



# Transportation Concept Report

## State Route 87

### District 4

October 24, 2014 Draft



Disclaimer: The information and data contained in this document are for planning purposes only and should not be relied upon for final design of any project. Any information in this Transportation Concept Report (TCR) is subject to modification as conditions change and new information is obtained. Although planning information is dynamic and continually changing, the District 4 Division of Transportation Planning and Local Assistance makes every effort to ensure the accuracy and timeliness of the information contained in the TCR. The information in the TCR does not constitute a standard, specification, or regulation, nor is it intended to address design policies and procedures.

#### California Department of Transportation

Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability

#### Approvals:

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## **Stakeholder Acknowledgement**

District 4 is pleased to acknowledge the time and contributions of stakeholders and partner agencies to this TCR. Development of System Planning documents such as this one is dependent upon the participation and cooperation of key stakeholders. This TCR represents a cooperative planning effort for State Route 87. Representatives of the Santa Clara Valley Transportation Authority, the City of San Jose, and Santa Clara County provided essential information, advice and feedback for the preparation of this document.

This TCR will be posted on the Caltrans District 4 System Planning website at:  
<http://www.dot.ca.gov/dist4/systemplanning/>

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# TABLE OF CONTENTS

ABOUT THE TRANSPORTATION CONCEPT REPORT .....	1
TCR PURPOSE .....	1
STAKEHOLDER PARTICIPATION .....	1
EXECUTIVE SUMMARY .....	2
CORRIDOR OVERVIEW .....	4
Route Segmentation .....	4
Route Description .....	5
Community Characteristics .....	7
Land Use .....	8
System Characteristics .....	13
Bicycle Facility .....	14
Pedestrian Facility .....	17
Transit Facility .....	17
Freight .....	22
Environmental Considerations .....	23
CORRIDOR PERFORMANCE .....	26
KEY CORRIDOR ISSUES .....	28
CORRIDOR CONCEPT .....	29
Concept Rationale .....	29
Planned and Programmed Projects and Strategies .....	30
Projects and Strategies to Achieve Concept .....	30
APPENDIX .....	31
Appendix A: Glossary of terms and Acronyms .....	31
Appendix B: Factsheets .....	36
Appendix C: Resources .....	38

## ABOUT THE TRANSPORTATION CONCEPT REPORT

System Planning is the long-range transportation planning process for the California Department of Transportation (Caltrans). The System Planning process fulfills Caltrans' statutory responsibility as owner/operator of the State Highway System (SHS) (Gov. Code §65086) by identifying deficiencies and proposing improvements to the SHS. Through System Planning, Caltrans focuses on developing an integrated multimodal transportation system that meets Caltrans' goals of safety, mobility, delivery, stewardship, and service.

The System Planning process is primarily composed of four parts: the District System Management Plan (DSMP), the Transportation Concept Report (TCR), the Corridor System Management Plan (CSMP), and the Transportation System Development Plan (TSDP). The district-wide **DSMP** is strategic policy and planning document that focuses on maintaining, operating, managing, and developing the transportation system. The **TCR** is a planning document that identifies the existing and future route conditions as well as future needs for each route on the SHS. The **CSMP** is a complex, multi-jurisdictional planning document that identifies future needs within corridors experiencing or expected to experience high levels of congestion. The CSMP serves as a TCR for segments covered by the CSMP. The **TSDP** is a list of planned and partially programmed transportation projects used to recommend projects for funding. These System Planning products are also intended as resources for stakeholders, the public, and partner, regional, and local agencies.

### TCR Purpose

California's State Highway System needs long range planning documents 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 in each Caltrans District during a 20-25 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.

## STAKEHOLDER PARTICIPATION

Stakeholder participation was sought throughout the development of the SR 87 TCR. Outreach involved internal and external stakeholders, regional and local agencies. During the initial information resource gathering for the TCR, stakeholders were contacted for input related to their particular specializations and to help verify data accuracy. As the document was finalized, stakeholders were asked to review the document for comments, edits, and for consistency with the intent of existing plans, policies, and procedures. The final document was presented to various committees, commissions, councils, and stakeholder groups as a method of information sharing and to receive any additional comment. The process of including and working closely with stakeholders adds value to the TCR by allowing for outside input and ideas to be reflected in the document.

# EXECUTIVE SUMMARY

## Concept Summary

Table ES1. Corridor Concept Summary

Segment	Segment Description	Existing Facility	20-25 Year Capital Facility Concept	20-25 Year System Operations and Management Concept	20-25 Year Facility Concept	Post-25 Year Concept
1	SR 85 to Interstate 280	6F (2HOV)	6F (2ML)	Implement Express Lanes	6F (2ML)	8F (4ML)
2	Interstate 280 to US 101	6F (2HOV)	6F (2ML)	Express Lanes Transit Augmentations	6F (2ML) Transit	8F (4ML)

*Legend:*

F = Freeway

ML = Managed Lanes

HOV = High-Occupancy Vehicle (lane)

Within District 4, State Route (SR) 87 is a six-lane divided freeway located in Santa Clara County, entirely within the City of San Jose. The route begins at SR 85 and continues north to United States Highway 101 (US 101). In the north, the City of Santa Clara is found within close proximity of the route.

The route serves as an urban freeway between residential southern San Jose and the commercial, administrative, and industrial developments in both central San Jose and northern Santa Clara County. The route also serves regional and interregional traffic, provides a direct connection to the Norman Y. Mineta San Jose International Airport (SJC), Downtown San Jose and the central passenger rail depot: San Jose Diridon Station. Due to high costs and close proximity to SJC there is no interchange between SR 87 and Interstate 880 (I-880) and no such connection is planned. Finally, many multimodal facilities including public transit, bicycle and pedestrian paths are found on or along SR 87.

This SR 87 TCR evaluates current traffic conditions along the route using 2013 as the base year and 2040 as the forecast year to analyze projected route conditions and traffic demand. Conversion of existing HOV lanes to Express (toll) Lanes is not certain, but the Regional Transportation Plan, "Plan Bay Area" lists 2018 as the year for this planned change.

## Concept Rationale

The route accesses both Downtown San Jose and Norman Y. Mineta San Jose International Airport (SJC) while also establishing a commuter route between southern San Jose to the Golden Triangle of Silicon Valley (northern Santa Clara County). In 2004, the facility was built out with six lanes (two HOV) along the entire length. As expected, traffic demands are high for such a centrally located facility, and changing the HOV lanes into express lanes is a committed project, planned for completion by 2020.

2011 Level Of Service (LOS) F traffic congestion was experienced along 73% of the route during some part of the day, the highest level among all freeways in Santa Clara County. Northbound HOV lane demand also experienced LOS F during AM Peak periods between Almaden Road and Alma Avenue. Yet traffic using the HOV lane was still moving faster (average 33 mph) than traffic in the mixed flow lanes (average of 16 mph) in the same location.

While adding capacity may be exceedingly complicated for the SR 87 corridor, it could become a necessity due to the central location of the route, the current high demand as well as expected density increases in population and commercial uses within San Jose and surrounding areas. While planned improvements for transit and other modes will absorb some of the demand, the expectation is that freeway demand will remain high.

Adding a mixed-flow lane in both directions would address some of the current and future demand; it could also attract new traffic. With further encouragement of carpool use and utilization of available capacity of converted HOV lanes for tolling, the post-25 year concept proposes an additional Express Lane in each direction. The Santa Clara Valley Transportation Authority (VTA) is already planning four Express Lanes on SR 85 between SR 87 and I-280. When combined with the strategy for SR 85, this would establish a larger network for double Express Lanes for use by private automobiles and public transit.

## Proposed Projects and Strategies

Table ES2. SR 87 Proposed Projects to Help Achieve Route Concept

Segment	Description	Plan Bay Area/VTP	Location
1	Improve interchange at Route 87/Capitol Expressway/Narvaez Avenue	230425/H28	PM 1.443
1, 2	SR 87 Express Lanes from SR 85 to US 101	240464/H2	PM 0.00-9.220
2	Double lane SB US 101 off-ramp to SB SR 87	240570/H20	PM 9.220
1, 2	Guadalupe Express Improvements	240512/T30	PM 0.00-5.863
2	BART Phase II	240375/T4	PM 5.863-.8.370
1, 2	Caltrain/HSR Electrification and San Jose Diridon Station	240063/T15 21627/T7	PM 4.080 - 9.220
2	Airport Connector	21922/T27	PM 8.370
2	ACE Upgrade	21790/T2	
2	North First Street light rail improvements	240519	Corridor
1	Optimize service Tamien node		Tamien Station

# CORRIDOR OVERVIEW

## ROUTE SEGMENTATION

Table 1. SR 87 Segments

Segment #	Location Description	County_Route_Beg. PM	County_Route_End PM
1	SR 85 to Interstate 280	SCL_87_0.000	SCL_87_5.156
2	Interstate 280 to US 101	SCL_87_5.156	SCL_87_9.220

Figure 1. SR 87 Segment Map



Source: District 4 GIS and Technical Support Branch, 2014

## **ROUTE DESCRIPTION**

SR 87, also known as the Guadalupe Freeway, is a south-north route that serves as a commuter connector between residential southern San Jose and the commercial, administrative, and industrial developments in central San Jose and northern Santa Clara County. The route also serves regional and interregional traffic, provides a direct connection to the Norman Y. Mineta San Jose International Airport (aka SJC) located between I-880 and US 101, Downtown San Jose and the central passenger rail depot: San Jose Diridon Station. Though relinquished within the City of San Jose, SR 82 parallels Segment 1 of the route and then crosses under the route at West San Carlos Street. To some extent, US 101 can be viewed as a parallel route to both segments of SR 87.

There is no interchange between SR 87 and Interstate 880; an interchange is also not planned at this location. The SR 87 and I-880 freeways intersect close to SJC and establishing an interchange at this location would most likely encounter height restrictions and confined right-of-way resulting in a difficult and costly project to build. Also, since such an interchange would be spaced close to other existing interchanges, ramps of this interchange would need to be braided with the other existing interchange ramps, a technically difficult feat, given the space restrictions and previously mentioned constrained right-of-way. Lastly, utility relocation would add even more costs to what is already seen as a cost-prohibitive proposal.

State Route 87 begins at the SR 85/87 Interchange (PM 0.00). Santa Teresa Boulevard, which connects to Coleman Road and Blossom Hill Road further to the south, also transitions into the SR 87 freeway at this location. Towards the north, SR 87 ends at US 101 (PM 9.22) and transitions into Charcot Avenue which connects to Orchard Parkway and North First Street. Two expressways — Almaden and Capitol — find their beginning points near SR 87 in Segment 1 of the corridor.

The corridor includes a parallel VTA light rail line that connects southern San Jose with Downtown San Jose and northern Santa Clara County. This line operates in the median of SR 87 between SR 85 and Interstate 280. A four-mile pedestrian and bicycle path is found alongside portions of SR 87 between SR 85 and Alma Street.

For most of the route the freeway follows the Guadalupe River. Prior to 2004, before the entire length of the route was upgraded to a freeway, it was known as the Guadalupe Parkway. Today this name has been retained for the frontage roads along SR 87 only.

### **Route Purpose:**

SR 87, which runs from SR 85 to US 101, mainly serves commuter traffic needs while providing direct access numerous commercial and business centers within San Jose. Other connections to major regional and interregional thoroughfares include I-280, the Capitol expressway, and the Almaden expressway.

### **Major Route Features:**

SR 87 provides a direct connection between US 101 and SR 85, access to Downtown San Jose, SJC, and the Golden Triangle of Silicon Valley, particularly for commuters traveling from southern San Jose. Located within a variety of Priority Development and Growth Opportunity Areas (PDAs), this route fulfills an important function for the California State Highway System (SHS). Yet despite its central location, truck traffic accounts for only 2.5 percent of Average Annual Daily Traffic (AADT) on this route.

Figure 2. Mineta San Jose International Airport



Table 2. Route Description by Segment

Segment #	1	2
Freeway & Expressway	No	No
National Highway System	No	No
Strategic Highway Network	No	No
Scenic Highway	No	No
Interregional Road System	No	No
High Emphasis	No	No
Focus Route	No	No
Federal Functional Classification	Freeway	Freeway
Goods Movement Route	No	No
Truck Designation	CA Legal Network (CL-40)	CA Legal Network (CL-40)
Rural/Urban/Urbanized	Suburban	Urban
Metropolitan Planning Organization	Metropolitan Transportation Commission (MTC)	MTC
Regional Transportation Planning Agency	MTC	MTC
Congestion Management Agency	Santa Clara Valley Transportation Authority (VTA)	VTA
Local Agency	City of San Jose	City of San Jose
Tribes	N/A	N/A
Air District	Bay Area Air Quality Management District (BAAQMD)	BAAQMD
Terrain	Rolling/Flat	Flat

## **COMMUNITY CHARACTERISTICS**

Santa Clara County encompasses approximately 1,300 square miles (City of San Jose 180 square miles). The county has more than 1,850,000 inhabitants (2010 Census) with almost 1 million residing in San Jose. In 2012, Santa Clara County was the best-performing metro economy in the nation and should stay at or near the top for years to come, according to the Milken Institute.<sup>1</sup> Silicon Valley is home to many of the world's largest technology corporations as well as thousands of small startups. San Jose is known as the Capital of Silicon Valley.

Areas along SR 87 and south of I-280 are predominantly suburban in character, while several schools, a number of light industrial sections, and shopping areas lie close to the State route. Larger shopping areas include the Plant Shopping Center, Westfield Oakridge Mall that, together with the Princeton Plaza Mall in close proximity, are found at the southern end of SR 87.

Next to shopping, many attractive destinations are found in Downtown San Jose including arts and entertainment, museums, restaurants, bars and night clubs. San Jose State University, offering an extensive number of bachelor and master degrees with 110 concentrations, is also found within this area. Meanwhile, the Mineta San Jose International Airport and San Jose Diridon (train) Station, located along the northern segment of SR 87, serve as important interregional and international anchor destinations.

While several smaller community parks are dotted all along SR 87, the largest among them are Columbus Park/Heritage Rose Garden, Kelley Park, and Martial Cottle Park. Along the Guadalupe River a parallel multiuse trail is available for use by pedestrians and bicyclists for both recreation and commuting.

Santa Clara County has the highest median household income in California, almost \$89,000 (2008), while close to 30% of the households had incomes less than \$50,000.

Within District 4, Santa Clara County has the largest population, the most housing units, and provides the largest number of jobs. In the Association of Bay Area Government's (ABAG) Jobs Housing Connection Strategy (see Table 3 below), Santa Clara County is either at the top of or one of the highest in terms of forecasted growth for the year 2040.

Table 3. Employment, Housing Units, and Population

County	Employment				Housing Units				Population			
	2010	2040	2010-40 change	%	2010	2040	2010-40 change	%	2010	2040	2010-40 change	%
Region	3,385	4,505	1,120	33%	2,786	3,446	660	24%	7,151	9,299	2,148	30%
Alameda	694	948	253	36%	583	731	148	25%	1,510	1,988	478	32%
Contra Costa	345	467	122	35%	400	480	80	20%	1,049	1,335	286	27%
Marin	111	129	18	17%	111	119	8	7%	252	285	33	13%
Napa	71	90	19	27%	55	61	6	11%	136	164	27	20%
San Francisco	569	759	191	34%	377	469	92	25%	805	1,086	280	35%
San Mateo	345	445	100	29%	271	327	56	21%	718	906	188	26%
Santa Clara	926	1,230	304	33%	632	843	211	33%	1,782	2,426	644	36%
Solano	132	180	48	36%	153	176	23	15%	413	511	98	24%
Sonoma	192	257	65	34%	205	236	32	16%	484	598	115	24%

Source: Jobs Housing Connection Strategy, ABAG 2012.

<sup>1</sup> [Mercury News: Silicon Valley Economy Ranked Best 2012](#)

Much like Santa Clara County as a whole, the City of San Jose has a diverse population, with Caucasian, Asian, and people with ancestry from Spanish speaking nations charting comparable pieces of the pie. About one in twenty people are not associated with these three groups.

A little less than half of San Jose residents speak English at home, showing the enormous attraction Silicon Valley continues to provide for people from all over the world. More detailed information can be found in Table 4.

Table 4. San Jose Demographics Compared to Santa Clara County

	San Jose	Santa Clara County
Total Population	982,765	1,837,504
Non-Hispanic White	28.7%	34.3%
Non-Hispanic Asian	32%	33.7%
Hispanic or Latino	33.2%	26.9%
Other	6.1%	5.1%
Language Spoken at Home – English Only	44.8%	49.5%
Population Density (people/square mile)	5,359	1,381
Number of Household	301,366	599,652
Average Household Size	3.09	2.89
Number of Housing Unit	314,038	633,275
Owner-Occupied Housing Unit	58.5%	58.7%
Median Household Income (Estimate, 2006-2010 American Community Survey)	\$80,764	\$89,064
Drive Alone to Work	78%	76.8%
Carpooling	10.6%	10.1%
Transit	3.4%	3.2%
Bicycling / Walking	2.3% / 2.0%	3.0% / 2.3%
Mean Travel Time to Work (min)	25.3	24.3

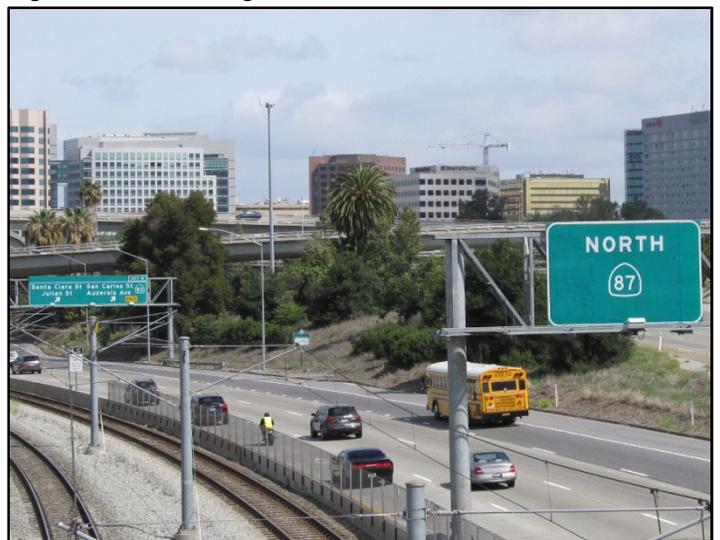
Source: US Census. <http://www.census.gov>, accessed August 2013.

In July 2013 the Association of Bay Area Governments (ABAG) adopted their latest Regional Housing Needs Plan. This plan covers years 2014 through 2022 and contains a projection of over 35,000 new housing units for the City of San Jose, the largest number for a city in the Bay Area. More than 9,000 new housing units are allocated towards the very-low income category (0 to 50 percent of Area Median Income), and more than 14,000 for the above moderate category (120 percent\*).

**LAND USE**

Land uses along SR 87 corridor range from suburban to urban, while public land uses are found within the airport and railroads areas.

Figure 3. SR 87 looking north towards downtown San Jose.

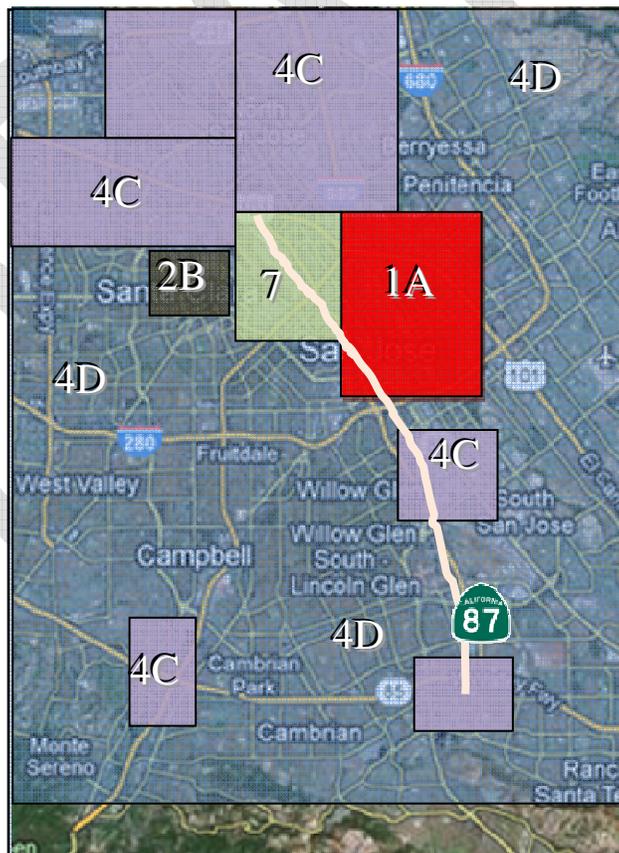


### Caltrans Smart Mobility Framework:

The 2010 Caltrans Smart Mobility Framework<sup>2</sup> (SMF) is a transportation planning guide which includes the notion of *Place Types* to further integrate smart growth concepts into transportation and land use decision making in California. The goal of this framework is to serve as a guide and assessment tool for determining how well plans, programs, and projects meet the definition of "smart mobility" and ensure applicability of the framework for both Caltrans as well as partner agencies. The Place Type analytical tool also measures and ranks Location Efficiency (of a place type) based on its Community Design characteristics and Regional Access to the transportation system. The analysis concludes that — once likely transportation, development and conservation investment strategies are identified — a Place Type Location Efficiency factor can be improved so that further smart mobility benefits can be realized in the future. The Smart Mobility Framework Place-Types found along SR 87 are displayed in Figure 4.

Place Types help planners and programmers determine transportation needs and the interrelated challenges of mobility and sustainability in specific areas by identifying, at a certain scale, what kind of built environment is most prevalent usually along a State highway corridor. Based on this general approach, a map showing Priority Development and Growth Opportunity Areas (on page 12) along the SR 87 corridor has been provided with Place Types overlays. Definitions of all Places Types are provided on the following page. This map shows that the industries of Silicon Valley (in purple) play a dominant role in the northern section of the SR 87 corridor area. The map identifies high-level mobility needs in the region, the central role the SR 87 corridor plays, and where pressures exist on housing (in blue). This general overview also helps inform the general long-range concept for the route.

Figure 4. Place Type Designations along SR 87



<sup>2</sup> <http://www.dot.ca.gov/hq/tpp/offices/ocp/smf.html>

Table 5. Place Types as found along SR 87 Segments

Segment	Place Type
1	<p><b>4C-Dedicated Use Areas</b>  <i>Large tracts of lands used for commercial purposes such as business or industrial park or warehousing.</i></p> <p><b>4D- Neighborhoods</b>  <i>Residential subdivisions and complexes including housing, public facilities and local-serving commercial uses, typically separated by arterial corridors.</i></p>
2	<p><b>1 A-Urban Cores</b>  <i>Central cities and large downtowns with full range of horizontally- and vertically-mixed land uses and with high capacity transit stations/corridors present or planned. Urban cores are hubs of transit systems with excellent transit coverage, service levels, and intermodal passenger transfer opportunities including convenient airport access.</i></p> <p><b>2B-Close-in Corridors</b>  <i>Arterial streets with a variety of fronting development types, with frequent transit service and transfer options.</i></p> <p><b>4C-Dedicated Use Areas</b>  <i>Large tracts of lands used for commercial purposes such as business or industrial park or warehousing.</i></p> <p><b>7-Special Use Area</b>  <i>Large tracts of single, special-use lands. Mineta International Airport.</i></p>

Existing growth trends and development show a continued pressure for industry and housing along the route. Though Downtown San Jose has a height restriction due to the close proximity of SJC, both downtowns for the cities of San Jose and Santa Clara are prosperous and are expected to expand (their downtowns) in both size and dimension.

One area for major development is expected around the San Jose Diridon Station. With the arrival of California High Speed Rail and BART, the surrounding downtown area would have the potential to become what some have called a *Times Square of Silicon Valley* including plans for developing a central entertainment district in the middle of residential and office uses. Though the time frame for beginning high speed rail operations is estimated to be at least twenty years away, it could potentially be developed sooner in conjunction with a new sports and entertainment stadium in the same area.<sup>3</sup> While there is no certainty the area will develop as foreseen, the location is recognized as having great potential.

Meanwhile, Plan Bay Area (2013 Regional Transportation Plan) emphasizes growth in Downtown San Jose, North San Jose and "urban villages" along existing and planned transit lines such as BART, high-speed rail, VTA light rail and dedicated bus lanes. This will add additional interest and pressure on the downtowns of San Jose and Santa Clara and may lead to greater use of all modes in the SR 87 corridor.<sup>4</sup>

The SMF also suggests designating areas within suburban communities that could adjust and become more compact communities. As the PDA map on page 12 shows, this process is already in place in San Jose along SR 87. Meanwhile, suggested investments to improve operational efficiency of existing arterial and freeway corridors including projects which improve connectivity and access to other modes, as well as promotion of complete streets and ridesharing together with traffic management are mentioned in the SMF.

Other suggestions from the Smart Mobility Framework:

- Transit-oriented development along high capacity transit stops and corridors
- Strategic redevelopment of commercial corridors to improve location efficiencies
- Community design factors for all new construction

<sup>3</sup> [Mercury News: Diridon Development](#)

<sup>4</sup> [Mercury News: Plan Bay Area](#)

A current example of transit-oriented development, the VTA board advanced a proposal in 2013 from the Dahlin Group to build a housing development with 263 rental units and 36 for-sale townhouses on the east side of the Caltrain Tamien and VTA Light Rail stations on land currently used as a Caltrain parking lot.

Figure 5. Proposed Transit Oriented Development near Tamien Station.<sup>5</sup>



#### Future Land Sale:

State Route 87 functions as a commuter route from southern San Jose into downtown San Jose and the Golden Triangle of Silicon Valley. SR 87, which begins at SR 85, attracts traffic from the neighborhoods and surrounding development near this freeway junction. State Route 85 experiences heavy commute traffic demands originating from southern Santa Clara County (southern San Jose, Gilroy, Morgan Hill) and points beyond (San Benito County<sup>6</sup>) via the US 101 corridor. To the north, SR 87 connects directly to US 101, while also continuing as a local road into the Golden Triangle.

The economic significance of this route is closely tied to the importance of Silicon Valley. This corridor is exceptionally valuable from both a transportation and economic perspective and, with increased cultural and socially based possibilities, could function on a similar plane seen in urbanized areas like the City/County of San Francisco.

The 25-year concept for the SR 87 corridor does not call for additional right-of-way. However, the period beyond the 25-year planning horizon is difficult to forecast. In terms of housing and employment, San Jose and greater Silicon Valley are not expected to reach their potential growth ceilings within the current planning horizon. The development of express lanes along the SR 87 corridor is yet to be defined and planned double express lane along SR 85 (between SR 87 and I-280) may have an impact upon traffic operations along this corridor. Consequently, these uncertainties may result in greater right-of-way needs in spot locations therefore the potential sale of properties owned by the State should be thoroughly scrutinized.

<sup>5</sup> [Tamien Development](#)

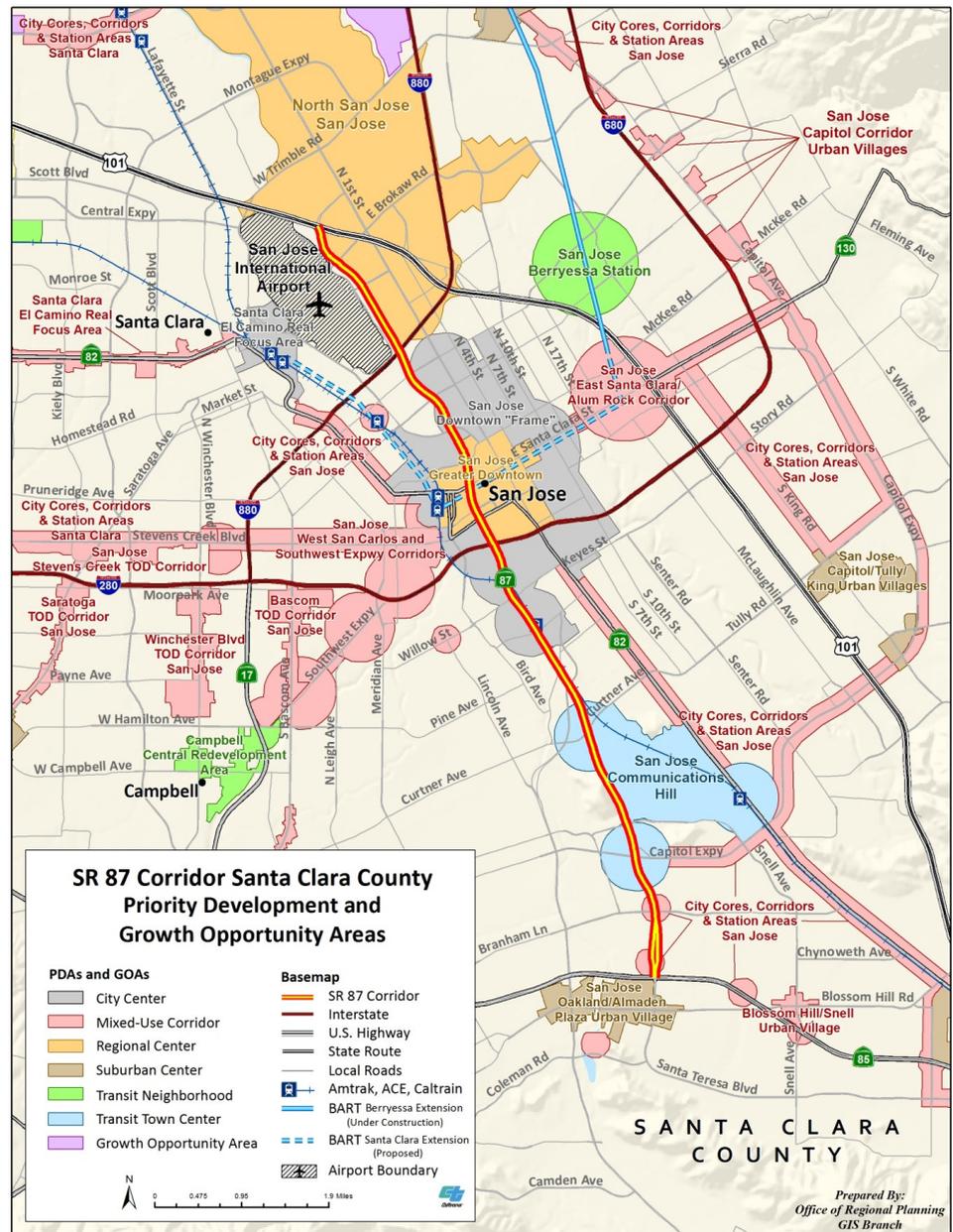
<sup>6</sup> [San Benito County Commute to Bay Area](#)

## Priority Development and Growth Opportunities Areas

Plan Bay Area, completed by the Metropolitan Transportation Commission (MTC) in 2013, is a long-range integrated transportation and land-use/housing strategy for the San Francisco Bay Area. Plan Bay Area adheres to Senate Bill 375 (2008) which requires metropolitan regions in the State to develop a Sustainable Communities Strategy (SCS) to accommodate future population growth and reduce greenhouse gas emissions from cars and light trucks. The identification and establishment of local Priority Development Areas (PDA) and Growth Opportunity Areas (GOA) will help focus 80 percent of new housing and 66 percent of new jobs forecasted for the region. MTC produced the Regional Transportation Plan in concert with ABAG who developed regional housing and employment forecasts. Within the plan's horizon year (2040), population increase estimates for the Bay Area include two million new residents and a total population topping nine million. PDAs in Santa Clara County are being looked at as providing a major role in accommodating future growth and sustainability of the environment.

Figure 6. Priority Development and Growth Opportunity Areas

As one of three regional centers in District 4, north San Jose (which includes the downtown plus a large and expanded area of the Golden Triangle) is assumed under Plan Bay Area to accommodate much of the future housing demand. Between 2013 and 2040, 32,000 units are projected for this area. As shown, the City of San Jose received a City Center designation around their downtown area. The City of Santa Clara also received a City Center designation. Other areas of potential significance in the SR 87 corridor include a Transit Town Center (in blue), the Suburban Center (in brown) and a variety of mixed-uses on both sides of the corridor in close proximity to Downtown San Jose.



## SYSTEM CHARACTERISTICS

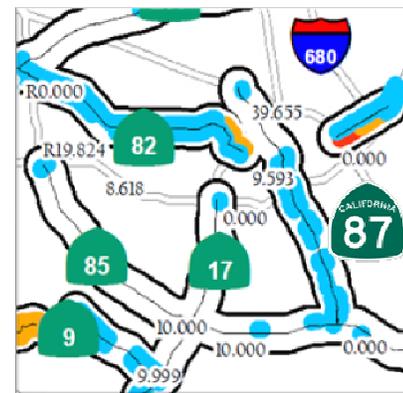
On the southern part of the corridor (Segment 1), State Route 87 begins at the interchange with SR 85 (PM 0.00) and Santa Teresa Boulevard. Connections to major arterials such as Coleman Road and Blossom Hill Road are made via Santa Teresa Boulevard. To the north, SR 87 ends at the interchange with US 101 (PM 9.22) and transitions into a local arterial, Charcot Avenue, with connections to Orchard Parkway and North First Street slightly further to the north. Two local expressways, Almaden and Capitol, begin/end near the southern portion of the corridor. No expressways connect to the northern portion of SR 87; the Central Expressway could have been connected to the freeway were the airport not located in between.

Table 6. Existing and Future Segment Characteristics

Segment #	1	2
<b>Existing Facility</b>		
Facility Type	F	F
General Purpose Lanes	6	6
Lane Miles	31.93	26.45
Centerline Miles	5.15	4.07
Median Width	75 feet	30 feet
Median Characteristics	Paved/Light Rail	Paved
HOV Lanes	2	2
HOV Characteristics	2 or more persons per vehicle	2 or more persons
HOT/Express Lanes	0	0
Auxiliary Lane	10%	50%
Distressed Pavement	90% Bad Ride	25% Bad Ride
ROW	200 - 440 ft	160 - 500 ft
<b>Concept Facility</b>		
Facility Type	F	F
General Purpose Lanes	6	6
Lane Miles	31.93	26.45
Centerline Miles	5.15	4.07
HOT/Express Lanes	2	2
Aux Lane	10%	50%
<b>Post 25 Year facility</b>		
Facility Type	F	F
General Purpose Lanes	6 - 8	6 - 8
Lane Miles	32 – 42 ft	26 – 32 ft
Centerline Miles	5.15	4.07
HOT/Express Lanes	2 - 4	2 - 4
Aux Lane	0 - 10%	0 – 50%
ROW Needs	Possible	Possible
<b>TMS Elements</b>		
TMS Elements (BY)	CCTV, CMS, TMS, Ramp Metering,	CCTV, CMS, Ramp Metering
TMS Elements (HY)	CCTV, CMS, TMS, Ramp Metering	CCTV, CMS, Ramp Metering

While both Segments 1 and 2 feature six lanes, Segment 1 contains a VTA light rail line in the median of the facility which requires a greater median width. Both segments have a single HOV lane in each direction that requires 2 or more people per vehicle during the weekday peak (traffic) hours. Segment 2 is located adjacent to Downtown San Jose and the airport, and auxiliary lanes exist to better accommodate ingress and egress traffic movements for about 50 percent of the route. The most distressed pavement is found along Segment 1 (see Figure 7). Both segments also present varying degrees in right of way availability ranging from 160 to 500 feet.

Figure 7. Bad ride along SR 87 in blue.



- Class 2 MAJOR Needs
- Class 2 MINOR Needs
- Class 2 RIDE Needs
- Class 2 Routes

Current ITS infrastructure on SR 87 includes Closed Circuit Television (CCTV) cameras, changeable message signs (CMS), ramp metering (RM) stations and Traffic Monitoring Stations (TMS). Non recurrent incident management is provided by the MTC Freeway Service Patrol (FSP).

The major change in the long range concept for the entire corridor facility is the planned modification of existing HOV lanes into Express Lanes, one in each direction. For the Post 25-year facility an additional Express Lane is suggested based on the facility reaching capacity (see Corridor Performance section), projected growth in the area, and the likelihood that both other modes and facilities will not provide for all future demand in this corridor.

**BICYCLE FACILITY**

Starting at SR 85, bicyclists can use the Highway 87 Bikeway multi-use trail. Only a few gaps of regular streets exist along this trail which parallels SR 87 between SR 85 and I-280 (Segment 1). Between I-280 and US 101 (Segment 2), an uninterrupted multi-use path known as the Guadalupe Trail can be found. Both trails can be used to commute to Downtown San Jose. Other destinations accessible from bicycles include the Westfield Oakridge Mall, the Guadalupe River Park and Gardens, and the Norman Y. Mineta San Jose International Airport. In 2013 the Guadalupe Trail was expanded and now reaches Alviso Marina County Park without interruption. Bicyclists can then use the Alviso Marina County Park Trail to experience the natural habitat of the wetlands of the Don Edwards San Francisco Bay National Wildlife Refuge.

Close to 700 daily users were counted on the Guadalupe trail at Park Avenue/San Fernando Street (near Downtown San Jose) in 2012. Trail count data<sup>7</sup> also shows many users are regular patrons of the trail system.

**Projects:**

The Guadalupe Trail is still being expanded with planned connections to the future Berryessa BART station. While it may be necessary to cross some surface streets with regular traffic, due to costs associated with establishing a fully separated bicycle facility, the City of San Jose continues to improve the overall experience for cyclists and is working to close more gaps in the route. The trail

to the community of Alviso was recently opened while the gap closure project between Willow Street and I-280 is in the developmental stage.



Figure 8. Highway 87 Bikeway sign.

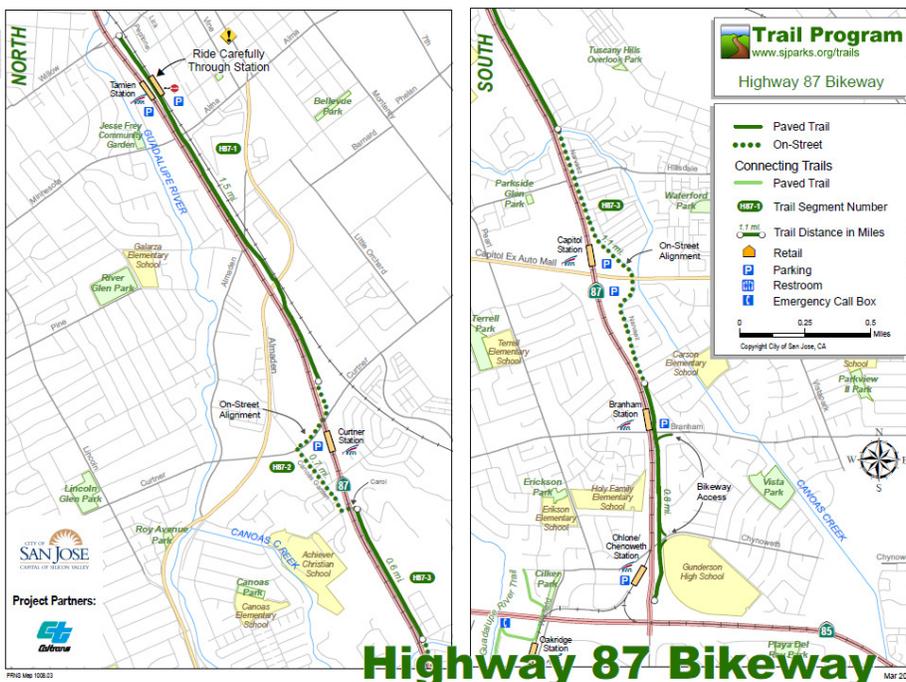
Figure 9. Guadalupe River Trail Passing underneath SR 87  
Source: *Grey3k*, obtained via *WikiMedia*.

<sup>7</sup> <http://www.sanjoseca.gov/DocumentCenter/View/5647>

Table 7. Bicycle Facilities by Segment

Segment	State Bicycle Facility					Parallel Bicycle Facility			
	Segment	Post Mile	Location Description	Bicycle Access Prohibited	Parallel Facility Present	Segment	Name	Location Description	Class.
1	A	0.000-0.895	Junction with SR-85 to Faye Park Drive	Yes	Yes	1		Two-way bike path. (with signage issues)	I
	B	0.895-1.934	Faye Park Drive to Helzer Road	Yes	Yes	1	Narvaez Avenue	Bicycle lanes in both directions.	II
	C	1.924-2.512	Helzer Road to Carol Drive	Yes	Yes	1		Two-way bike path.	I
	D	2.512-2.81	Carol Drive to Curtner Avenue	Yes	Yes	1		Bike route available	III
	E	2.81-3.002	Curtner Avenue to Unified Way Drive Way	Yes	Yes	1		Bicycle lanes in both directions (signage issues)	II
	F	3.002-4.524	Unified Way Drive Way to Willow Street	Yes	Yes	1		Two-way bike path	I
	G	4.524-5.156	Willow Street to I-280	Yes	Yes	1		Two-way bike path	I
2	A	5.156-9.220	Junction with I-280 to US 101	Yes	Yes	1	Guadalupe Trail	Two-way bike path (with connection issues)	I

Figure 10. Highway 87 Bikeway Map.



VTA's Countywide Bicycle Plan focuses on identifying bikeway projects that have regional or countywide significance. Across Barrier Crossing (ABC) projects, for non-motorized transportation crossings of a major barrier, such as a freeway, railroad or waterway, are planned in the corridor. For SR 87, the following projects which involve a Cross County Bicycle Corridor have been identified:

Table 8. Identified ABCs along SR 87

SR 87	
Airport Parkway*	Alma Avenue*
Hedding Street*	Almaden Road
Almaden Boulevard*	Mill Pond Drive
Santa Clara Street	Carol Drive*
San Fernando Street*	Hillsdale Avenue
San Carlos Street	Branham Lane*
Virginia Street	Chynoweth Avenue*

\* indicates Cross County Bicycle Corridor

Table 9. Projects on local streets within close proximity of the corridor identified in the VTP2040

<p>R30: Autumn Pkwy. Improvement from Union Pacific Railroad to San Carlos, Plan Bay Area #230200 involving circulation improvements around San Jose Diridon Station: Planned for 2015 – 2017.</p>	
<p>R32: Chynoweth Avenue Extension: Almaden Expressway to Winfield Boulevard. Plan Bay Area #240636 2015 – 2016.</p>	
<p>R34: Coleman Avenue widening from I-880 to Taylor Street. Plan Bay Area #230201</p>	
<p>R39: Downtown Couplet Conversion Projects Plan Bay Area 230452 from one way to two ways, adding bike lanes. 2013 – 2018</p>	
<p>R53: San Carlos Street Bridge Replacement and Widening at Caltrain/Vasona LRT Plan Bay Area #230637 2015 – 2017 New Commitment</p>	

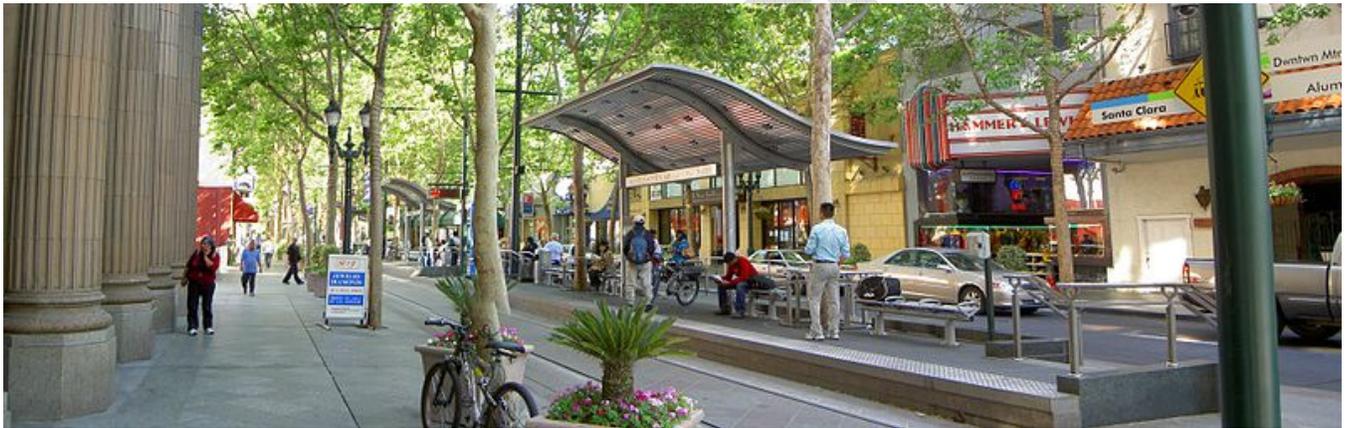
## **PEDESTRIAN FACILITY**

The Highway 87 Bikeway can be used by pedestrians as well. This means that pedestrians can walk close to the entire length of segment 1 in this corridor. Additional pedestrian facilities can also be found along the Almaden Expressway.

For segment 2, the more natural walkway is found closer to SR 87 with the shared walk and bikeway along the Guadalupe River. With Downtown San Jose in close vicinity of SR 87, the greater corridor provides ample opportunity here for pedestrians to walk the length of the route in an urbanized environment.

## **TRANSIT FACILITY**

Figure 11. VTA Light Rail Santa Clara Street Station in Downtown San Jose.



Source: xAtsukex, obtained via Wikimedia.

SR 87 is found within a transit rich environment. Transit options include regular bus, Bus Rapid Transit (BRT), light rail and regional rail modes providing services throughout the Silicon Valley. However, mass transit services and connections may need to be expanded due to planned BART and High-Speed Rail services coming to this area. VTA ridership for bus and light rail is expected to grow. According to the US census, about 3.5 percent of the population in Santa Clara County currently uses public transportation to travel to work.



Figure 12. Bikes Riding along on Board of Caltrain  
Source: Yukihiro Matsuda, obtained via Wikimedia.

Figure 13. Transit along SR 87



Source: District 4 GIS and Technical Support Branch, 2014

Table 10. Transit Modes and Facilities by Segment

Seg	Mode & Collateral Facility	Name	Route End Points	(Peak) Ridership	Operating Period (apprx.)	Bikes Allowed on Transit
1	Light Rail In median	Alum Rock - Santa Teresa	Alum Rock - Santa Teresa	20,031	4:45 AM to 1:00 AM	Yes
		Express Service	Baypointe - Santa Teresa	530	Commuter hours	Yes
		Mountain View - Winchester	Mountain View - Winchester	13,144	5:00 AM to 12:30 AM	Yes
		Ohlone/Chynoweth - Almaden	Ohlone/Chynoweth - Almaden	985	6:00 AM to 10:30 PM	Yes
1	Caltrain	Tamien	local	807*	5:00 AM – 11:15 PM	Yes
		Tamien, Capitol	Limited	851*	5:45 AM – 8:15 PM	Yes
		Tamien	Baby Bullet	807*	6:00 AM - 7:45 PM	Yes
1	Bus	Route 64	Almaden LRT – McKee & White	3,350	5:15 AM – 11:15 PM	Yes
		Route 66	Kaiser SJ –Milpitas/Dixon Rd	5,850	5:15 AM – midnight	Yes
		Route 68	Gilroy TC –SJ Diridon TC	5,350	4:00 AM – 1:30 AM	Yes
		Route 168	Gilroy TC – SJ Diridon TC	300	5:30 AM – 9:00 AM 3:30 PM – 6:45 PM	Yes
		Route 304	South San Jose – Sunnyvale TC	200	6:00 AM – 8:45 AM 3:30 PM – 7:00 PM	Yes
2	Light Rail Through downtown	Alum Rock - Santa Teresa	Alum Rock - Santa Teresa	20,031	4:45 AM to 1:00 AM	Yes
		Peak Commuter Express Service	Baypointe - Santa Teresa	530	Commuter hours	Yes
		Mountain View - Winchester	Mountain View - Winchester	13,144	5:00 AM to 12:30 AM	Yes
		Ohlone/Chynoweth - Almaden	Ohlone/Chynoweth - Almaden	985	6:00 AM to 10:30 PM	Yes
	Caltrain	Diridon, College Park, Santa Clara	Local	4,398*	4:30 AM – 1:30 AM	Yes
		Diridon, College Park, Santa Clara	Limited	4,398*	6:00 AM – 8:15 PM	Yes
		Diridon, Santa Clara	Baby Bullet	4,311*	6:00 AM – 7:30 PM	Yes
	Bus	Route 10	Free Airport Flyer	1,150	5:00 AM – 11:30 PM	Yes
		Route 66	Kaiser SJ –Milpitas/Dixon Rd	5,850	5:15 AM – midnight	Yes
		Route 68	Gilroy TC – SJ Diridon TC	5,350	4:00 AM – 1:30 AM	Yes
		Route 168	Gilroy TC – SJ Diridon TC	300	5:30 AM – 9:00 AM 3:30 PM – 6:45 PM	Yes
		Route 304	South San Jose – Sunnyvale TC	200	6:00 AM – 8:45 AM 3:30 PM – 7:00 PM	Yes
DASH (201)		Free Downtown Area Shuttle	575	6:30 AM – 9:30 PM	Yes	

\*Showing total Caltrain passengers.

**Light rail:**

All VTA light rail lines operate within the SR 87 corridor. Between SR 85 and I-280 (Segment 1), the median of SR 87 is shared with VTA light rail. From I-280 to US 101 (Segment 2), VTA light rail is also found in close proximity to SR 87. At the southern end of the SR 87 corridor a VTA light rail spur leads to Almaden Station and another spur leads to Santa Teresa Station with both lines terminating at Alum Rock Station. North of I-280, the Winchester-Mountain View line also shares the rails with these two previously mentioned lines.

Figure 14. Light rail station in the median of SR 87 at West Virginia Street.



VTA started providing complementary service when the Peak Commuter Express Service was created in 2010. This service is provided between the Baypointe and Santa Teresa Stations, and several stations with smaller numbers of boarding passengers, are skipped. This way the transit service is improved and the attractiveness increased.

Interestingly, the single Caltrain station on the Alum Rock/Santa Teresa line — Tamien Station— is also bypassed by the Peak Commuter Express Service and this can affect the inter-regional traveler. Tamien Station is a transit node between two transit providers. For VTA light-rail, Tamien Station is part of the top 15 best-performing stations on a system-wide total of 62 stations. For Caltrain, Tamien Station takes in an average performing position among its stations, even though fewer than half of all Caltrain trains make a stop here which indicates it is an important transfer node.

Particularly the individual traveling longer distances will make a choice between using a car and the light-rail/Caltrain combination, explaining why the California Department of Transportation suggests optimizing transit services at this node.

**Bus:**

VTA bus service is found along the entire corridor, with the location and significance of Downtown San Jose explaining the importance of the bus network. SR 87 HOV lanes are used by the 162 and 182 VTA bus routes.

Figure 15. VTA Express Bus



Source: *Snty-tact*, obtained via *WikiMedia*.

### **Regional and Interregional Rail:**

Roughly a quarter mile away from SR 87, the regional and interregional San Jose Diridon Station is found. This rail hub is served by Amtrak, Capitol Corridor, Caltrain, Altamont Commuter Express (ACE), VTA bus and light rail. Currently Capital Corridor services provide connections between Auburn/Sacramento and San Jose Diridon Station while the Amtrak Coast Starlight operates from Seattle to Los Angeles and makes a stop at this location.

Caltrain provides daily service between San Francisco and San Jose, with all local, limited-stop, and baby-bullet trains stopping at San Jose Diridon Station. Six commuter trains arrive or go on to Gilroy Station and make stops at the Capitol, Tamien, and Santa Clara Stations which are all located within the vicinity of SR 87. College Park Station, between San Jose Diridon and Santa Clara Stations, also receives four Caltrain trains a day.

Daily Caltrain ridership in 2013 is around 47,000 passengers, an 11 percent increase over the previous year. The 2013 Annual Passenger Counts (foot note) shows about 60 percent of the commuters taking the train in the traditional peak direction (northbound in the AM, southbound in the PM), which means 40 percent travel in the opposite direction during commute hours. About 42 percent of Caltrain ridership originates in Santa Clara County. Additionally, Santa Clara County shows a 13 percent increase in ridership (over the previous year) which is higher than growth figures for San Mateo County and San Francisco County. Planned electrification of Caltrain, from San Francisco to Tamien Station, is planned for 2019.

ACE provides commuter train services with eight daily trains operating between Stockton and San Jose, four westbound morning and four eastbound evening trains (weekdays only). Plans also exist to expand service as demand grows.

A future BART station is also being planned for the San Jose Diridon Station. Construction of the first phase of the BART Silicon Valley Extension Project (Warm Springs Station) has already begun and is planned to open by 2018 while work on the second phase will begin as soon as additional funding is secured.

The future California High-Speed Rail line being planned between Los Angeles and San Francisco is also scheduled to stop at San Jose Diridon Station.

**FREIGHT**

With the diminishment of manufacturing related land uses along the corridor, goods movement is not prominent mode on SR 87 today. The main freight facility in the corridor is Norman Y. Mineta San Jose International Airport. The airport is the State’s sixth largest air cargo airport, yet handles just 6 percent of Bay Area air cargo due to limited space and facility constraints.

Overall, the level of trucks on the freeway is low with less than 3 percent of traffic involving trucks. Only one in seven trucks has five or more axles. In 2012, both US 101 and I-880 carried three times more trucks than SR 87. SR 85 has similar truck traffic numbers as SR 87.

Between San Jose and Gilroy, Caltrain makes use of tracks owned by the Union Pacific Railroad (UPRR). This may partially explain why Caltrain service between Tamien Station and Gilroy is not used more. UPRR has expressed guarded interest in additional passenger rail activity in this corridor and have been discussing the potential for increased passenger rail services with the Coast Rail Coordinating Council. Existing passenger and freight rail activity is already straining the corridor’s single and double-track infrastructure capacity. Additionally, a proposed Amtrak Coast Daylight service and Capitol Corridor extension to Salinas would also need to share the tracks from San Jose to Gilroy.

SR 87 is mostly located next to the San Jose Enterprise Zone, an area in which businesses may receive tax benefits. Established in 2006, the San Jose Enterprise Zone could lead to a greater need for freight services along SR 87, depending on the industries attracted by San Jose’s designation of the area. These enterprise zones are set to expire in 2019.



Figure 16. San Jose Enterprise Zone. Source: [www.kbkg.com](http://www.kbkg.com)

Table 11. Major Freight Facilities along SR 87.

Facility Type/Freight Generator	Location	Mode	Name	Major Commodity/ Industry	Comments/Issues
Air Cargo Airport	NW of downtown San Jose.	Airplane	Mineta San Jose International Airport	Largest carriers FedEx and UPS.	84 million pounds of cargo in 2012.

The air cargo tonnage at San Jose International Airport is expected to increase 65 percent by 2035<sup>8</sup>

<sup>8</sup> [Caltrans/air cargo/San Jose Fact Sheet](#)

# ENVIRONMENTAL CONSIDERATIONS

Figure 17. SR 87 Environmental Factors

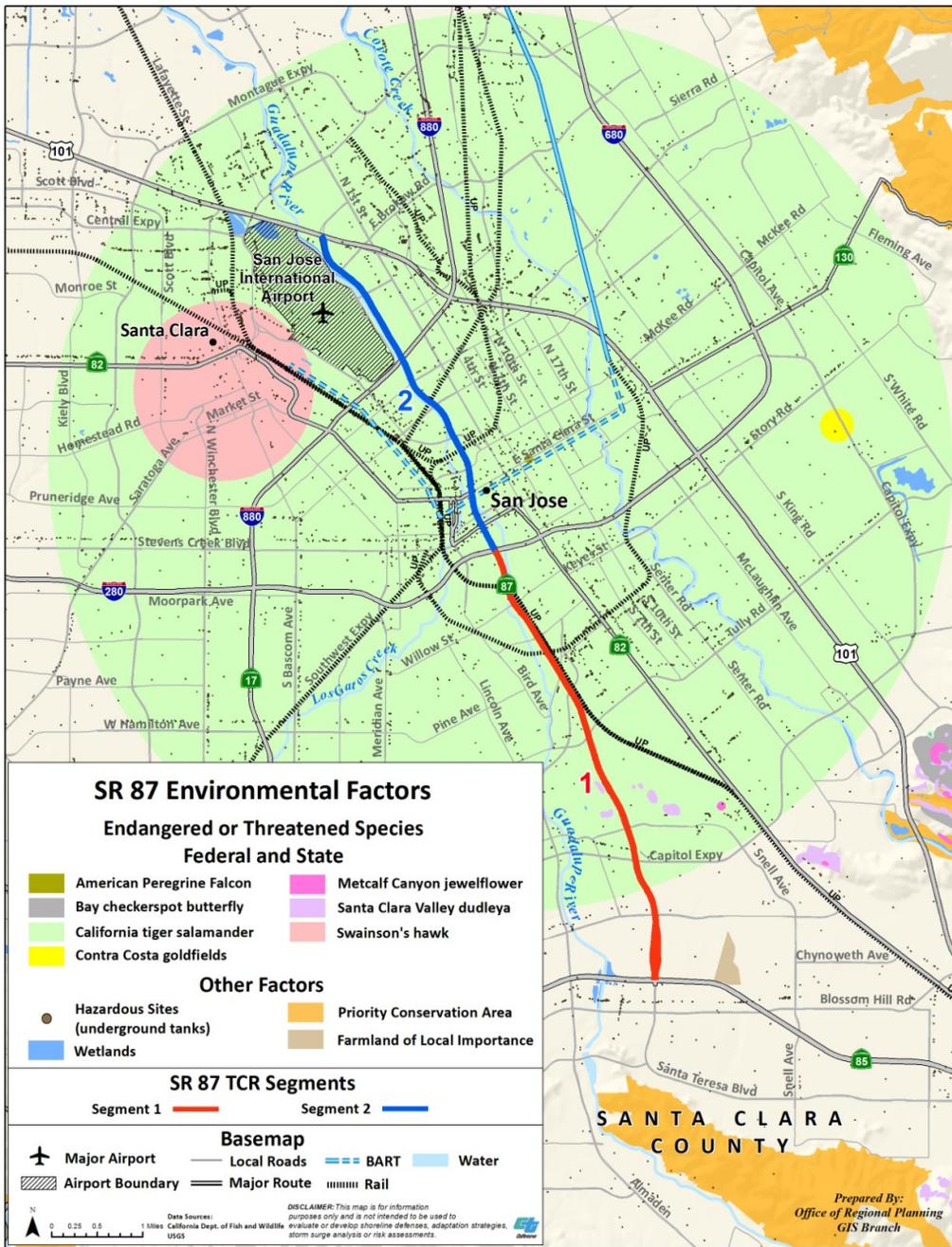


Figure 18. The California Tiger Salamander



Found in an almost exclusive urban and suburban environment, SR 87 has one endangered species within its vicinity: the California Tiger Salamander. Nearby, west of the airport in the City of Santa Clara, habitat for the Swainson’s Hawk has been identified.

Table 12. Environmental Considerations

Seg	Section 4(f) Land	Farmland/ Timberland	Cultural Resources	Geology/Soils/ Seismic	Floodplain	Climate Change and Sea Level Rise Vulnerability	Hazardous Materials	Air Quality			Noise	Waters and Wetlands	Wild and Scenic Rivers	Special Status Species	Fish Passage	Habitat Connectivity	
								Ozone	2.5 PM	10 PM							CO
1	N/A	N/A	Med	Med	By-pass created	N/A	Med	Non-Attainment	Non-Attainment	Non-Attainment	Attainment	Low	Med	Med	Low	Med	Low
2			High	High	Protection, access, restoration		Med						Med	Med		Med	

This table is intended to quickly provide an oversight on a variety of important environmental considerations. However, with SR 87 set in an urban/sub-urban setting, a good number of issues are either not applicable or the exercise of receiving a coloration of good or bad does not provide a clear representation of vulnerability.

Cultural Resources are present along the State Route in residential areas over 50 years old while historic buildings are mixed in with modern offices and used as offices and commercial buildings.

While technological innovations in automobiles may help reduce emission levels, ozone, PM 2.5 and PM 10 continue to be in nonattainment for the region as a whole. Carbon Monoxide is within attainment.

Santa Clara County is proactively engaged in maintaining its waters and watershed. Since the early 1980s, the Santa Clara Valley Water District has invested more than a billion dollars in flood protection programs, including constructing major flood protection projects, and protected more than 93,000 properties in previously flood-prone areas. The water district is now working on the Upper Guadalupe River Project (foot note). When complete, these projects will ultimately provide flood protection along a 5.7 mile stretch of the river, from I-280 to Blossom Hill Road, protecting 7,500 homes from a 100-year flood event. Pending available federal funds, the project is scheduled to be completed in 2019. Projects built so far along the Guadalupe River include flood protection, habitat restoration, and fish passages. SR 87 is completely within the Guadalupe River Watershed.

**Noise:**

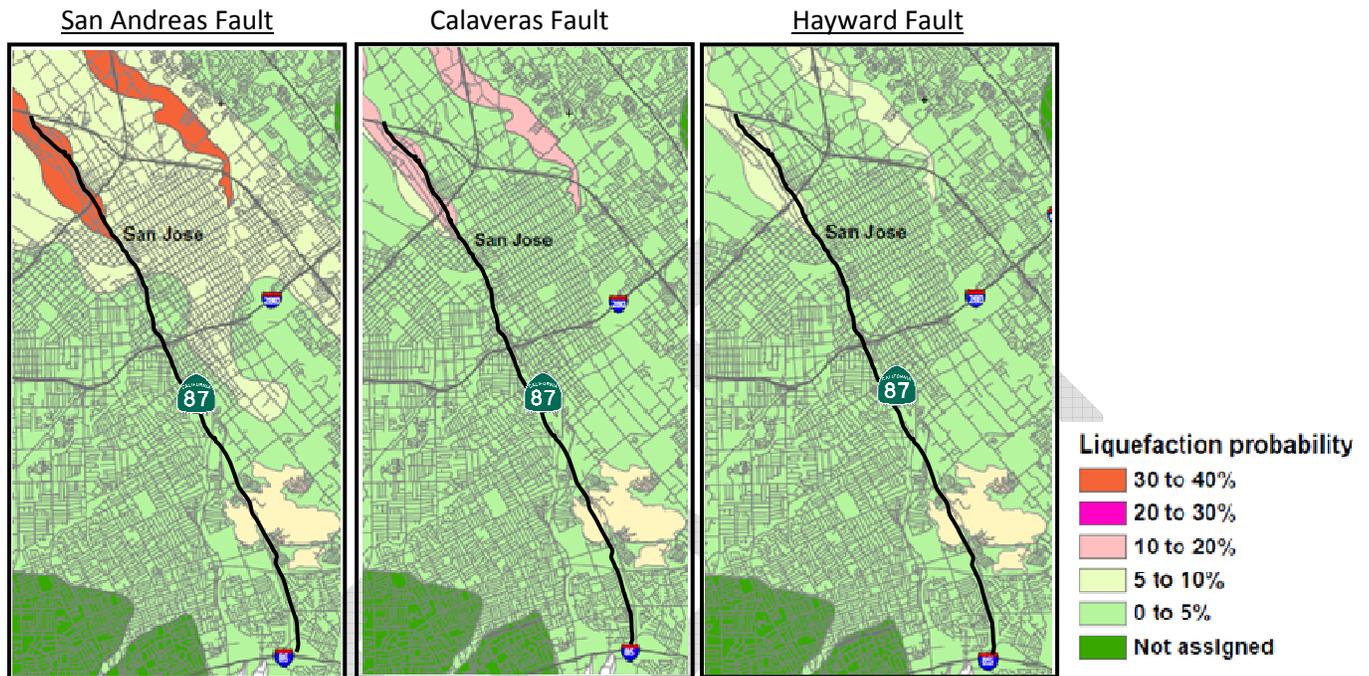
Since SR 87 is enveloped fully in an urban and suburban area, the route is not particularly known to disturb noise sensitive areas.

**Geology:**

With SR 87 being located in a seismically active area, as many freeways are in the Bay Area, the northern section of the route may be subjected to increased liquefaction potential during higher magnitude earthquakes. Shown below are the probability levels of three known fault lines, the San Andreas, the Hayward, and the Calaveras Fault lines. The data, taken from published US Geological Survey (USGS) liquefaction maps, illustrates the

previously mentioned fault lines rupturing at different magnitudes combined with further coloring to display potential problematic liquefaction areas. The San Andreas Fault line to the left shows the liquefaction probability from a 7.8 magnitude earthquake on the Richter Scale. In the middle, the probability levels are shown for the Calaveras Fault line with a magnitude 6.9 earthquake, while a 6.7 magnitude earthquake on the Hayward Fault line is shown on the right.

Figure 19. Liquefaction probabilities along SR 87 for various earthquake scenarios



Source: United States Geological Survey (USGS)

## CORRIDOR PERFORMANCE

Table 13. Corridor Performance by Segment

Segment	1	2
<b>Basic System Operations</b>		
<b>AADT 2013</b>	171,000	125,500
<b>AADT 2040</b>	175,500	137,000
<b>AADT: Growth Rate/Year</b>	0.1	0.3
<b>VMT 2013 per day</b>	881,676	510,032
<b>VMT 2040 per day</b>	904,878	556,768
<b>Truck Traffic 2013</b>		
<b>Total Average Annual Daily Truck Traffic</b>	2436	3419
<b>Total Trucks (% of AADT)</b>	1.4	2.7
<b>5+ Axle Average Annual Daily Truck Traffic</b>	314	485
<b>5+ Axle Trucks (as % of AADTT)</b>	12.9	14.2
<b>Truck Traffic 2040</b>		
<b>Total Average Annual Daily Truck Traffic</b>	2723	2771
<b>Total Trucks (% of AADT)</b>	1.6	2.0
<b>5+ Axle Average Annual Daily Truck Traffic</b>	394	409
<b>5+ Axle Trucks (as % of AADTT)</b>	14.5	14.8
<b>Peak Hour Traffic Data 2013</b>		
<b>AM NB Peak Hour Volume</b>	7087	5839
<b>AM SB Peak Hour Volume</b>	3939	3222
<b>AM Peak Hour Directional Split</b>	<b>64/36</b>	<b>64/36</b>
<b>PM Peak Hour Directional Split</b>	<b>44/56</b>	<b>47/53</b>
<b>PM NB Peak Hour Volume</b>	4974	3703
<b>PM SB Peak Hour Volume</b>	6384	4252
<b>Peak Hour Traffic Data 2040</b>		
<b>AM NB Peak Hour Volume</b>	7015	5651
<b>AM SB Peak Hour Volume</b>	4461	3613
<b>AM Peak Hour Directional Split</b>	<b>61/39</b>	<b>61/39</b>
<b>PM Peak Hour Directional Split</b>	<b>42/58</b>	<b>41/59</b>
<b>PM NB Peak Hour Volume</b>	5021	3894
<b>PM SB Peak Hour Volume</b>	6949	5647

Vehicular traffic performance for SR 87 is based on VTA's 2013 Travel Demand Model. Segment 1, from SR 85 to I-280, carried the most traffic in Base Year (2013) and is expected to carry the most traffic in Forecast Year (2040). However, Segment 2, from I-280 to US 101 through Downtown San Jose, is projected to experience more growth than segment 1.

Heaviest traffic conditions are experienced during the AM Peak Hour in the northbound direction (shown above in green) and southbound during the PM Peak Hour (shown in orange).

For both TCR segments, AM Peak Hour volumes (northbound) are forecast to decrease somewhat by 2040, while in the southbound direction for the same timeframe, volumes are forecast to increase. For both segments, PM Peak Hour volumes (southbound) are forecast to grow, with segment 2 showing the largest increase in the entire performance chart. In PM Peak Hour for the northbound direction, volumes are also forecast to increase some by 2040.

An explanation for this growth and stagnation pattern can be found when considering the route is functioning close to its capacity during peak commute hours today. Growth is therefore more achievable for the opposite direction of the peak hour. In Segment 1, traffic in the southbound PM Peak Hour direction is forecast to increase close to the point of full capacity.

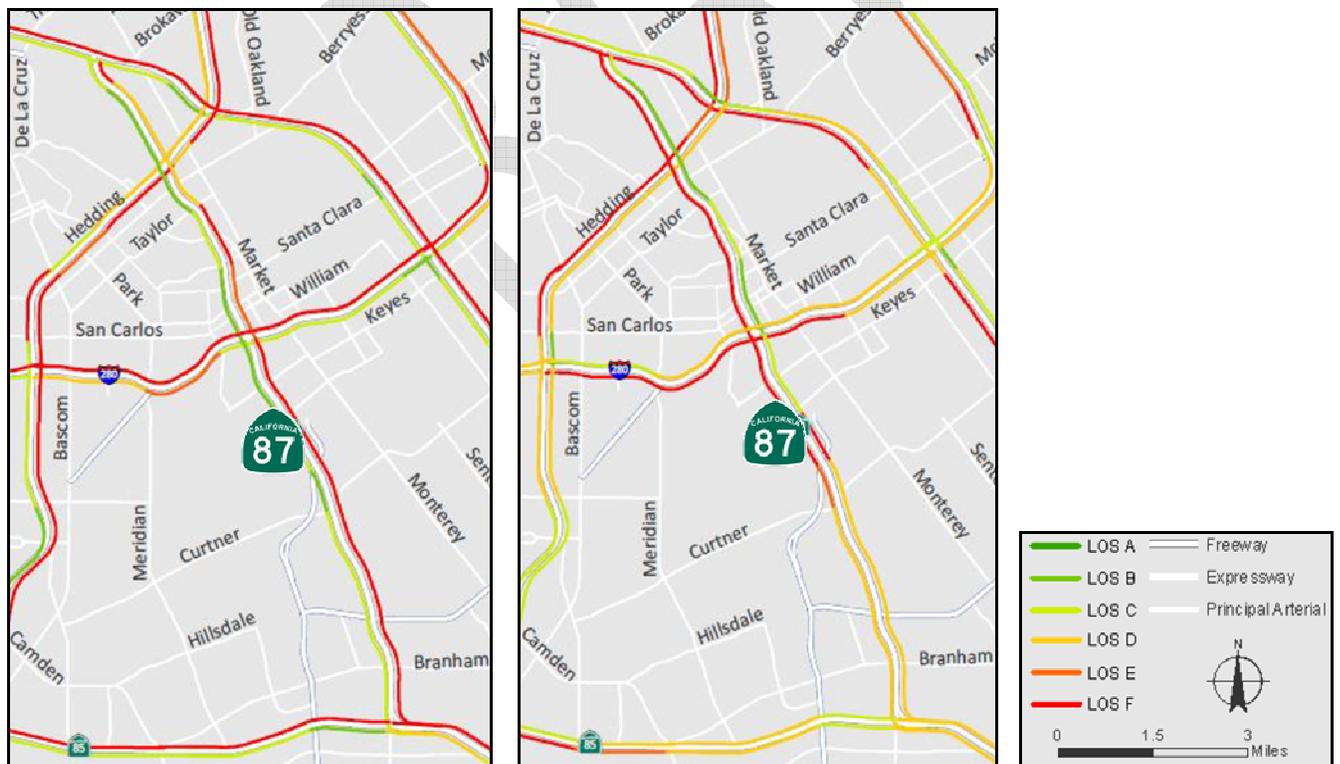
By 2040, AM Peak Hour directional split percentages, currently at 64/36 with the majority of cars going northbound, will move towards a slightly more balanced level of 61/39. Again, this is due to reaching capacity in the northbound direction and growth potential still available in the southbound direction. In the PM Peak Hour, more capacity is available in the southbound direction. By 2040, the PM Peak Hour directional split of 44/56 will be pushed further out of balance with a projected directional split of 42/58 for Segment 1 and 41/59 for Segment 2. The majority of cars are still going southbound in the PM peak hour.

We can see that particularly for Segment 1, traffic capacity is either near capacity or is seen moving towards full capacity in both directions during both peak hours of the day.

This traffic information shows in detail how the corridor is an important commuter and travel route towards Downtown San Jose, the City of Santa Clara, and the Norman Y. Mineta San Jose International Airport. The traffic data also provides a strong indication of limited capacity in both Base Year (2013) and Forecast Year (2040) conditions for this corridor.

The number of trucks using SR 87 is relatively low with percentages existing between 1.4 and 2.7 percent. Trucking is not forecast to grow significantly by 2040, between 1.6 and 2.0 percent in the both segments. About one in eight trucks has five or more axles and this figure is expected to remain steady as well.

Figures 20a and 20b. Freeway AM and PM Peak Hour Traffic mixed flow Level Of Service 2012.



Source: VTA 2013 Congestion Management Program

The NB onramp at Curtner experiences above average congestion. Here, Unified Way and a school bus yard have access to a frontage road that becomes the onramp to northbound SR 87. A single stop-sign controls the access road. Meanwhile, Class II bicycle lanes are found on the frontage road, while a Class I bicycle lane continues along the onramp section, all within Caltrans Right of Way. No separate pedestrian walkway is found along the frontage road.

In the Communications Hill Specific Plan Area Development Policy of June 2014 by the City of San Jose, this specific issue is being addressed:

- Install traffic signal at Unified Way at Bus Yard.
- Construct a Class I bicycle facility (10 feet paved with two-foot shoulders) from trail terminus at Unified Way southerly crossing at SR 87/Curtner Avenue northbound off/on ramp intersection and continuing along the east side of SR 87 ending at Millpond Drive/Masonic Drive.
- Extend the existing HOV lane on the on-ramp back to Curtner Avenue and provide additional mixed-flow lane on the ramp from Curtner to metering light for a total of three lanes on the ramp. This may require additional right-of-way on the east side of SR 87 between Unified Way and the metered on-ramp for approximately 200' feet.

A request was articulated for Caltrans to relinquish Unified Way and right-of-way along Curtner Avenue to the City of San Jose.

## KEY CORRIDOR ISSUES

Settlement issues occurred along the SR 87 corridor during a widening project and have since been resolved. Drainage issues, however, are still occurring near Tamien Station. Continued monitoring is needed to understand drainage issues and development of a future solution.

Close to Tamien Station, bus operators coming from Lelong Street going onto SR 87 are having difficulty with cars simultaneously approaching the onramp. The T-intersection ramp close to Tamien Station could be studied more closely and solution could possibly be developed.

Expressways in Santa Clara County have an HOV lane located in the right lane. While in place at many freeway onramp locations in Silicon Valley, Caltrans should be aware, potentially treat freeway onramps accordingly and look into having HOV lanes placed in the right lane of on and off ramp facilities.

Weekend congestions occur due to shopping and retail related traffic. Popular shopping areas are located near the SR 87/SR 85 Interchange (Westfield Oakridge Mall, Almaden Plaza Shopping Center). A plan exists to improve the southbound SR 85 to Almaden Expressway near SR 87, including a partial cloverleaf modification of the Almaden Expressway / SR 85 Interchange.

The I-280 and Steven Creek area along SR 87 also experiences busy weekend traffic, though the entire interchange with I-880 /Stevens Creek / I-280 is being reconstructed should influence traffic movements for these shopping areas as well as SR 87.

Lastly, the 2011 VTA Monitoring & Performance Report shows that an LOS F congestion was experienced along 73% of the route during some part of the day, the highest level among all freeways in Santa Clara County. The 2012 VTA Monitoring & Conformance Report shows that the northbound HOV lane also experienced LOS of F during AM Peak periods in a variety of spots, totaling 4 miles. According to the 2011 report, traffic using the

HOV lane is still moving faster (average 33 mph) than traffic in the mixed flow lanes (average of 16 mph) in the same location but recurrent congestion remains a corridor issue.

## CORRIDOR CONCEPT

Table 14. Concept Report

Segment	Segment Description	Existing Facility	20-25 Year Capital Facility Concept	20-25 Year System Operations and Management Concept	20-25 Year Facility Concept	Post-25 Year Concept
1	SR 85 to Interstate 280	6F (2HOV)	6F (2E)	Implement Express Lanes	6F (2E)	8F (4E)
2	Interstate 280 to US 101	6F (2HOV)	6F (2E)	Express Lanes Transit Augmentations	6F (2E) Transit	8F (4E)

### CONCEPT RATIONALE

The SR 87 corridor accesses both Downtown San Jose and the Norman Y. Mineta San Jose International Airport (SJC) while also establishing a commuter route between southern San Jose to the Golden Triangle of Silicon Valley (northern Santa Clara County). In 2004, the facility was built out with six lanes along the entire length of the route. As expected, traffic demands are high for such a centrally located facility, and changing the HOV lanes into express lanes is a committed project, planned for completion by 2020.

In 2011, the largest duration of LOS F traffic conditions among all freeways in Santa Clara County was experienced on SR 87. In 2012, the northbound HOV lane also experienced LOS F during the AM Peak Hour in a variety of locations, totaling four miles.

While adding capacity may be exceedingly complicated for the SR 87 corridor, it could become a necessity due to the central location of the route, the current high demand as well as expected density increases in population and commercial businesses within San Jose and surrounding areas. Improvements expected for transit and other modes will absorb some of the demand. The expectation is, however, that the demand will remain high.

Adding a mixed-flow lane in both directions would address some of the current and expected future needs, but it would also attract new growth in traffic without managing it. With further encouragement of carpool use and utilization of available capacity of converted HOV lanes for tolling, the post-25 year concept proposes an additional Express Lane in each direction. VTA is already planning four Express Lanes on SR 85 between SR 87 and I-280. When combined with the strategy for SR 85, this would establish a larger network for double Express Lanes for use by private automobiles and public transit.

## PLANNED AND PROGRAMMED PROJECTS AND STRATEGIES

Table 15. Planned and Programmed Projects and Strategies

Segment	Description	Planned or Programmed	Location	Source	Implementation Phase
1	Major Damage Restoration. Repair pavement.	Programmed	SR 87 at West Virginia Street.	SHOPP	2014/2015
1	Replace K-rail barrier with metal beam guard rail and concrete barrier.	Programmed	PM 9.0-9.2	SHOPP	2014/2015
1/2	Convert HOV lanes to Express Lanes	Planned	PM 0.0-9.22	Plan Bay Area (RTP ID 240464)	2017/2018
1	Improve interchange at SR 87/Capitol Expressway/Narvaez Avenue.	Planned	PM 1.433	Plan Bay Area (RTP ID 230425)	2015-2020

## PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Table 16. Projects and Strategies to Achieve Concept

Segment	Description	Location	Source
1, 2	SR 87 Express Lanes from SR 85 to US 101	PM 0.0-9.22	PM 0.00-9.220
2	Double lane SB US 101 off-ramp to SB SR 87	PM 9.22 (PM Range?)	240570 (RTP?)/H20 (VTP?)
1	Improve interchange at Route 87/Capitol Expressway/Narvaez Avenue	PM 1.433	230425/H28
1, 2	Plan Bay Area Guadalupe Express Light Rail	PM 0.0-5.863	240512/T30
2	BART Phase II	PM 5.863-8.37	240375/T4
1, 2	Caltrain/HSR Electrification and San Jose Diridon Station	PM 4.08-9.22	240063/T15 21627/T7
2	Airport Connector	PM 8.37	21922/T27
2	ACE Upgrade		21790/T2
1	Improve light-rail and Caltrain transit at Tamien	Tamien Station	SR 87 TCR
1, 2	Improve bicycle facilities	In and along corridor	240509

# APPENDIX

## APPENDIX A GLOSSARY OF TERMS AND ACRONYMS

### Acronyms

AADT – Annual Average Daily Traffic  
AB – Assembly Bill  
ABAG – Association of Bay Area Governments  
ADA – Americans with Disabilities Act of 1990  
ADT – Average Daily Traffic  
BAAQMD – Bay Area Air Quality Management District  
BART – Bay Area Rapid Transit  
BCDC – Bay Conservation and Development Commission  
BY – Base Year  
CAA – Federal Clean Air Act  
Caltrans – California Department of Transportation  
CARB – California Air Resources Board  
CCAA – California Clean Air Act  
CEQA – California Environmental Quality Act  
CHP – California Highway Patrol  
CMA – Congestion Management Agencies  
CMP – Congestion Management Plan  
CO – Carbon Monoxide  
CSMP – Corridor System Management Plan  
CSS – Context Sensitive Solutions  
CTP – California Transportation Plan  
DD – Deputy Directive  
DSMP – District System Management Plan  
ECA – Essential Connectivity Areas  
EIR – Environmental Impact Report  
EIS – Environmental Impact Statement  
EPA – Environmental Protection Agency  
FHWA – Federal highway Administration  
FSR – Feasibility Study Report  
FSTIP – Federal Statewide Transportation Improvement Program  
FTA – Federal Transit Administration  
FTIP – Federal Transportation Improvement Program  
GHG – Greenhouse Gas  
GIS – Geographic Information System  
HCP – Habitat Conservation Plan  
HOV – High occupancy vehicle lane  
HY – Horizon Year  
I – Interstate  
IGR – Intergovernmental Review  
ITIP – Interregional Transportation Improvement Program  
ITS – Intelligent Transportation System  
ITSP – Interregional Transportation Strategic Plan  
KPRA – Kingpin-to-Rear-Axle

LOS – Level of Service  
LRT – Light Rail Transit  
MPO – Metropolitan Planning Organizations  
MTC – Metropolitan Transportation Commission  
NOA – Naturally Occurring Asbestos  
NCCP – Natural Community Conservation Plan  
NEPA – National Environmental Policy Act  
PCA – Priority Conservation Area  
PDA – Priority Development Area  
PID – Project Initiation Document  
PM – Post Mile  
PPM – Parts Per Million  
PSR – Project Study Report  
PTSF – Percent Time Spent Following  
RHNA – Regional Housing Needs Allocation  
RTP – Regional Transportation Plan  
RTIP – Regional Transportation Improvement Program  
RTPA – Regional Transportation Planning Agencies  
SAFETEA-LU – Safe, Accountable, Flexible and Efficient Transportation Equity Act, a Legacy for Users  
SB – Senate Bill  
SCS – Sustainable Community Strategies  
SHOPP – State Highway Operation Protection Program  
SHS – State Highway System  
SMF – Smart Mobility Framework  
SR – State Route  
STIP – State Transportation Improvement Program  
TEA-21 – Transportation Equity Act for the 21st Century  
TCR – Transportation Concept Report  
TDM – Transportation Demand Management  
TMS – Transportation Management System  
TSN – Transportation System Network  
V/C – Volume to Capacity  
VMT – Vehicle Miles Traveled  
VPH – Vehicles per Hour  
VTA – Santa Clara Valley Transportation Authority

Acronym Guide: <http://www.dot.ca.gov/hq/LocalPrograms/training/Acronyms.doc>

## **Definitions**

AADT – Annual Average Daily Traffic is the total volume for the year divided by 365 days. The traffic count year is from October 1st through September 30<sup>th</sup>. Traffic counting is generally performed by electronic counting instruments moved from location throughout the state in a program of continuous traffic count sampling. The resulting counts are adjusted to an estimate of annual average daily traffic by compensating for seasonal influence, weekly variation and other variables which may be present. Annual ADT is necessary for presenting a statewide picture of traffic flow, evaluating traffic trends, computing accident rates, planning and designing highways and other purposes.

Base Year – The year that the most current data is available to the Districts

**Bikeway Class I (Bike Path)** – Provides a completely separated right of way for the exclusive use of bicycles and pedestrians with cross flow by motorists minimized.

**Bikeway Class II (Bike Lane)** – Provides a striped lane for one-way bike travel on a street or highway.

**Bikeway Class III (Bike Route)** – Provides for shared use with pedestrian or motor vehicle traffic.

**Bottlenecks** – A bottleneck is a location where traffic demand exceeds the effective carrying capacity of the roadway. In most cases, the cause of a bottleneck relates to a sudden reduction in capacity, such as a lane drop, merging and weaving, driver distractions, a surge in demand, or a combination of factors.

**Capacity** – The maximum sustainable hourly flow rate at which persons or vehicles reasonably can be expected to traverse a point or a uniform section of a lane or roadway during a given time period under prevailing roadway, environmental, traffic, and control conditions.

**Capital Facility Concept** – The 20-25 year vision of future development on the route to the capital facility. The capital facility can include capacity increasing, State Highway, bicycle facility, pedestrian facility, transit facility (Intercity Passenger Rail, Mass Transit Guideway etc.), grade separation, and new managed lanes.

**Conceptual Project** – A conceptual improvement or action is a project that is needed to maintain mobility or serve multimodal users, but is not currently included in a fiscally constrained plan and is not currently programmed. It could be included in a General Plan or in the unconstrained section of a long-term plan.

**Corridor** – A broad geographical band that follows a general directional flow connecting major sources of trips that may contain a number of streets, highways, bicycle, pedestrian, and transit route alignments. Off system facilities are included as informational purposes and not analyzed in the TCR.

**Facility Concept** – Describe the Facility and strategies that may be needed within 20-25 years. This can include capacity increasing, State Highway, bicycle facility, pedestrian facility, transit facility, Non-capacity increasing operational improvements, new managed lanes, conversion of existing managed lanes to another managed lane type or characteristic, TMS field elements, Transportation Demand Management and Incident Management.

**Facility Type** – The facility type describes the State Highway facility type. The facility could be freeway, expressway, conventional, or one-way city street.

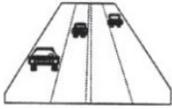
**Freight Generator** – Any facility, business, manufacturing plant, distribution center, industrial development, or other location (convergence of commodity and transportation system) that produces significant commodity flow, measured in tonnage, weight, carload, or truck volume.

**Horizon Year** – The year that the future (20-25 years) data is based on.

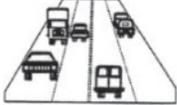
**Intermodal Freight Facility** – Intermodal transport requires more than one mode of transportation. An intermodal freight facility is a location where different transportation modes and networks connect and freight is transferred (or “transloaded”) from one mode, such as rail, to another, such as truck.

**ITS** – Intelligent Transportation System improves transportation safety and mobility and enhances productivity through the integration of advanced communications technologies into the transportation infrastructure and in vehicles. Intelligent transportation systems encompass a broad range of wireless and wire line communications-based information and electronics technologies to collect information, process it, and take appropriate actions.

LOS – Level of Service is a qualitative measure describing operational conditions within a traffic stream and their perception by motorists. A LOS definition generally describes these conditions in terms of speed, travel time, freedom to maneuver, traffic interruption, comfort, and convenience. Six levels of LOS can generally be categorized as follows:



**LOS A** describes free flowing conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway.



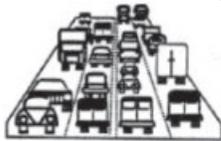
**LOS B** is also indicative of free-flow conditions. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver.



**LOS C** represents a range in which the influence of traffic density on operations becomes marked. The ability to maneuver with the traffic stream is now clearly affected by the presence of other vehicles.



**LOS D** demonstrates a range in which the ability to maneuver is severely restricted because of the traffic congestion. Travel speed begins to be reduced as traffic volume increases.



**LOS E** reflects operations at or near capacity and is quite unstable. Because the limits of the level of service are approached, service disruptions cannot be damped or readily dissipated.



**LOS F** a stop and go, low speed conditions with little or poor maneuverability. Speed and traffic flow may drop to zero and considerable delays occur. For intersections, LOS F describes operations with delay in excess of 60 seconds per vehicle. This level, considered by most drivers unacceptable often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection.

Multi-modal – The availability of transportation options using different modes within a system or corridor, such as automobile, subway, bus, rail, or air.

System Operations and Management Concept – Describe the system operations and management elements that may be needed within 20-25 years. This can include Non-capacity increasing operational improvements (Aux. lanes, channelization's, turnouts, etc.), conversion of existing managed lanes to another managed lane type or characteristic (e.g. HOV land to HOT lane), TMS Field Elements, Transportation Demand Management, and Incident Management.

Peak Hour – The hour of the day in which the maximum volume occurs across a point on the highway.

Peak Hour Volume – The hourly volume during the highest hour traffic volume of the day traversing a point on a highway segment. It is generally between 6 percent and 10 percent of the ADT. The lower values are generally found on roadways with low volumes.

Planned Project – A planned improvement or action is a project in a fiscally constrained section of a long-term plan, such as an approved Regional or Metropolitan Transportation Plan (RTP or MTP), Capital Improvement Plan, or measure.

Post Mile – A post mile is an identified point on the State Highway System. The milepost values increase from the beginning of a route within a county to the next county line. The milepost values start over again at each county line. Milepost values usually increase from south to north or west to east depending upon the [general direction](#) the route follows within the state. The milepost at a given location will remain the same year after year. When a section of road is relocated, new milepost (usually noted by an alphabetical prefix such as "R" or "M") are established for it. If relocation results in a change in length, "milepost equations" are introduced at the end of each relocated portion so that mileposts on the remainder of the route within the county will remain unchanged.

Programmed Project – A programmed improvement or action is a project in a near-term programming document identifying funding amounts by year, such as the State Transportation Improvement Program or the State Highway Operations and Protection Program.

Route Designation – A route's designation is adopted through legislation and identifies what system the route is associated with on the State Highway System. A designation denotes what design standards should apply during project development and design. Typical designations include but not limited to National Highway System (NHS), Interregional Route System (IRRS), Scenic Highway System,

Rural – Fewer than 5,000 in population designates a rural area. Limits are based upon population density as determined by the U.S. Census Bureau

TDM – Transportation Demand Management programs designed to reduce or shift demand for transportation through various means, such as the use of public transportation, carpooling, teleworking, and alternative work hours. Transportation Demand Management strategies can be used to manage congestion during peak periods and mitigate environmental impacts.

TMS – Transportation Management System is the business processes and associated tools, field elements and communications systems that help maximize the productivity of the transportation system. TMS includes, but is not limited to, advanced operational hardware, software, communications systems and infrastructure, for integrated Advanced Transportation Management Systems and Information Systems, and for Electronic Toll Collection System.

Urban – 5,000 to 49,999 in population designates an urban area. Limits are based upon population density as determined by the U.S. Census Bureau.

Urbanized – Over 50,000 in population designates an urbanized area. Limits are based upon population density as determined by the U.S. Census Bureau.

VMT – Is the total number of miles traveled by motor vehicles on a road or highway segments.

**APPENDIX B  
FACTSHEETS**

Factsheets used during the initial SR 87 outreach meeting:

**Transportation Concept Report (TCR)  
Discussion Factsheet  
State Route 87 Santa Clara County**



**Introduction**

State Route 87 (SR 87), known as the “Guadalupe Parkway”, traverses north through the City of San Jose and follows the Guadalupe River through most of its 9.2 mile length. The route is a six-lane freeway that begins at SR 85 and continues under the I-280/I-680 interchange. After the I-280 junction, the route crosses above SR 82 and I-880. The route continues past downtown and the Norman Y. Mineta San Jose International Airport, terminating at US 101. HOV lanes operate southbound and northbound the entire length. Two tracks of the VTA light rail system run in the right-of-way for SR 87 south of I-280. SR 87 serves local, interregional, business, and recreational traffic.

**What is a Transportation Concept Report (TCR)?**

A Caltrans System Planning document that:

- Evaluates current and projected conditions along a route.
- Provides a long range 25-year concept or vision for a route.
- Communicates that vision for future development of a route.

The TCR also informs:

- Caltrans engagement in the RTP and VTP process.
- Early communication with local agencies and CMAs concerning specific issues and significance of a route.
- Early stages of project development process.

**TCR Considerations and Discussion Topics**

- System Characteristics
- Community Characteristics
- Land Use
- Bicycle Facility
- Pedestrian Facility
- Transit Facility
- Freight
- Environmental Considerations
- Corridor Performance
- Airport

**Proposed Route Segmentation**

Segment	Begin PM	End PM
1	0.00/SR 85	5.15/I-280
2	5.15/I-280	9.22/US 101

**Stakeholder Outreach**

July 2013 ..... TCR Briefing  
 Beginning 2014..... Draft External Review  
 Early 2014..... Final TCR Delivery

**Next Steps**

- Corridor Concept Development

**Caltrans District 4 is responsible for preparing a TCR for each State Highway within the Bay Area Region.**

*continued on the back*

# Transportation Concept Report (TCR)

## Discussion Factsheet

### State Route 87 Santa Clara County

**Proposed Segment 1: Jct. 85 to Jct. 280**  
**Traffic Volumes AADT 2011:**

84,000 – 157,000

**Proposed Segment 2: Jct. 280 to US 101**  
**Traffic Volumes AADT 2011:**

68,000 – 104,000

**Locations experiencing LOS F\***

Capital Expws to I-280 AM / NB

Julian to US-101 AM / NB  
 \*VTA 2012 Monitoring and Conformance Report

**Planned Transit Project:**

- Construct Rapid Transit System BART: Berryessa to Santa Clara St.

**STIP/SHOPP Project:**

- Highway Planting: Julian St. to Taylor Street. (STIP) Finished Fall 2014
- Improve Traffic Operations (TOS). (STIP) summer 2014 – 2016

**Planned Projects:**

- Express Lanes: Rte 85 to US 101 (VTP2040)
- SR87/Capitol Exp/Narvaez Ave I/C Improvements (VTP2040)
- Widen offramp at Trimble Road on Route 87 (PlanBayArea)



For questions and continued discussion regarding the development of the SCL 87 TCR, please contact:

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## APPENDIX C RESOURCES

City of San Jose, Diridon Station Area Plan

<http://www.sanjoseca.gov/?nid=1743>

City of San Jose, Highway 87 Bikeway

<http://sanjoseca.gov/DocumentCenter/View/874>

VTA, BART extension

<http://www.vta.org/bart/index.html>

General Plan San Jose

<http://www.sanjoseca.gov/index.aspx?nid=3962>

Regional Housing Need Plan for the San Francisco Bay Area: 2014-2022

<http://www.sanjoseca.gov/DocumentCenter/View/19628>

San Jose State University

[http://www.sjsu.edu/about\\_sjsu/](http://www.sjsu.edu/about_sjsu/)

San Jose downtown

<http://sjdowntown.com/>

Social and Health Inequities in Santa Clara County

[http://www.sccgov.org/sites/sccphd/en-us/Partners/Data/Documents/SHIP%20Poster\\_final.pdf](http://www.sccgov.org/sites/sccphd/en-us/Partners/Data/Documents/SHIP%20Poster_final.pdf)

Caltrain data

<http://www.caltrain.com/Assets/Stats+and+Reports/Ridership/2013+Annual+Ridership+Counts.pdf>

VTA Bus and Light Rail data

[http://www.vta.org/brochures\\_publications/pdf/atasp.pdf](http://www.vta.org/brochures_publications/pdf/atasp.pdf)

Santa Clara Valley Water District

<http://www.scvwd.dst.ca.us/>

Caltrain Electrification

<http://www.caltrain.com/projectsplans/CaltrainModernization.html>

BAAQMD

[http://hank.baaqmd.gov/pln/air\\_quality/ambient\\_air\\_quality.htm](http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm)

Guadalupe Watershed

<http://www.valleywater.org/services/guadalupe.aspx>

Guadalupe Environment

<http://www.icfi.com/insights/projects/environment/guadalupe-river-flood-control-projects>

<http://www.scvwd.dst.ca.us/Services/HealthyCreeksandEcoSystems.aspx>

Almaden SR 85 Plan

<http://www.sccgov.org/rda/expressways2/almaden.pdf>

US Geological Survey site on liquefaction

[http://pubs.usgs.gov/of/2008/1270/of2008-1270\\_San\\_Andreas\\_scenario.pdf](http://pubs.usgs.gov/of/2008/1270/of2008-1270_San_Andreas_scenario.pdf)

California State Rail Plan

[http://californiastaterailplan.dot.ca.gov/docs/Final\\_Copy\\_2013\\_CSRP.pdf](http://californiastaterailplan.dot.ca.gov/docs/Final_Copy_2013_CSRP.pdf)

Pedestrian Map Almaden Expressway

<http://www.sccgov.org/rda/expressways2/pedalmaden.htm>

San Jose Enterprise Zone

<http://www.kbkg.com/ez/san-jose-enterprise-zone-2012>

California Replaces Enterprise Zones

<http://www.kbkg.com/ez/new-legislation-replaces-california-enterprise-zones>

Guadalupe River Floodplain

<http://www.grpg.org/flood-control>

Cultural Resources along SR 87

<https://www.sanjoseca.gov/DocumentCenter/View/2191>

Communications Hill Specific Plan Area Development Policy

<http://www.sanjoseca.gov/DocumentCenter/View/31695>