, voters approved Proposition 1B, a roughly \$20 billion Transportation Bond. It established the Trade Corridors Improvement Fund that included a total of \$3.1 billion for goods movement-related programs, of which \$2 billion was set aside for infrastructure improvements statewide.

Freeway Performance Initiative (FPI) – This is the Metropolitan Transportation Commission’s effort to improve the operations, safety and management of the Bay Area’s freeway network by deploying system management strategies, completing the HOV lane system, addressing regional freight issues, and closing key freeway infrastructure gaps.

Region

Regional Transportation Plan - Transportation 2035 Plan for the San Francisco Bay Area

The Metropolitan Transportation Commission is responsible for adopting a nine-county San Francisco Bay Area’s Regional Transportation Plan (RTP). The RTP defines a vision for the region’s transportation network. An update of this plan is performed every four years. The most recently adopted RTP is the T2035 Plan approved in 2009. A 2013 update, titled Plan Bay Area is currently underway. This RTP update will be finalized and adopted in the summer of 2013 and will include the SB-375 Sustainable Communities Strategy. This law requires that the region and other areas throughout California reduce transportation related greenhouse gas emissions through joint planning efforts.

Regional Transportation Improvement Program (RTIP)

The Regional Transportation Improvement Program is a sub-element of the State Transportation Improvement Program (STIP). The Metropolitan Transportation Commission is responsible for developing regional project priorities for the RTIP for the nine counties of the Bay Area. The biennial RTIP is then submitted to the California Transportation Commission for inclusion in the STIP.

County

Santa Clara County

Valley Transportation Plan (VTP) 2030

VTP 2030 is the long-range countywide transportation plan for Santa Clara County. The Valley Transportation Authority (VTA), the Congestion Management Agency for Santa Clara County, is responsible for preparing and periodically updating their countywide transportation plan. It is intended to provide a planning framework for developing and delivering transportation projects and programs over the next 25 years (2005 to 2030). Santa Clara County is beginning the process to update this plan, identified as VTP 2035.

San Mateo County

2004 Transportation Expenditure Plan

The 1988 voter approval of Measure A, San Mateo County's half-cent transportation sales tax, has provided the County with a resource to meet its multi-faceted transportation challenges during the past 16 years. The measure also marked the development of the San Mateo County Transportation Authority (hereafter referred to as the TA), the agency created to administer the sales-tax funds. The current measure that ended in December 31, 2008 was approved by San Mateo County voters in 2004 and extends the measure until 2033.

I-280 Wildlife Crossing Study - Caltrans is currently undergoing a Transportation Enhancement project that will examine wildlife use, habitat connectivity, and wildlife-vehicle collisions along the I-280 in San Mateo County with emphasis on a 17-mile portion of Interstate 280, between Hillside Drive in Hillsborough, and Woodside Road in Woodside.

San Francisco County

Countywide Transportation Plan

The San Francisco Countywide Transportation Plan (SFTP) is consistent with the policy framework of the San Francisco General Plan. Its Transportation Element establishes goals, policies, and objectives that guide transportation planning, which are used to analyze and make recommendations regarding specific land development proposals. The SFTP is the 25 year investment blueprint for transportation system development within that policy framework. An update is currently underway.

Proposition K

On November 4, 2003, Proposition K was first approved by 75% of San Francisco voters, simultaneously with a new 30-year Transportation Expenditure Plan. The Proposition K plan supersedes, or replaces, the Proposition B plan that was approved by voters in 1989 to collect a one-half of one percent transaction and use to finance transportation improvements for the City and County of San Francisco. Prop K is in effect to date.

Appendix C

Additional Route Data for I-280	
Route Characteristics	
State Route and Interstate Intersections	SRs 87, 85, 17, 84, and 92, I-380, and US 101
Cities Traversed	San Jose, Sunnyvale Woodside, Redwood City, Hillsborough, Atherton, Burlingame, Colma, Daly City, S. San Francisco, San Bruno, San Francisco
Parallel Arterials	El Camino Real
Existing Congestion State of the System 2006 :	Top AM Peak Period Congestion: n/b Meridian to I 880, vhd: Top PM Peak Period Congestion: s/b Moorpark Ave. East to 11 th St., vhd: 530
Environmental	
Air Quality Basin	San Francisco Bay Area Air Basin
Air Quality District:	Bay Area Air Quality Management District
Transit Oriented Developments (TODS)	Planned Balboa Park Bart Station
Modal Split # and % Source: 2000 Census Data by County	Santa Clara County San Mateo County San Francisco County
Bicycle	10,076 = 1.2% 2,896 = 0.8% 8,302 = 2.0%
Walked	14,786 = 1.8% 7,609 = 2.1% 39,192 = 9.4%
Drive Alone	641, 113 = 77.3% 256,066 = 72.3% 169,508 = 40.5%
Carpool	101,188 =12.2% 45,367 = 12.8% 45,152 = 10.8%
Public Transit	29,118 = 3.5% 26,029 = 7.4% 130,311 = 31.1%
Work at Home	25,868 = 3.1% 12,845 = 3.6% 19,376 = 4.6%
Other	4,609 = 0.6% 2,406 = 0.7% 2,761 = 0.7%
Summary of Studies in Corridor:	<p>San Francisco County Mobility, Access, Pricing Study Bicycle Route Choice Study Value Pricing Pilot Program Central Freeway and Octavia Boulevard Circulation Study Balboa Park Station Area Circulation Study San Jose Avenue Access and Design Study Bayview Transportation Improvement Project</p> <p>San Mateo County Peninsula Gateway Study 2020 Phase 2 Grand Boulevard Study</p> <p>Santa Clara County Santa Clara (VTA) Silicon Valley Rapid Transit Corridor</p>

Appendix D

Pedestrians Issues at I-280 Ramp Intersections							
Segment/ PM	City	Intersection	Long Crossing Distance or Large Corner Radii	Loop Ramp	Ped Crossing Prohibited	Unmarked Crosswalk	No Sidewalks
A	San Jose	I-280/McLaughlin Ave		X			
A	San Jose	I-280 on-ramp/E. Reed Street			X		
A	San Jose	I-280 off-ramp/E. Virginia Street				X	
A	San Jose	I-280/SR 82		x			
A	San Jose	I-280/Saratoga Ave	x	x		x	x
A	Santa Clara	I-280/Lawrence Expwy					x
A	Santa Clara	I-280/Stevens Creek Blvd	x				
A	Cupertino	I-280/Wolfe Road	x	x		x	
A	Cupertino	I-280/De Anza Blvd	x				
D	Cupertino	I-280/Foothill Expwy		x		x	
D	Los Altos	I-280/El Monte Rd		x		x	
E	San Bruno	I-280/Sneath Lane		x			
E	S. San Francisco	I-280/Westborough		x		x	
E	Daly City	I-280/Hickey Blvd		x			
F	San Francisco	I-280/Ocean Avenue	x				
	San Francisco	I-280/Geneva Avenue	x				
G	San Francisco	I-280/Bosworth Street	x				
H	San Francisco	I-280/Pennsylvania Avenue near 18th		x		x	

Appendix E

I-280 FREEWAY AGREEMENTS

The Freeway Agreement documents the understanding between Caltrans and the local agency relating to the planned traffic circulation features of the proposed facility. It does not bind the State to construct on a particular schedule or staging. In the event that the freeway is fully constructed, it shows which streets may be closed or connected to the freeway; it shows which streets and roads may be separated from the freeway; it shows the location of frontage roads; and it shows how streets may be relocated, extended or otherwise modified to maintain traffic circulation in relation to the freeway. Locations of railroad and pedestrian structures, as well as those for other non-motorized facilities, should also be shown. Agreements are often executed many years before construction is anticipated and they form the basis for future planning, not only by Caltrans but by public and private interests in the community.

The California Freeway and Expressway System has a large financial investment in access control to insure safety and operational integrity of the highways. The legislative intent for requiring Freeway Agreements is to obtain the local agency's support of local road closures and changes to the local circulation system and to protect property rights and to assure adequate service to the community. Access control is necessary on the freeway or expressway so that current and future traffic safety and operations are not compromised.

The State may, at the State's expense, install signs, signals, and other traffic control devices at appropriate locations to be determined by the State in order to regulate, warn or guide traffic upon the highways. Local jurisdictions consent to control and maintenance over each of the relocated or reconstructed county/local roads and frontage roads and other State constructed local roads. Local jurisdictions will accept control and maintenance over designated section of the interchange or separation structures constructed under the agreements except as to any portion thereof which is adopted by the State as a part of the freeway proper. The agreements may be modified at any time by mutual consent of the parties involved as may become necessary for the best accomplishment through State, county and local cooperation of the whole freeway project for the benefit of the people of the State, county and local jurisdiction.

The following list of Freeway Agreements can be viewed in detail using Caltrans' Project Management Tracking System:

Santa Clara County

#1172 SCL-101-16 June 30, 1970 Agreement with the County of Santa Clara, including I-280 between I-101 and McLaughlin Avenue, PM 0.0 – 0.4
#1172 SCL-101-17 August 17, 1970 Agreement with the City of San Jose, including I-280 between 0.2 miles West of I-101 and Coyote Creek, PM 0.2 – 1.1
#1202 SCL-17-8 October 20, 1969 Agreement with the City of San Jose, including I-280 between Winchester Road and Los Gatos Creek, PM 3.3 – 6.0
#1203 SCL-17-9 October 14, 1969 Agreement with the County of Santa Clara, including I-280 between Route 17 and Lincoln Avenue, PM 3.5 – 5.4
#1213 SCL-280-1 April 5, 1968 Agreement with the City of San Jose on I-280 between Coyote Creek and Los Gatos Creek, PM 1.1 – 3.3
#1214 SCL-280-10 January 18, 1965 Agreement with the County of Santa Clara on I-280 between 0.4 West of Foothill Boulevard and the San Mateo County line, PM 11.9 – 20.6
#1215 SCL-280-11 October 1, 1962 Agreement with the Town of Los Altos Hills on I-280 between Magdalena Avenue and 0.3 West of Page Mill Road, PM 14.1 – 18.8
#1216 SCL-280-2 December 24, 1962 Agreement with the County of Santa Clara on I-280, PM 4.6 – 6.0
#1217 SCL-280-3 January 15, 1963 Agreement with the City of San Jose on I-280 between Forest Avenue and Stevens Creek Boulevard, PM 4.6 – 7.4
#1218 SCL-280-4 May 5, 1967 Agreement with the County of Santa Clara on I-280 between Saratoga Ave, and Stevens Creek Boulevard, PM 6.0 – 7.4
#1219 SCL-280-5 July 2, 1962 Agreement with the County of Santa Clara on I-280 between Stevens Creek Blvd. and Mountain View-Stevens Creek Road, PM 7.4 – 11.5
#1220 SCL-280-6 October 30, 1962 Agreement with the City of Santa Clara on I-280 between Stevens Creek Boulevard and 0.2 Southeast of Calabazas Creek, PM 7.4 – 7.8
#1221 SCL-280-7 November 18, 1975 Agreement with the City of Cupertino on I-280 between 0.2 miles Southeast of Calabazas Creek and Foothill Boulevard, PM 7.8 – 11.5
#1222 SCL-280-8 June 13, 1962 Agreement with the City of Sunnyvale on I-280 between 0.25 miles East of Blaney Ave. and 0.1 mile West of Rte 114, PM 8.7 – 10.8
#1223 SCL-280-9 August 27, 1963 Agreement with the City of Los Altos on I-280 between Mountain View-Stevens Creek Road and 0.4 miles West, PM 11.5 – 11.9
#1243 SCL-85-9 October 15, 1990 Agreement with the City of Cupertino, involving I-280 between 0.3 miles east of Route 85 and 0.3 miles West of Route 85, PM 10.4 – 11.0
#1246 SCL-87-3 June 26, 1984 Agreement with the City of San Jose, involving I-280 between Almaden Avenue and Bird Avenue, PM 1.9 – 2.6

San Mateo County

#1299 SM-1-7 November 13, 1990 Agreement with the City of Daly City, involving I-280 between PM25 and the San Francisco County line, PM 25.0 – 27.4
#1300 SM-280-1 September 30, 1965 Agreement with the County of San Mateo on I-280 between the Santa Clara County line and the south town limits of Woodside, PM 0.0 – 2.3
#1301 SM-280-10 November 21, 1963 Agreement with the County of San Mateo on I-280 between the north city limits of San Bruno and 0.1 mile south of Chinese Cemetery Road, PM 23.2 – 25.0
#1302 SM-280-2 August 9, 1966 Agreement with the City of Menlo Park on I-280 between Sand Hill Road and 0.2 miles north, PM 1.7 – 1.9
#1303 SM-280-3 December 19, 1966 Agreement with the Town of Atherton on I-280 0.6 miles north of Sand Hill Road, PM 2.3 – 2.3
#1304 SM-280-4 February 10, 1966 Agreement with the Town of Woodside on I-280 between town limits, PM 2.3 – 5.6
#1305 SM-280-5 August 10, 1964 Agreement with the Town of Hillsborough on I-280 between Crystal Springs Road and Summit Drive, PM 13 – 15.8
#1306 SM-280-6 August 3, 1964 Agreement with the City of Burlingame on I-280, PM 17.2 – 17.2
#1307 SM-280-7 August 18, 1964 Agreement with the City of Millbrae on I-280 between city limits, PM 17.2 – 18.9
#1308 SM-280-8 July 14, 1964 Agreement with the City of San Bruno on I-280 between city limits, PM 19.3 – 21.9
#1309 SM-280-9 August 3, 1964 Agreement not available for viewing online, PM 21.9 – 23.4
#1320 SM-92-2 June 1, 1976 Agreement with the County of San Mateo, involving I-280 between the north town limits of Woodside to 0.7 miles north of Route 92, PM 5.6 – 11.5
#1321 SM-92-3 September 1, 1964 Agreement with the County of San Mateo, involving I-280 between the north town limits of Woodside and the south city limits of San Bruno, PM 11.5 – 19.3

San Francisco County

#1260 SF-101-3 July 7, 1958 Agreement with the City and County of San Francisco, involving I-280 between Mission Street and I-101, PM 3.6 – 4.3
#1264 SF-1-1 November 1, 1962 Agreement with the City and County of San Francisco, involving I-280 between the south city limits and Orizaba Avenue, PM 0.0 – 0.4
#1265 SF-280-1 February 20, 1962 Agreement with the City and County of San Francisco on I-280 between Orizaba Avenue and Havelock Street, PM 0.4 – 2.1
#1266 SF-280-2 March 27, 1961 Agreement with the City and County of San Francisco on I-280 between Havelock Street and Cambridge Street, PM 2.1 – 3.6
#1267 SF-280-3 January 10, 1962 Agreement with the City and County of San Francisco on I-280 between Route 68 and Evans Avenue, PM 4.3 – 5.1
#1268 SF-280-4 February 25, 1994 Voided agreement with the City and County of San Francisco on I-280, PM 5.1 – 7.3