Transportation Concept Report

Interstate 580

District 10

June 2014

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 10 Division 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.

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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 evaluating conditions and proposing enhancements 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 DSMP Project List. The district-wide **DSMP** is a 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 **DSMP Project List** 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 CA Gov. Code §65086 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

The development of a TCR is a transparent, collaborative, and comprehensive process that meets the requirements outlined in Title 23 CFR Part 450.210[1] and Title 23 CFR Part 450.212[2]. External partners and the public are consulted for comments and concerns to address individual community and region wide issues. The benefits of early and continuous public involvement include increased credibility, strengthened public support and trust, efficient use of public resources, and an early understanding of how the State transportation system may be developed to accommodate future local growth.

The Interstate (I) 580 TCR employed an outreach strategy consistent with local Metropolitan Planning Organization and Regional Transportation Planning Agency outreach conducted with the development of the Overall Work Program (OWP). This strategy avoids duplicative effort, and reduces public confusion as to the aims of local and regional transportation planning. As the OWP intends to meet federal requirements outlined in 23 CFR 450.314, and in the Moving Ahead for Progress in the 21st Century Act (MAP-21), external stakeholder needs can be addressed by local partner outreach efforts related to the OWP. Development of the TCR includes initial outreach to internal partners—these would be traffic operations, traffic safety, project management, maintenance, environmental support, as well as others.

EXECUTIVE SUMMARY

The I-580 corridor passes through Districts 10 and 4. It serves as a commuter and goods movement link between I-5 south of Tracy to State Route (SR) 101 in San Rafael, and crosses four counties: San Joaquin, Alameda, Contra Costa, and Marin. Within District 10, the route is confined to San Joaquin (SJ) County, though the District has maintenance responsbilities up to the summit of Altamont Pass in Alameda County. I-580 in San Joaquin County links the San Francisco Bay Area (Bay Area) and Southern California (Southland) to I-5, and experiences the lightest traffic on the corridor, as most traffic diverges onto I-205.

The daily traffic on the route has an interregional rather than an intraregional origin. Although it is estimated that approximately 70,000 commuters travel daily from the San Joaquin Valley to the Bay Area,[1] of the approximately 50,000 that cross the Altamont Pass a small proportion travel via I-580 in San Joaquin County. The disparity between I-580 and I-205 in District 10 is reflected in I-580's four lane configuration and retention of its concept level of service (LOS), while I-205 has been widened to six general purpose lanes along with auxiliary lanes but in several sections still retains a deficient LOS.[2]

As an interstate, the current facility of I-580 is freeway, with pedestrian and bicycle access restricted. The route is part of the Interregional Road System (IRRS), is a State Scenic Highway, and is found within a rural context (though portions of Segment 3 are within the city limits of Tracy, it currently remains undeveloped). Transit is lacking on the route. As an IRRS route in District 10, the concept LOS for rural segments is C, and for urban segments is D. The period of analysis began in 2012 and addresses forecast traffic conditions in 2035 in anticipation of the San Joaquin County Council of Government's (SJCOG) Regional Transportation Plan (RTP) update in 2014.

Current traffic conditions indicate a facility operating within its concept LOS for the base year (BY) of 2012. By horizon year (HY) 2035 the LOS on segments 2 and 3 may exceed concept LOS and require an increase in lane capacity. No projects for this expansion exist in the SJCOG RTP (2011), and it is unclear if a need for widening exists given the lack of forecast development in the corridor.

As part of the future operational concept facility, all on-ramps should be metered. The ongoing shift towards a larger number of daily commuter trips by carpools would require park and rides in Tracy near I-580, and in the communities of Patterson, Newman, or Gustine. Current interchange spacing limits the applicability of auxiliary lanes to the area between Mountain House Parkway (Pky) and the I-205 Interchange, though there may be a future need when the proposed Lammers Road Interchange[3] is constructed.

I-580 is part of the National Truck Network (NTN) designated in the Surface Transportation Assistance Act of 1982 (STAA) but the San Joaquin portion is not included as a component of the Primary Freight Network, or the Future Primary Freight Network designations.[4] Although the decision to locate an Amazon facility in Patterson may increase truck traffic on I-580, it appears insufficient to alter future

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[1] *Interregional Multimodal Commute Trip Planning Study*, Kittleson and Associates, 2013
[2] I-205 TCR, 2014
[3] Draft SJCOG RTP Project List, 2014—tier I funding only for environmental work.
[4] *Designation of the Primary Freight Network*, Federal Register, November 19, 2013
See: http://ops.fhwa.dot.gov/freight/infrastructure/nfn/index.htm

forecast truck volumes. The route's role in this context is to provide an interregional truck freight link between the Southland and the Bay Area.

The portion of I-580 that is in San Joaquin County does not follow the former alignment of United State Highway (US) 50, but is built on a newer alignment.

CONCEPT SUMMARY

All three segments on I-580 are four lanes. The configuration of four lanes has been in place since construction of the Interstate Highway System. Future growth in traffic volume is tied to projected population growth in adjoining counties—Stanislaus and Merced, and any increases in local population due to development of the area surrounding Tracy. With the recent economic downturn, development in the northern San Joaquin Valley had declined. Future traffic growth would be closely linked with steady employment growth in the Bay Area, and there are indications of improvement in SJ employment. These should result in a future facility need of an additional lane in each direction. Assuming growth considerations similar to that which have occurred along the I-5 and I-205 corridors, analogous operational and congestion management strategies will be considered, such as ramp metering,[5] park and rides, high occupancy vehicle (HOV) lanes, and possibly lanes segregating trucks from automobiles and transit.

CONCEPT SUMMARY					
Segment	**Segment Description**	**Existing Facility**	**20-25 Year Capital Facility Concept**	**20-25 Year System Operations and Management Concept**	**Post-25 Year Concept**
1	I-5 to SR-132	Four lane freeway	Four lane freeway	Ramp metering, truck lanes	Six lane freeway with HOV
2	SR-132 to Corral Hollow	Four lane freeway	Six lane freeway	Ramp metering, truck lanes	Eight lane freeway with HOV
3	Corral Hollow to I-205 Interchange	Four lane freeway	Six lane freeway	Ramp metering, truck lanes, auxiliary lanes	Eight lane freeway with HOV

CONCEPT RATIONALE

From the concept summary table a future facility of six lanes is projected. This is a down scope of the previous projected facility needs that saw a need in 2020 for an eight lane facility for segments 2 and 3, and six lanes for Segment 1.[6] In context, the route crosses an undeveloped rural portion of southern SJ, and serves the interregional commute of three small but growing cities in adjoining Stanislaus and Merced Counties. With the current forecast, a need to expand Segment 2 to six lanes is identified.

[5] An approved PID was signed on May 15, 2014 and a second PID was signed May 28, 2014, both wait to be funded through the SHOPP.
[6] I-580 TCR, 2003

This was apparently due to Segment 2 seeing higher traffic volume during its peak hour than either segments 1 and 3. As this is the afternoon peak, the factor would appear to be a significant number of commuters entering at Corral Hollow, and exiting at SR-132. Segment 3 has an equivalent V/C ratio, and merits expansion to six lanes. Principles of independent utility and logical termini may dictate expansion to six lanes on all three segments.[7]

PROPOSED PROJECTS AND STRATEGIES

As the current LOS of all three segments meets concept LOS, there is little immediate need to consider projects to enhance or preserve existing LOS. The route currently performs below capacity, and little in the way of operational improvements appears needed except at the I-205 merge (in Ala). As housing development continues to grow in Tracy, Gustine, Newman, and Patterson, this growth leads to a larger fraction of residents in SJ commuting to the Bay Area, the threshold to add additional general purpose lanes may be met. Modeling suggests a six lane facility may be needed for segments 2 and 3. This expansion is not currently included in the 2011 SJCOG RTP. To be consistent with congestion management needs elsewhere in the I-580 corridor, ramp metering would be implemented on existing and new interchanges.

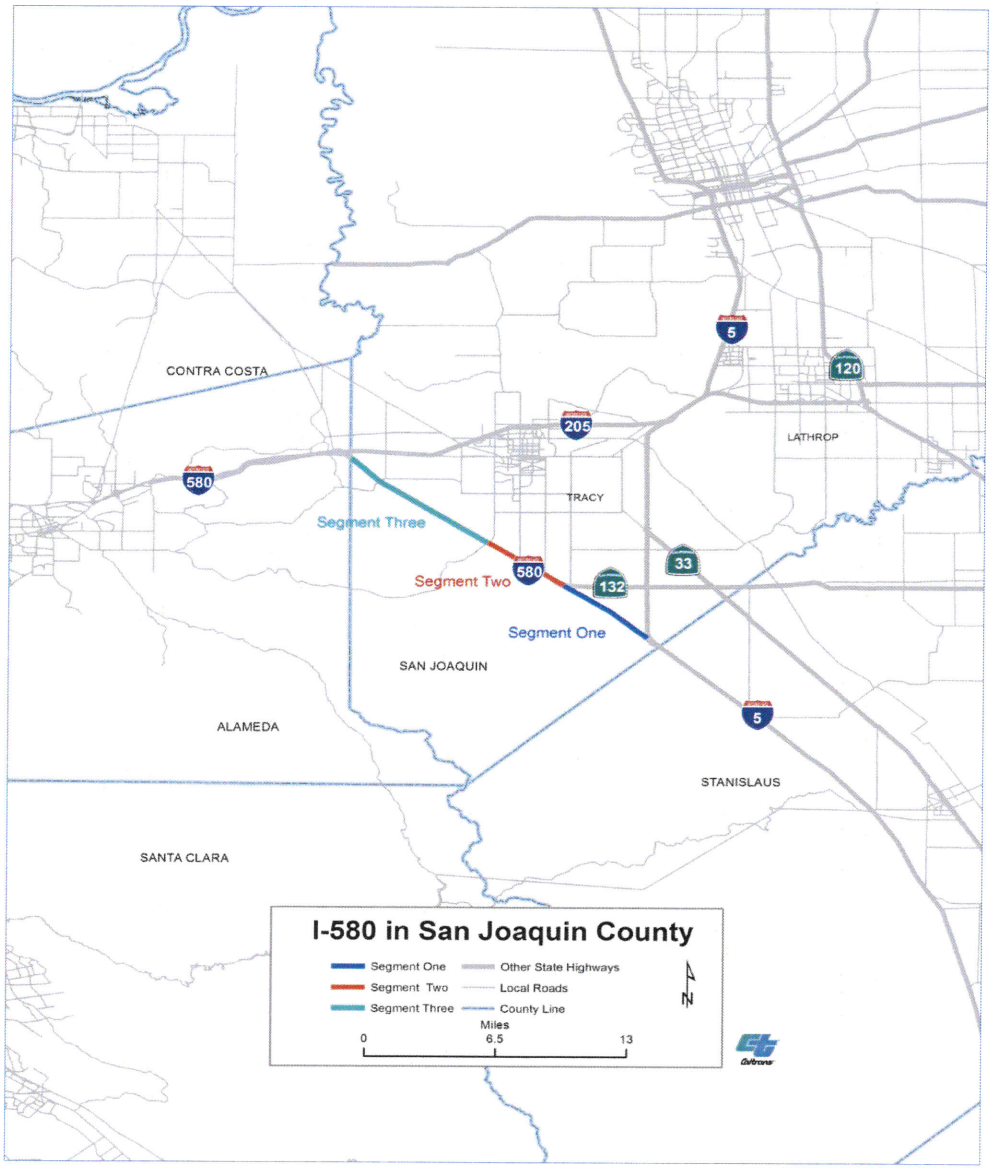
Current planned projects include improving the interchange at Corral Hollow, and constructing a new interchange at Lammer's Road. Increasing the number of interchanges and their capacity suggest that development should be anticipated along Segment 3, and that the traffic growth is not indicated in the current models. Caltrans's programmed efforts entail system preservation--pavement and shoulder maintenance and improvements.

[7] For definition and explanation, see:
http://www.environment.fhwa.dot.gov/projdev/tdmtermini.asp

CORRIDOR OVERVIEW

ROUTE SEGMENTATION

Route Segmentation			
Segment	Location Description	Beginning County, Route, and PM	Ending County, Route, and PM
1	Between I-5 and SR-132	SJ 580 PM 0.000	SJ 580 PM 4.329
2	Between SR-132 and Corral Hollow	SJ 580 PM 4.329	SJ 580 PM 8.149
3	Between Corral Hollow and I-205	SJ 580 PM 8.149	SJ 580 PM 15.340



Segmentation of I-580 followed District 10 practice—segments conformed to land use planning agency boundaries, 10% or greater changes in daily or peak hour volume, changes in population density (rural versus urban), or intersections with other State highways. This resulted in the creation of the three segments shown above.

Segments 1 and 2 split at the SR-132 interchange (Postmile (PM) 4.329), while Segment 3 conforms to a change in land use agency as well as a 10% or greater change in traffic volume at Corral Hollow Road (PM 8.149). Segment 3 for purposes of logical termini is addressed as reaching the I-205 interchange, but the actual segment excludes the portion of Ala-580 prior to the I-205 interchange and ends at PM 15.340.

ROUTE DESCRIPTION

Route Location:

I-580 connects I-5 to the split between Ala-580 and Ala-205. The route closely parallels the California Aqueduct and Delta Mendota Canal, west of the City of Tracy. These three engineered features form a physical barrier to how far westward Tracy's city limits may extend, and isolates I-580 from being a component of local circulation, other than at two interchanges that bridge the canals (Corral Hollow Road, and Mountain House Pky).

I-580 conforms to a portion of former US-50. US-50 followed the alignment of the Lincoln Highway, the first transcontinental highway. The designation and numbering of the US routes originated from 1925. US-50 originated from its intersection with US-101 in San Francisco, and extended eastwards over the Bay Bridge into Oakland and the East Bay, and continued through Hayward, and out over the Altamont Pass into the San Joaquin Valley. Just east of Tracy the route veered north to Stockton where it merged with US-99 until Sacramento. From Sacramento, it extended east into Carson City, Nevada on what is still signed US-50 (SR-50).

I-580 and I-205 conformed to Legislative Route (LR) 5. The portion of I-580 in San Joaquin County conforms to the planned LR-110 (as shown in a Division of Highways 1960 map). LR-110 was planned to run from its intersection with LR-238 (now I-5) northward to a terminus in Brentwood at LR-75 (now SR-4). LR numbering reflects a highway numbering system prior to 1964 that did not conform with the system of numbering of highway shields (e.g. LR-5 was signed US-50). The current numbering system consistent with the route shield was adopted in 1964. I-580 opened for traffic around 1971.

Route Purpose:

Much of the traffic moving through the portion I-580 in San Joaquin County from I-5 and onto the Bay Area has an interregional origin and reflects a travel connection between the Bay Area and the Southland. This pattern has been present since the opening of the route, and much of its daily passenger vehicle volume reflects the South Bay's attraction as a tourist or recreation destination.

The movement of truck traffic on I-580 likely shares a similar destination and origin. Although freight movement between the Bay Area and the Southland acted as a substantial reason for the route's

construction, the volume of traffic has increased little since the San Joaquin County portion of I-580's opening day.

Residents of the communities in Merced and Stanislaus Counties (Patterson, Newman, and Gustine)[8] most likely commute to Tracy or farther into the Bay Area by I-580. An incomplete analysis of the commute from the three cities to selected local and Bay Area destinations was obtained. It showed that for an interregional commuting population of 2,729 out of a population of 6,085 commuters, approximately 65% would employ I-580 for their commutes to Tracy (315), Livermore (440), Pleasanton (245), Dublin (90), San Jose (519), Fremont (125) , and Walnut Creek (0).[9] When compared to the 12,500 workers (out of a total of 27,334) that travel from Tracy into the Bay Area almost exclusively on I-205 and I-580, the comparison explains in part the relative lack of traffic growth along I-580 compared to I-205.

Major Route Features:

As indicated above, I-580's daily traffic volume does not sustain a local work commute as does I-205. Much of the traffic originates from locations further south along I-5, principally as recreation traffic from the Southland to the Bay Area and surroundings (approximately 21% of Bay Area visitors originate from the Southland out of a total of over 16.9 million visitors in 2013).[10]

A similar claim may be made for the origin and destination of truck traffic between the Southland and the Bay Area. This observation reflects the absence of any large warehousing operation or large city between the two regions on I-5, until a warehousing complex in Southern Kern County.[11]

Route Designations and Characteristics:

I-580 is located in an undeveloped portion west and south of the City of Tracy. A four lane freeway, and a State scenic highway for its full extent, I-580 is a focus route on the IRRS as the entire route is rural. As an interstate, I-580 is part of both the National Highway System and the NTN. During the sixties, I-580 with I-5 was originally conceived as an interregional goods movement corridor between the Bay Area and Southern California. That role has diminished over the last forty years with the national decline in industrial output, the changes to 'just in time' inventory management, the relocation of warehousing and large trucking firms to the rural hinterland, and the ascension of container traffic originating at regional ports in the Southland, and the Bay Area. The result has been development of autonomous truck transport systems within the two urban regions, and less of a need for interconnecting freight between them.

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[8] For this assessment, the assignment of commuters from Modesto, Ceres, and Turlock to I-580 is considered negligible. SR-132 contributes 9000 trips daily compared to the 21,000 from I-5. A third of peak hour trips on Segment 2 have their origin from SR-132 (which is about 15% of total commuters to the Bay Area and Tracy from Modesto, Ceres, and Turlock).

[9] Census Transportation Planning Products, 2006-2010, AASHTO (This assumes 100% of commuters to San Jose employ I-580)

[10] *San Francisco Arts and Cultural Travel Survey*, 12/2010, San Francisco Business Times, March 27, 2014

[11] The Outlets at Tejon, Tejon Rancho Development, 2014

Route Designations & Characteristics			
Segment #	1	2	3
Freeway & Expressway	Yes	Yes	Yes
National Highway System	Yes	Yes	Yes
Strategic Highway Network	Yes	Yes	Yes
Scenic Highway	Yes	Yes	Yes
Interregional Road System	Yes	Yes	Yes
High Emphasis	Yes	Yes	Yes
Focus Route	No	No	No
Federal Functional Classification	Interstate	Interstate	Interstate
Goods Movement Route	No	No	No
Truck Designation	National Network	National Network	National Network
Rural/Urban/Urbanized	Rural	Rural	Rural
Metropolitan Planning Organization	SJCOG	SJCOG	SJCOG
Regional Transportation Planning Agency	SJCOG	SJCOG	SJCOG
Congestion Management Agency	SJCOG	SJCOG	SJCOG
County Transportation Commission	N/A	N/A	N/A
Local Agency	San Joaquin County	San Joaquin County	City of Tracy
Tribes	No	No	No
Air District	SJVAPCD	SJVAPCD	SJVAPCD
Terrain	Flat	Rolling	Rolling

COMMUNITY CHARACTERISTICS

The route traverses no communities, and provides little or no service to the City of Tracy except as a commuter route to the Bay Area for the southern portion of the city at Corral Hollow Road. Segment 3 includes a portion of the City of Tracy, but the development that led to the annexation has not been built, and the District is currently commenting on a subsequent environmental impact report for the initial phase of the project.

LAND USE

Much of the corridor parallels major water delivery systems (Delta Mendota Canal, part of the Central Valley Project and the California Water Project) that physically limit the scope of development and future land use. The Tracy Hills Specific Plan has been in place since 1998, and proposes the development of a 6,175 acre parcel adjacent I-580 near the Corral Hollow interchange.[12] Development is likely constrained near this location due to proximity to the Tracy Material Recovery and Transfer Facility, which is located due east of the Corral Hollow interchange on MacArthur Drive.

Gravel and sand extraction operations located off Bird Road and adjacent SR-132 will constrain growth along Segment 1 for the foreseeable future.

[12] A revised Specific Plan was received that updates the original Tracy Hills proposal, to include 2,732 acres with up to 5,499 dwelling units—*Tracy Hills Specific Plan Project Notice of Preparation*, April 2014

Development of the corridor has lagged behind the I-205 corridor, and would appear to continue in this direction until in-fill of western Tracy approaches completion. Similar issues face industrial development in adjacent Stanislaus County. Due to their relative distance from the Bay Area, The Cities of Patterson, and Newman do not appear poised to develop a large local employment bases until currently sited and zoned business development and potential building sites within Tracy become unavailable, although the siting of Amazon in Patterson may indicate a change.

Land Use	
Segment	**Place Type**
1	Rural open land—gravel mining development via SJ-132
2	Rural open land
3	Rural open land—future residential with commercial

SYSTEM CHARACTERISTICS

I-580 is configured consistent with its original forty year old design. Growth in the facility will result from development outside of San Joaquin County. This should result in a six lane facility along segments 2 and 3 to address the increased work commute to the Bay Area from Stanislaus and Merced Counties. No specialized lanes are anticipated by the horizon year of 2035, though these may be present in the Post 25 Year Facility.

At eight lanes, the facility is conceived as having a dedicated carpool lane or HOV lane, consistent with other segments of I-580 and I-205. Other congestion management solutions will include ramp meters on all on-ramps, and there exists the potential for congestion pricing (high occupancy toll (HOT) lanes). At present, it is unclear if Bus Rapid Transit (BRT) will be needed as less than a third of all workers commute from Gustine, Newman, and Patterson.[13]

A westbound truck climbing lane has been proposed[14] to begin on I-205 and continued into Alameda County. It is not clear whether this will include portions of I-580 or not. Inclusion of a truck climbing lane would likely reduce the truck weave at the I-205 interchange.

Other than several traffic monitoring stations and a single changeable message sign, there are no Transportation Management System (TMS) devices on I-580. A traffic census device is located near the merge onto I-5. The District desires to add a second changeable message sign, a weather station, and ramp meters in the future.

[13] Census Transportation Planning Products, 2006-2010, AASHTO
[14] SJ COG RTP 2011, Tier II; *San Joaquin Valley Goods Movement Action Plan*, 2013

SYSTEM CHARACTERISTICS			
Segment #	1	2	3
20-25 Year Concept Facility			
Facility Type	Freeway	Freeway	Freeway
General Purpose Lanes	4	6	6
Lane Miles	17.32	22.92	50.746
Centerline Miles	4.329	3.82	7.291
HOV Lanes	N/A	N/A	N/A
HOT Lanes	N/A	N/A	N/A
BRT Lanes	N/A	N/A	N/A
Toll Lanes	N/A	N/A	N/A
Aux Lanes	N/A	N/A	N/A
Passing Lanes	N/A	N/A	N/A
Truck Climbing Lanes	N/A	N/A	N/A
Post 25 Year Facility			
Facility Type	Freeway	Freeway	Freeway
General Purpose Lanes	6	6	6
Lane Miles	34.632	30.56	58.328
Centerline Miles	4.329	3.82	7.291
HOV Lanes	1	1	1
HOT Lanes	1?	1?	1?
BRT Lanes	1?	1?	1?
Toll Lanes	1?	1?	1?
Aux Lanes	N/A	N/A	N/A
Passing Lanes	N/A	N/A	N/A
Truck Climbing Lanes	N/A	N/A	Yes
ROW Needs	Adequate	Adequate	Adequate
TMS Elements			
TMS Elements (BY)	Traffic Monitoring Stations	Traffic Monitoring Stations	Traffic Monitoring Stations
	N/A	N/A	Changeable Message Signs
TMS Elements (HY)	Traffic Monitoring Stations	Traffic Monitoring Stations	Traffic Monitoring Stations
	Freeway Ramp Meter	Freeway Ramp Meter	Freeway Ramp Meter
	N/A	Changeable Message Signs	Changeable Message Signs

BICYCLE FACILITY

The function of I-580 in San Joaquin County as a significant commuter facility may be questionable. Given the small overall population size of communities along the I-5 corridor, the portion of I-580 in San Joaquin County may connect them with work opportunities in the Bay Area or Tracy, but the current and future level of peak hour congestion on the segment does not exceed concept LOS. As there is little current or future need to alleviate congestion through development of alternate modes of transportation, and that these are likely bus or

rail transit given the overall distance travelled, there is little incentive to develop a bicycle network as an alternative.

As I-580 is restricted to automobiles, the only alternative bicycle facility is the California Aqueduct Bike Path,[15] a class I bicycle trail paralleling the California aqueduct in its entirety.

Bicycle Facility						
Segment	State Bicycle Facility	Parallel Bicycle Facility				
	Bicycle Access Prohibited	Parallel Facility Present	Seg ID	Name	Location Description	Facility Type
1	Yes	Yes	-	California Aqueduct Bike Path	parallels aqueduct	Class I
2	Yes	Yes	-	California Aqueduct Bike Path	parallels aqueduct	Class I
3	Yes	Yes	-	California Aqueduct Bike Path	parallels aqueduct	Class I

PEDESTRIAN FACILITY

The lack of discernable development along I-580 provides no alternative pedestrian network to act as an alternative to the restricted pedestrian use on the freeway. Although the California Aqueduct Bike Path is present, and may serve as a interregional bicycle route into Stanislaus County, the path would be undesirable as a pedestrian route. Without a developed transit route in the area, integration of walking with commuting to work is currently unnecessary.

Given the proximity of two canals east of I-580, creating a pedestrian network integrated with Tracy would be expensive given the need for bridges with adequate spacing between them to span the canals.

Pedestrian Facility		
Segment	Pedestrian Access Prohibited?	Alternative Pedestrian Facility?
1	yes	No
2	yes	No
3	yes	No

[15] City of Tracy Bikeways Map

TRANSIT FACILITY

Currently, there is no regional or local transit provided along I-580, and no expansion into the corridor is envisioned.

Transit Facility													
Segment	Mode & Collateral Facility	Name	Route End Points	Ridership	Headway	Operating Period	ITS & Technology	Stations		Amenities	Bikes Allowed on Transit	Location Description	# Parking Spaces
								Cities	Post miles				
1	None												
2	None												
3	None												

FREIGHT

Freight						
Segment	Facility Type/Freight Generator	Location	Mode	Name	Major Commodity Industry	Comments/Issues
1	None	None	None	None	None	None
2	None	None	None	None	None	None
3	Warehouse	25862 Schulte Ct.	Trucking	Costco Warehouse	Retail	Mountain House Interchange
	Warehouse	16900 Schulte Dr.	Trucking	Safeway	Food	Mountain House Interchange

Most of I-580 is part of the NTN,[16] but the portion of I-580 in San Joaquin County experiences some of the lightest truck traffic of any freeway segment in District 10. The portion of I-580 in San Joaquin County was the only NTN segment not included in either the Primary Freight Network or the Future Primary Freight Network in District 10.[17] All truck traffic originates outside of the immediate area, and is likely interregional or interstate. Although it is estimated that the Port of Oakland contributes 13%[18] of the total truck volume on the I-580 corridor, its contribution to truck volume on the portion of I-580 in San Joaquin County would be negligible. No significant freight generators exist near Segments 1 and 2. Segment 3 has two prominent warehouses at the western end of Tracy. Development of the industrial area west of Tracy may also increase truck traffic at the Mountain House Interchange.[19]

[16] The segment between SR-238 and I-980 is closed to all trucks

[17] *Designation of the Primary Freight Network*, Federal Register, November 19, 2013
See: http://ops.fhwa.dot.gov/freight/infrastructure/nfn/index.htm.

[18] *I-580 Interregional Multimodal Study*, Dowling and Associates, 2011

[19] Cordes Ranch Specific Plan, 2013

ENVIRONMENTAL CONSIDERATIONS

Environmental Considerations									
Seg	Cultural Resources	Floodplain	Hazardous Materials	Air Quality				Waters and Wetlands	Special Status Species
				Ozone	Particulate Matter		Carbon monoxide		
					2.5	10			
1	Low	Low	Low	non-attainment	non-attainment	attainment	non-attainment	Low	Low to Moderate
2	Low	Low to Moderate	Low	non-attainment	non-attainment	attainment	non-attainment	Low	Moderate
3	Low	Low	Low to Moderate	non-attainment	non-attainment	attainment	non-attainment	Moderate	High

The environmental context for I-580 is rural, much of the significant environmental considerations involve special status species, for which there are moderate to high concerns. A secondary consideration is that the route is a State Scenic Highway. This will require mitigations to be incorporated into the project design and the concept facility consideration will most likely entail either avoidance or aesthetic treatments.

CORRIDOR PERFORMANCE

Corridor Performance			
Segment #	1	2	3
Basic System Operations			
AADT (BY)	21000	30000	30750
AADT (HY)	31600	45100	46200
AADT Growth Rate/Yr	0.017	0.017	0.017
LOS Method	HCS	HCS	HCS
LOS (BY)	B	B	B
LOS (HY)	B	D	C
LOS Concept	C	C	C
Vehicle Miles Traveled (VMT) (BY)	363720	458400	896793
VMT (HY)	547312	1033692	234466
Truck Traffic			
Average Annual Daily Truck Traffic (AADTT) (BY)	3381	5531	5531
Average Annual Daily Truck Traffic (AADTT) (HY)	5088	8315	8310
Total Trucks (% of AADT) (BY)	16.1	18.4	18.0
Total Trucks (% of AADT) (HY)	16.1	18.4	18.0
5+ Axle Average Annual Daily Truck Traffic (AADTT) (BY)	2365	2725	3006
5+ Axle Average Annual Daily Truck Traffic (AADTT) (HY)	3559	4097	4517
5+Axle Trucks (as% of AADT) (BY)	11.3	9.1	9.8
5+Axle Trucks (as% of AADT) (HY)	11.3	9.1	9.8
Peak Hour Traffic Data			
Peak Period Length	One hour	One hour	One hour
Peak Hour Direction:	South	South	South
Peak Hour Time of Day	1700	1700	1700
Peak Hour Directional Split (BY):	64/36	64/36	64/36
Peak Hour Directional Split (HY):	64/36	64/36	64/36
Peak Hour VMT (BY):	9524	12797	21982
Peak Hour VMT (HY):	14286	19291	33174
Peak Hour V/C (BY):	0.36	0.59	0.56
Peak Hour V/C (HY):	0.53	0.82	0.83

The critical performance measure, LOS as measured by Highway Capacity Software, indicates only one segment becoming deficient by HY 2035. Segment 2 reflects higher peak hour traffic in 2035 than Segment 3—though the volume to capacity ratio (V/C) of both segments suggests they will be deficient. Thus, a future facility of six lanes is projected for I-580 Segments 2 and 3. This is a down scope from the facility needs projected in the previous TCR (2002) that saw a need in 2020 for an eight lane facility for Segments 2 and 3, and six lanes for Segment 1. In context, the route crosses an undeveloped rural portion of southern San Joaquin County, and serves the interregional commute of 3 small cities in adjoining Stanislaus and Merced Counties. The proposed facility from the previous TCR (2002) was employed to characterize the post-2035 facility.

The HY concept facility relies on accurate forecasting. One aspect of this is the Traffic Demand Model (TDM) for SJCOG. The HY forecast appears to depend on the presence of employment and commute patterns associated with an as yet unbuilt residential development included in the future TDM. Past overestimation of need may also have arisen with the application of the Department of Finance (DOF) Projection for SJ which at the time had one of the higher growth rates in the State,[20] when the likely growth in traffic volume would come from Stanislaus and Merced Counties, which had lower growth rates. A similar concern may apply to the current HY projection, as current local city growth rates are below the projected growth.

Department of Finance Population Growth Projections[21]						
County or City	2010	2035	Growth Rate	2012	2013	Growth Rate 2012 to 2013
Merced County	225937	401569	3.1%	260,029	262,478	0.9%
Gustine				5,577	5,626	0.9%
San Joaquin County	686588	1110972	2.5%	692,997	698,414	0.8%
Tracy				83,562	84,060	0.6%
Stanislaus County	515205	714694	1.5%	519,339	524,124	0.9%
Patterson				20,610	20,846	1.1%
Newman				10,554	10,643	0.8%

An additional source of concern may be with increases in the percentage of traffic volume that is truck traffic. An increase in the truck traffic appears likely with the recent decision to include an Amazon facility in Patterson. Patterson has additional undeveloped property zoned light industrial use. The attraction of locating warehouses in Patterson is its proximity to the Bay Area, and low land values. However the share of trucks would need to more than double before affecting concept LOS.

There is a logical terminus separating Segment 1 from Segment 2, in that SR-132 provides commuter access to the Bay Area from Modesto. It is estimated that approximately a quarter of interregional I-580 commuters from Modesto, Ceres, and Turlock work in Tracy.[22] This difference in origin and destination for commuter streams may permit consideration of Segment 1 separate from Segments 2 and 3.

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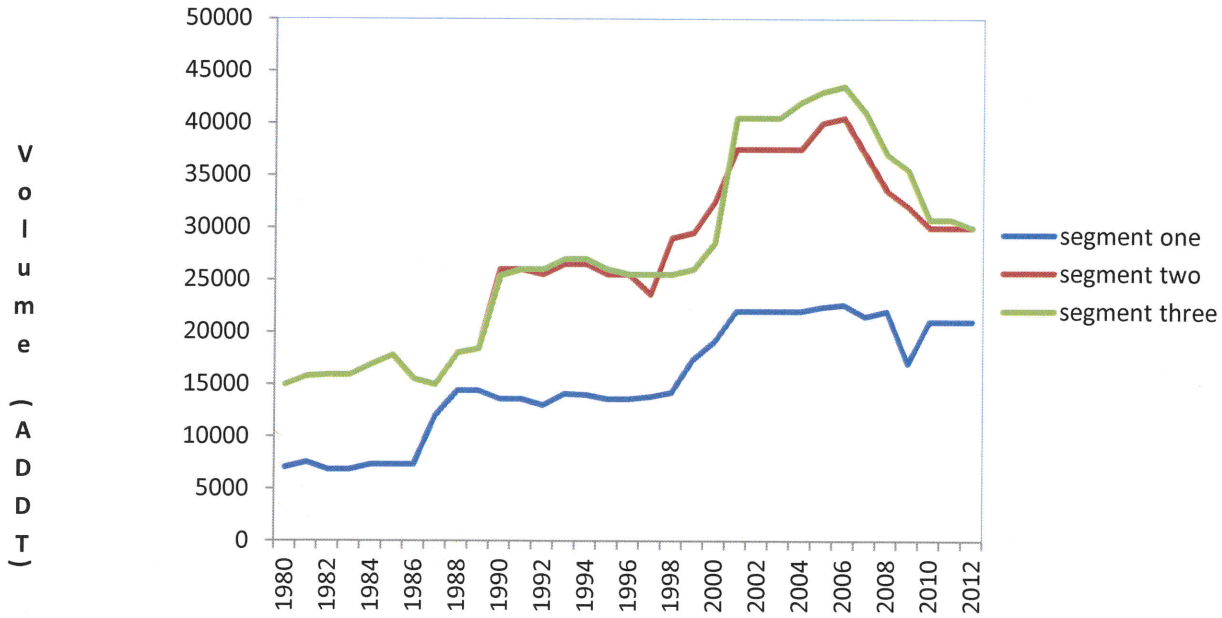
[20] DOF, Department of Finance, *California County Population Estimates and Components of Change by Year, July 1, 2000-2010.* Sacramento, California, December 2011.

[21] *State and County Total Population Projections 2010-2060 (Five Year Increments); California County Population Estimates and Components of Change by Year — July 1, 2010–2013,* DOF 2014

[22] Census Transportation Planning Products, 2006-2010, AASHTO

I-580 Changes in Volume 1980 to 2012 in San Joaquin County



Growth Rates on I-580 and I-205				
Period	I-580 Segment 1	I-580 Segment 2	I-580 Segment 3	I-205
1980-2006	8.85%	6.80%	7.60%	15.30%
2006-2012	-1.18%	-4.32%	-5.17%	-1.20%

The growth of AADT on the portion of I-580 in San Joaquin County between 1980 and 2006 has been substantial. Throughout the period the rate appears flat except for the periods of 1988-1990 and 1998-2000. Prior to 1988 two traffic census stations were located on Segment 1. The increase in traffic volume in 1990 appears to be due in part to a change in the placement of traffic census stations (a station was added at Corral Hollow Road, and removed at Chrisman Road Undercrossing), and suggests the base volumes may have been higher in 1980 for segments 2 and 3. The increase during 1998-2000 is noteworthy in that Segment 3 overtakes Segment 2 as having the higher annual volumes, reflecting a shift in commuting behavior from Tracy.

What is notable between 2006 and present is the sharp decline in volumes on Segments 2 and 3. This seems to suggest a substantial decline in interregional trips mostly from eastern Stanislaus County, which would be consistent with declines in both work commutes and recreation travel during a recession. That Segment 1 does not follow this trend appears consistent with that segment supporting interregional travel from the Southland. Over the last thirty years, the change in traffic volume on the three segments of I-580 from 1980 to 2012 is that as early as 1980 the daily traffic volume on I-580 (approximately 15,000 vehicles/day at its highest) was lower

than I-205 (approximately 23,000 vehicles/day), but the difference in volume between the two highways was only 8,000 vehicles/day. However, when we consult the growth in volume, the difference becomes substantial, growing to approximately 80,000 vehicles by 2006. This change follows the development and growth of Tracy, Lathrop, and Manteca, while growth in Gustine, Newman, and Patterson lagged prior to the recession.

The only improvements slated for I-580 are for interchanges at Corral Hollow and Lammers Road[23], and development is only targeted for Segment 3 which is within the city limits of Tracy, and should be anticipated to have a future concept LOS of D. Improvements such as ramp metering, auxiliary lanes, park and rides, and HOV lanes may require developer funding, as these future needs may only come as direct impacts on the facility.

[23] Draft SJCOG RTP Project List, 2014

KEY CORRIDOR ISSUES

The facility currently meets concept LOS. Past efforts to characterize future need have overshot the estimate of the needed HY facility. Reasons for this may be due to 1.) application of the TDM and the DOF growth rates for SJ, when the interregional work commute originates from Stanislaus and Merced Counties; 2.) approved developments have not gone to construction; and, 3.) the linear infrastructure of the two canals and the freeway inhibit development due to increased costs to construct bridges over the features to enhance connectivity. The projected future need is for a widening to six lanes on Segments 2 and 3.

CORRIDOR CONCEPT

CONCEPT RATIONALE

I-580 in San Joaquin County serves interregional traffic. It is also part of the largest goods movement corridor in Northern California. Over the last forty years since I-580's construction was completed, traffic upon the corridor has remained relatively stable. The volume of interregional commuters returning to the Cities of Modesto, Ceres, Gustine, Newman, and Patterson from Tracy and the Bay Area may adversely affect the corridor by 2035.

I-580 was originally considered to address long distance interregional and intrastate traffic originating outside of the immediate region. It functioned as a connecting route between I-5 and I-80 between the San Joaquin Valley and the Bay Area.

By the 2035 HY the facility will possess the same configuration it has now, though minimally, expansion of an additional lane may be needed for Segments 2 and 3; and, there may be justification to see an additional lane throughout. There are no Tier I efforts to expand capacity.[24] Freeway on-ramps will be metered. The increasing traffic share of interregional carpools may necessitate a park and ride in the Tracy area with proximity and access to I-580, as well as in the Patterson, Newman, and Gustine area. There appears to be little constraint to improving this facility as both sufficient right of way currently exists, and local funding through Measure K will be available.

As much of the future growth of traffic on the portion of I-580 in San Joaquin County would be directly attributable to local development, developer funding for improvements may be needed as this growth would be a consequence of a direct impact, rather than cumulative. These may include auxiliary lanes, park and rides, ramp improvements, and HOV lanes.

The proposed western truck climbing lane is an uncertain improvement during this time frame. Although the project may help address the bottleneck that occurs at the merge of westbound I-205 with westbound I-580 near the Alameda County Line, it is an unfunded Tier II project.[25]

Current programmed projects target road preservation, consistent with a route with little need for current improvement due to low traffic volumes.

PLANNED AND PROGRAMMED PROJECTS AND STRATEGIES

PLANNED/PROGRAMMED PROJECTS AND STRATEGIES

Seg.	Description	Planned or Programmed	Location	Source	Purpose	Implementation Phase
1	Pavement Repair and Shoulder Widening	Programmed	I-5 to SR-132	SHOPP	Roadway Preservation	PS&E/RW
2	A/C Overlay	Programmed	SR-132 to County Line	SHOPP	Roadway Preservation	PS&E/RW
3	A/C Overlay	Programmed	SR-132 to County Line	SHOPP	Roadway Preservation	PS&E/RW

[24] SJ COG RTP 2011
[25] SJ COG RTP 2011

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

Seg.	Description	Location	Source	Purpose	Implementation Phase
1	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A

APPENDIX: GLOSSARY OF TERMS AND ACRONYMS

AADT: Average Annual Daily Traffic
AADTT: Average Annual Daily Truck Traffic
Ala: Alameda County

Bay Area: San Francisco Bay Area
BRT: Bus Rapid Transit
BY: Base Year

Caltrans: California Department of Transportation
CO: Carbon Monoxide
CSMP: Corridor System Management Plan

DSMP: District System Management Plan

HOT: High Occupancy Toll
HOV: High Occupancy Vehicle
HY: Horizon Year

IRRS: Interregional Road System

LOS: Level of Service
LR: Legislative Route

MAP-21: Moving Ahead for Progress in the 21st Century Act
MPO: Metropolitan Planning Organization

N/A: Not Applicable
NTN: National Truck Network

OWP: Overall Work Program

RTP: Regional Transportation Plan
RTPA: Regional Transportation Planning Agency

SJ: San Joaquin County
SJCOG: San Joaquin County Council of Governments
SHS: State Highway System
Southland: Southern California
STAA: Surface Transportation Assistance Act

TCR: Transportation Concept Report
TDM: Traffic Demand Model
TMS: Transportation Management System

US: United States

V/C: Volume (of traffic) to Capacity
VMT: Vehicle Miles Traveled