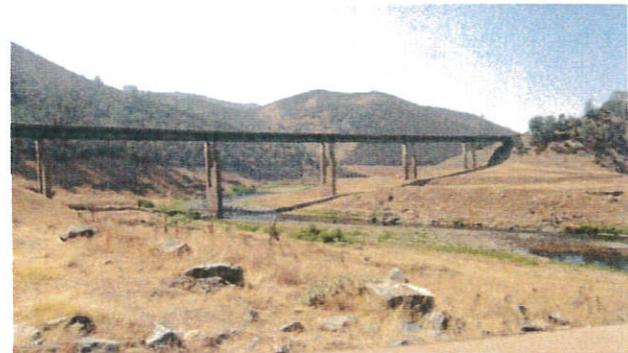
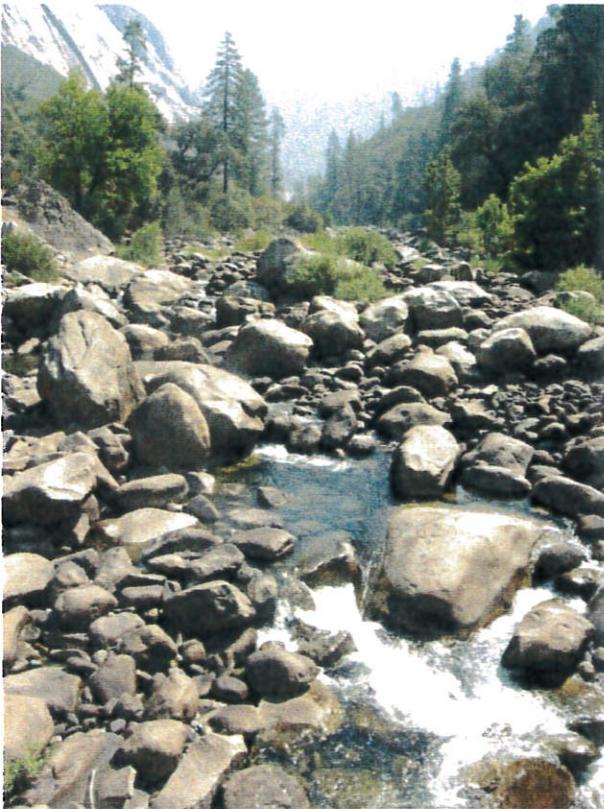




Transportation Concept Report
State Route 140
District 10
June 2016

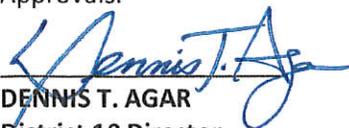


Disclaimer: The information and data contained in this document are for planning purposes only and should not be relied upon for final design of any project. Any information in this Transportation Concept Report (TCR) is subject to modification as conditions change and new information is obtained. Although planning information is dynamic and continually changing, the District 10 Division of Planning, Local Assistance, and Environmental 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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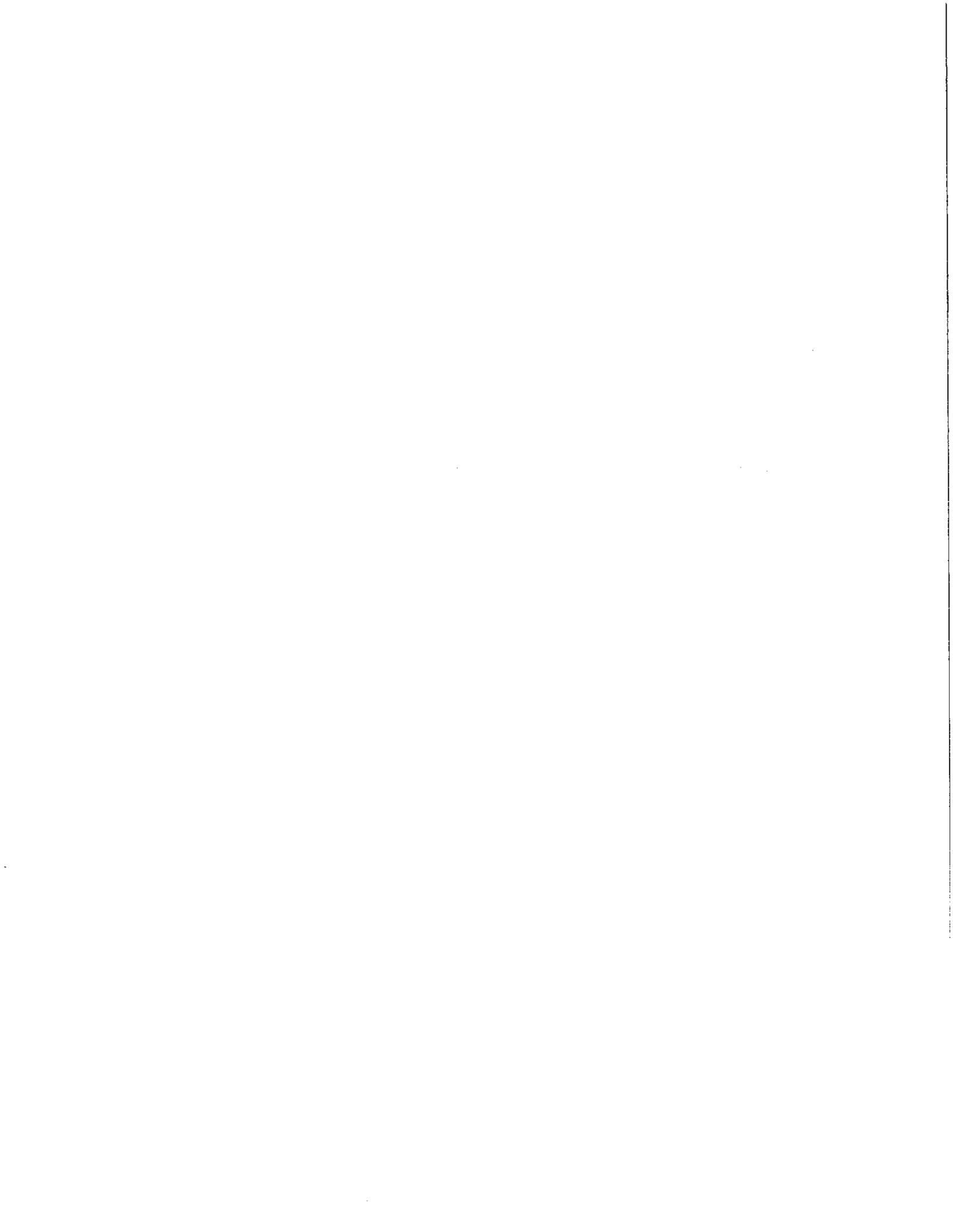


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ABOUT THE TRANSPORTATION CONCEPT REPORT

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) (Government 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 and health; stewardship and efficiency; sustainability, livability and economy, system performance, and organizational excellence.

The System Planning process comprises four parts: the District System Management Plan (DSMP) and project list, the TCR, and the Corridor System Management Plan (CSMP). The district-wide DSMP is a strategic policy and planning document that focuses on maintaining, operating, managing, and developing the transportation system, the project list is a list of planned and partially programmed transportation projects used to recommend projects for funding. 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. 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 California Government 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 State Route (SR) 140 TCR employed an outreach strategy consistent with local Metropolitan Planning Organization (MPO) and Regional Transportation Planning Agency (RTPA) 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)¹, 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.

¹ Public outreach requirements of the Fixing America's Surface Transportation (FAST) Act are not yet promulgated at the time of this report, but are assumed to match those of previous surface transportation legislation.

EXECUTIVE SUMMARY

State Route 140 is a State highway located in District 10: the route runs west to east from Interstate 5 (I-5) to SR 99 to Yosemite National Park (Yosemite) through Merced (MER) and Mariposa (MPA) Counties. The portion of SR 140 in Yosemite is administered by the National Park Service. The route can be characterized by three interrelated functions. The portion between I-5 and SR 99 serves as a secondary goods movement corridor serving farms and agricultural processing facilities in northern Merced County. The portion traveling east of SR 99 from the City of Merced provides both recreational access to Yosemite, as well as a regional work commute between residences in Mariposa County and both employers in the San Joaquin Valley, and Yosemite. The commute volumes tend to diminish and the traffic becomes predominantly recreational past the town of Midpines.

Segments of SR 140 east of the City of Merced are included in the Interregional Road System (IRRS) System, with the entire route included in the Freeway and Expressway System (FES) and the National Highway System (NHS). The concept Level of Service (LOS) for the corridor west of SR 99 would be D, while east of SR 99 would be C for rural segments and D for urban. The concept facility throughout its extent would be freeway or expressway. East of the town of Mariposa, SR 140 is a designated a State Scenic Highway. Throughout its extent, SR 140 is bicycle and pedestrian accessible.

In 2006, the Ferguson Landslide closed a section of SR 140 for a period of a year. An emergency repair reopened the highway by constructing two temporary one lane bridges and a one lane bypass on the opposite side of the river. A two phase permanent solution has been programmed with the first project to remove the material from the slide slated to begin construction in 2015, followed by construction of a structure designed to shield the road way from falling rock to be constructed two to three years later. Currently the permanent repair has been delayed and may be reevaluated due to reactivation of the slide during winter rains in 2015. Presently, SR 140 east of the Ferguson Slide is closed to trucks and buses longer than 45 feet.

The route provides limited utility as an interregional truck route. Unlike the other west to east connectors between I-5 and SR 99 in District 10, SR 140 is not a uniform Terminal Access (TA) truck route throughout its extent. Between I-5 and Gustine, and east of Midpines to Yosemite, SR 140 is designated as a California Legal Truck Route or a California Advisory Legal Truck Route. A temporary restriction of no buses or trucks greater than 45 feet in length are permitted east of the Ferguson Slide. Commercial vehicles are prohibited in national parks except when Yosemite would be a final delivery destination or related services or purposes.

For the Base Year (BY) of 2015 three segments of SR 140 have an LOS that exceeds the concept LOS. Both segments within the City of Merced (MER 8 and MER 9) and in the town of Mariposa (MPA 3). All three have short intersection spacing with speed limits under 45 Miles per Hour (MPH). By the Horizon Year (HY) one additional segment becomes deficient, between Applegate and Franklin Roads (MER 6). Given the short length of the segment, the proposed improvement to address the need would be increasing the number of lanes from two to four.

Neither the current Merced County Association of Governments (MCAG) Regional Transportation Plan (RTP) nor the Mariposa County Local Transportation Commission (MCLTC) RTP address any capacity increasing projects for SR 140 by 2040. Within Merced County, a locally funded roundabout as part of a complete streets solution is being undertaken on MER 3 at Post Mile (PM) 5.6, and has the opportunity to be the first roundabout constructed on the SHS in District 10. The MCLTC RTP does address long range operational projects (Tier II), realigning a portion of the segment of SR 140 between Midpines and Briceberg (MPA 5); and installing additional passing lanes between Catheys Valley and the town of Mariposa (MPA 2) and between the towns of Mariposa and Midpines (MPA 4), along with constructing left turn pockets at various intersections.

The route is bicycle and pedestrian accessible. Currently SR 140 is an unsigned Class III bicycle route. Sidewalks and signed class III bicycle routes² on SR 140 can be found in the cities of Gustine and Merced. For the HY, bicycle and pedestrian LOS for these localities are below comparable automobile LOS, and will require upgrades consistent with the principles and standards of complete streets and context sensitive solutions that may include bicycle lanes or trails, and related pedestrian facilities that are not currently present. Current plans are to widen shoulders and sign the existing Class III routes. Yosemite currently does not plan for segregated bicycle or pedestrian facilities on SR 140.

For transit, as of 2015, SR 140 operates as a through route, without local stops in Merced County.³ Yosemite Area Regional Transit Service (YARTS) which serves SR 140 between the City of Merced and Yosemite has two park and ride lots in Mariposa and Midpines. Although primarily a recreation and tourist service, YARTS can provide support for a home to work commute between Mariposa and Merced Counties.

Concept Summary

CONCEPT SUMMARY ⁴				
Segment	Segment Description	Existing Facility	Capital Facility Concept (2040)	Facility Concept (after 2040)
MERCED COUNTY				
MER 1	I-5 to W SR-33/Sullivan Road	2-lane C	2-lane C	2-lane E
MER 2	W SR-33/Sullivan Road to E SR-33 (Gustine)	2-lane C	2-lane C	2-lane E
MER 3	E SR-33 to Kniebes Road (Gustine)	2-lane C	2-lane C	2-lane E
MER 4	Kniebes Road to SR-165 (Stevinson)	2-lane C	2-lane C	2-lane E
MER 5	SR-165 (Stevinson) to Applegate Road	2-lane C	2-lane C	2-lane E
MER 6	Applegate Road to Franklin Road	2-lane C	2-lane C	4-lane E
MER 7	Franklin Road to Massacio Street	2-lane C	2-lane C	2-lane E
MER 8	Massacio Street to SR 99 North (Merced)	2-lane C	2-lane C	2-lane E
MER 9	SR-99 South to Santa Fe Avenue (Merced)	2-lane C	2-lane C	2-lane E
MER 10	Santa Fe Avenue to Plainsburg Road (Planada)	2-lane C	2-lane C	2-lane E
MER 11	Plainsburg Road to Watts Street (Planada)	2-lane C	2-lane C	2-lane E
MER 12	Watts Street to the County Line	2-lane C	2-lane C	2-lane E
MARIPOSA COUNTY				
MPA 1	County Line to Hornitos Road	2-lane C	2-lane C	2-lane E
MPA 2	Hornitos Road to S SR-49	2-lane C	2-lane C	2-lane E
MPA 3	S SR 49 to N SR-49 (Mariposa)	2-lane C	2-lane E	2-lane E
MPA 4	North Junction SR-49 to Triangle Road	2-lane C	2-lane C	2-lane E
MPA 5	Triangle Road to Foresta Road	2-lane C	2-lane C	2-lane E
MPA 6	Foresta Road to Yosemite boundary	2-lane C	2-lane C	2-lane E

Concept Rationale

The concept rationale is based on two factors: (1) the minimum LOS tolerable for peak hour conditions, and (2) the type of facility necessary to provide the concept LOS. The IRRS is a system of interregional state highway routes outside urbanized areas that provide access to, and links between the State's economic centers, major recreational areas, and urban and rural regions. The concept LOS for an IRRS route is C in rural areas, and D in urban areas. The FES is an older designation applied to the SHS, and reflects a conceptual network of higher

² A portion of SR 140 concurrent with SR 33 from Sullivan Street to Harry Schneck Park is Class II, per the 2008 Merced County Bicycle Plan.

³ Two bus routes, one with stops on SR 165 and one on SR 33 employ SR 140 to connect to the transit center in City of Merced.

⁴ C is conventional highway; E is expressway; the number refers to the total number of lanes

efficiency highways consistent with planning forecasts from half a century ago. Where a State highway is on the FES but not the IRRS, the concept LOS is D, but the minimal facility remains expressway.

For highway design and planning purposes, LOS characterizes conditions of high traffic speeds (45 to 70 MPH), along with a low number of stop controlled intersections. The condition is referred to as uninterrupted flow. Increasing the number of access points (intersections, driveways) can reduce LOS, as their presence can alter the rate and volume of traffic flow. Signalized intersections at intervals of two miles or greater may not substantially impede traffic flow, but will likely do so if at shorter intervals. Generally, highway segments with numerous signalized intersections at short distances between one another experience interrupted flow. For ideal interregional travel, the desired condition is uninterrupted traffic flow at posted speeds in excess of 40 MPH, controlled access, and intersections spaced at distances of two miles or greater.

From I-5 through the City of Merced, SR 140 is on the FES. The concept LOS for all segments in this portion of the highway is D. SR 140 east of the City of Merced is on the IRRS. Since none of the communities east of the City of Merced have populations greater than 5,000⁵ this allows the route to have a concept LOS of C due to its rural character.

Initial conditions, at the time of the 2015 BY, result in MER 8, MER 9, and MPA 3 having an LOS that exceeds the concept LOS. By the 2040 HY, MER 6 is also forecast to be deficient. For MER 8, MER 9, and MPA 3 the deficiency arises due to interrupted flow conditions (closely spaced intersections, posted speed limits below 40 MPH). The conceptual solution for these segments is realignment rather than increasing lane capacity, and would require a concept facility of a two lane expressway for the HY. For MER 6, the proposed conceptual action would be either an expansion from two lanes to four lanes, or the inclusion of passing lanes. Given the short length of the segment, there appears to be no difference between the two strategies, as the length of any passing lane would approach the entire distance of the segment. No upgrades to these facilities are currently included in the respective RTPs.

The one difficulty in supporting upgrading capacity or function of the highway segments on SR 140 rests on their utility for interregional travel. The balance of cost to benefit for improving interregional travel for commutes to work and back tends to be straightforward, however for a route that has a large component of its annual daily traffic reflecting recreational travel⁶, may not be so straightforward. Bypassing urban areas where developed services for tourism exist may be a cost to the local economy rather than an enhancement. Furthermore, widening segments such as MER 6 without a clear source for the forecast increase in future traffic (the area surrounding MER 6 is unincorporated, developed as low density residential or agriculture, and remains in the Merced County Sphere of Influence) does not appear justified, as the traffic increase does not transmit to adjoining segments to a degree that it affects their future LOS (e.g. such an improvement does not appear to have logical termini). Further analysis would be necessary.

Due to topography, the highway segments in Mariposa County possess lower LOS than their counterparts in Merced County. Many of these segments have passing lanes, and perform better than segment modeling indicates. Because the rolling or mountainous terrain degrades traffic flow, passing lanes will often improve vehicle flow, and where not currently present, are reflected in several long range projects proposed in the Mariposa County RTP. For this reason, no further improvements on deficient rural segments of SR 140 are proposed in this report.

⁵The population of the community of Planada may surpass this by 2020.

⁶ Evidence indicating a recreational component to SR 140's traffic is discussed below.

Proposed Projects and Strategies

Caltrans' current strategy is to maintain or preserve the existing SHS. For SR 140 there are no capacity increasing projects proposed for this TCR as outlined above. Currently, there are three programmed projects for the highway--one operational improvement, and two projects addressing the Ferguson landslide. Within Gustine, at the intersection of SR 140 and SR 33 North (SR 140 PM 5.6), is a locally funded project to construct a roundabout. The Ferguson slide repair consists of two projects or phases—one to remove the debris, which will be in construction during the summer of 2016, and the restoration of the permanent two lane access, which currently involves the installation of a protective feature that sheds falling rocks away from the highway.

In addition to the projects that are directly on SR 140, there is also the phase two extension of the Merced Campus Parkway (Campus Parkway). Phase two will entail a widening of SR 140 to accommodate lanes accessing a new interchange. The Campus Parkway is a 4.6 mile new expressway connection between the Mission Interchange on SR 99 and the University of California at Merced campus, and will cross SR 140 at approximately PM 38.1 and 38.6 on segment MER 10 between Santa Fe Road and Kibby Road.

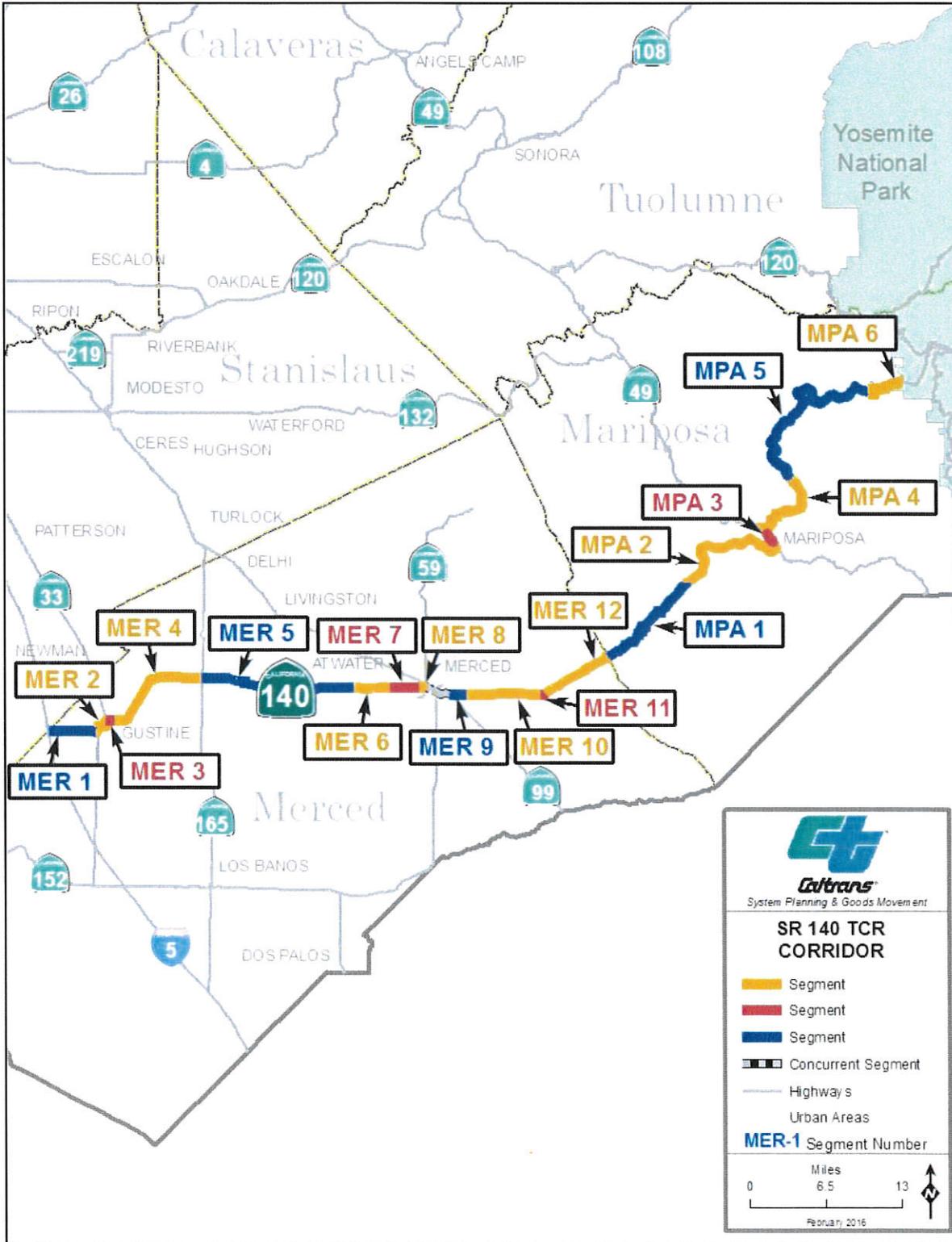
The Mariposa County RTP identifies several long range unconstrained projects for SR 140. These include a realignment of SR 140 between Midpines and Briceberg (MPA 5); installation of passing lanes near Aqua Fria Road (MPA 2) and between SR 49 N and Triangle Road (MPA 4); and the installation of left turn pockets at Smith Road, Yaqui Gulch Road, and the Mount Bullion Cutoff (MPA 2).

Yosemite has expressed interest in the development of shared highway advisory facilities on MPA 6—for a changeable message sign (CMS) and closed circuit television (CCTV) to notify visitors about conditions in Yosemite.

Although not evident at this time, the future facility of SR 140 being expressway would anticipate efforts at access management and control. Local land use and zoning may consider set asides for frontage roads to allow for intersection spacing on SR 140 at intervals of two miles or greater. Development of access management plans in the Cities of Gustine and Merced, and the towns of Planada and Mariposa, along with portions within their spheres of influence would be desirable to reduce congestion and turning conflicts.

CORRIDOR OVERVIEW

ROUTE SEGMENTATION



ROUTE SEGMENTATION			
Segment	Location Description	County_Route_Beg. PM	County_Route_End PM
MERCED COUNTY			
MER 1	I-5 to east to SR 33 South /Sullivan Road	Mer_140_0.000	Mer_140_4.194
MER 2	SR 33 South/Sullivan Road Right to SR 33 North (Gustine)	Mer_140_4.194	Mer_140_6.060
MER 3	SR 33 North (Gustine) to Kniebes Road	Mer_140_6.060	Mer_140_6.830
MER 4	Kniebes Road to SR 165 (Stevinson)	Mer_140_6.830	Mer_140_16.220
MER 5	SR 165 (Stevinson) to Applegate Road	Mer_140_16.220	Mer_140_29.470
MER 6	Applegate Road to Franklin Road	Mer_140_29.470	Mer_140_33.550
MER 7	Franklin Road to Massacio Street	Mer_140_33.550	Mer_140_35.030
MER 8	Massacio Street to SR 99 North (Merced)	Mer_140_35.030	Mer_140_35.780
MER 9	South Junction SR 99 (Merced) to Santa Fe Avenue	Mer_140_35.790	Mer_140_37.400
MER 10	Santa Fe Avenue to Plainsburg Road (Planada)	Mer_140_37.400	Mer_140_43.700
MER 11	Plainsburg Road (Planada) to .060 mile East of Watts Street	Mer_140_43.700	Mer_140_44.060
MER 12	.060 mile East of Watts Street to the Mariposa County Line	Mer_140_44.060	Mer_140_50.301
MARIPOSA COUNTY			
MPA 1	Merced/Mariposa County Line to Hornitos Road	MPA_140_0.000	MPA_140_9.500
MPA 2	Hornitos Road to South Junction SR 49	MPA_140_9.500	MPA_140_21.224
MPA 3	South Junction SR 49 to North Junction SR 49 (Mariposa)	MPA_140_21.224	MPA_140_22.080
MPA 4	North Junction SR 49 (Mariposa) to Carsten Road (Midpines)	MPA_140_22.080	MPA_140_28.380
MPA 5	Carsten Road (Midpines) to Foresta Road	MPA_140_28.380	MPA_140_48.170
MPA 6	Foresta Road to Yosemite National Park Boundary	MPA_140_48.170	MPA_140_51.803

The division of the SR 140 into homogeneous segments followed District 10's practice. Those segments conformed to land use planning boundaries, changes in population density (rural versus urban), intersections with other SHS, truck route designation, gradient or terrain, change in highway analysis, or increases in ten percent or more in daily, or peak hour traffic volumes. Segmentation resulted in the creation of twelve segments in Merced County and six segments in Mariposa County.

Of the twelve segments in Merced County, most are two lanes with posted speed limits of 55 MPH, within a flat terrain. MER 1 starts from I-5 runs eastwards to SR 33, and is distinguished from other segments in Merced County by being a California Legal Truck Route. MER 2 has intersections with SR 33 as its termini, is within the city limits of Gustine with a reduced speed limit. MER 3 extends from the intersection with SR 33 for a short distance east to Kniebes Road, still within the City of Gustine. MER 4 resumes from Kniebes Road, at the Gustine city limits, to SR 165 near Stevenson. MER 5 starts at SR 165 and continues eastward to Applegate Road, an important local artery. MER 6 is between Applegate Road and Franklin Road. MER 7 extends from Franklin Road to Massacio Road at the Merced city limits. MER 8 extends from Massacio Road to SR 99, the segment includes signals and a short four lane facility. MER 9 is a signalized segment that runs east from SR 99 to Santa Fe Avenue within Merced City limits and includes a four lane segment. MER 10 runs from Santa Fe Avenue to Plainsberg Road in a rural context. MER 11, from Plainsberg Road to Watts Street reflects the reduced speed limit associated with the unincorporated town of Planada. MER 12 extends from the eastern edge of Planada to the Mariposa County line, and with its rising elevation is considered rolling terrain.

Of the six segments in Mariposa County, all are two lane segments, with some having posted speed limits of 55 MPH in rolling terrain. MPA 1 continues from the Merced County line to Hornitos Road near the town of Cathay's Valley. MPA 2, from Hornitos Road to SR 49 South, retains the characteristics of MPA 1 with increased elevation

gain and loss, and unique operational issues due to steep grades. MPA 3 accesses the County Seat of Mariposa, with a reduced speed limit between SR 49 South and SR 49 North. Past SR 49 North, MPA 4 continues eastward to the town of Midpines at Triangle Road. MPA 5 extends from Triangle Road to Foresta Road near the town of El Portal. MPA 6 runs from Foresta Road to the entrance to Yosemite.

ROUTE DESCRIPTION

SR 140 is an east to west corridor that begins at I-5, west of the City of Gustine in Merced County, and terminates in Yosemite in Mariposa County. SR 140 traverses the flat agricultural land of the San Joaquin Valley and continues through the Sierra Nevada Foothills along the Merced River Canyon. SR 140 is a year-round highway serving the Cities of Gustine and Merced, and the communities of Planada, Catheys Valley, Mariposa Midpines, Briceburg, and El Portal. Along this corridor are recreational areas such as San Luis National Wildlife Refuge, Kesterson National Wildlife Refuge, the Sierra National Forest, and Yosemite National Park.

Throughout much of its extent, the facility of SR 140 is a two lane conventional highway. Two four lane segments occur within the City of Merced on segments MER 8 and MER 9. A route break of 1.9 miles occurs in the City of Merced where it is concurrent with SR 99. SR 140 runs concurrent with SR 33 in the City of Gustine, and with SR 49 in the town of Mariposa.

Route Location:

SR 140 is one of seven east to west highways connecting I-5 to SR 99 in District 10, and one of two in Merced County. SR 140 lacks the interconnection between urban centers that the other routes have, resulting in lower traffic volumes between SR 99 and I-5. Lacking the functionality of a work commute route, SR 140 provides a secondary goods movement route for agricultural goods and products within Merced County, and as a recreational route between SR 99 at the City of Merced and Yosemite. As one of the four highway entrances to the Park, SR 140 offers the shortest access to Yosemite Valley from nearby local lodging, compared to SR 120 (north and east entrances) and SR 41 (south entrance).

SR 140 was two legislative routes: LR 122 between SR 33 and SR 99, and LR 18 between SR 99 and Yosemite.

Route Purpose:

SR 140 lacks one clearly defined purpose. Although the route's central purpose in the SHS is to act as a Gateway to Yosemite and the surrounding towns, as reflected by the inclusion in IRRS for the portion of the route east of SR 99. Between I-5 to the City of Merced, SR 140 supports local travel, along with local and regional freight transport from farms to processing facilities, or shippers. Between the cities of Gustine and Merced, SR 140 serves as a local commuter route.

Although during summer months four state highways access Yosemite, the only dependable winter access is SR 140. The section of SR 140 between the Merced County line near Planada and Yosemite is known as the "All Year Highway."

YARTS started operating transit buses in May of 2000, superseding the earlier AMTRAK bus service to Yosemite. Currently service has expanded to where YARTS serves Yosemite from Fresno, Mariposa, Merced, Mono and Tuolumne Counties, and offers travelers a dependable alternative to driving. For Yosemite, YARTS has reduced transportation and parking demand.

Major Route Features:

SR 140's significant route feature is the year round access to Yosemite. In winter both SR 140 and SR 41 may access Yosemite, but SR 140 provides easier access for tourists from the Bay Area and Southern California with reduced likelihood of highway closure due to snow.

Route Designations and Characteristics:

ROUTE DESIGNATIONS & CHARACTERISTICS												
MERCED COUNTY												
Segment #	MER 1	MER 2	MER 3	MER 4	MER 5	MER 6	MER 7	MER 8	MER 9	MER 10	MER 11	MER 12
FES	Yes											
NHS	Yes											
Strategic Highway Network	No											
Scenic Highway	No											
IRRS	No									Yes		
Federal Functional Classification	Principal Arterial											
Goods Movement Route	No											
Truck Designation	State Legal	State Advisory 30 feet KPRA	Terminal Access Route (STAA)									
Rural/Urban/Urbanized	Rural	Urban	Rural				Urban		Rural			
Metropolitan Planning Organization	Merced County Association of Governments											
Regional Transportation Planning Agency	Merced County Association of Governments											
Congestion Management Agency	Merced County Association of Governments											
County Transportation Commission	None											
Local Agency	Merced County	City of Gustine	Merced County				City of Merced		Merced County			
Tribes	No Federally Recognized Tribes											
Air District	San Joaquin Valley Air Pollution Control District											
Terrain	Flat											Rolling

ROUTE DESIGNATIONS & CHARACTERISTICS (continued)						
MARIPOSA COUNTY						
Segment #	MPA 1	MPA 2	MPA 3	MPA 4	MPA 5	MPA 6
FES	Yes					
NHS	Yes					
Strategic Highway Network	No					
Scenic Highway	No			Yes		
IRRS	Yes					
Federal Functional Classification	Principal Arterial					
Goods Movement Route	No					
Truck Designation	Terminal Access Route (STAA)				Temporary Special Length Restriction - No vehicles over 45 feet due to landslide	
Rural/Urban/Urbanized	Rural					
Metropolitan Planning Organization	None					
Regional Transportation Planning Agency	Mariposa County Local Transportation Commission					
Congestion Management Agency	None					
County Transportation Commission	Mariposa County Local Transportation Commission					
Local Agency	Mariposa County					
Tribes	There are no Federally Recognized Tribes					
Air District	Mariposa County Air Pollution Control District					
Terrain	Rolling	Mountainous	Rolling		Mountainous	

SR 140 is included in the FES and is on the NHS for its entire extent, and is included in the IRRS from The Merced City limits, near Santa Fe Avenue, east to Yosemite. The concept LOS consistent for the portion of SR 140 on the FAE, but not the IRRS, is D for both rural and urban segments, while for the portion on the IRRS, is C for rural and D for urban. The proposed facility is at a minimum expressway. None of the current route is constructed to expressway or freeway standards, though the portion of the highway between the Cities of Gustine and Merced may function as an expressway (without the dividing median).

As a goods movement route, SR 140 is designated between I-5 and SR 33 as a California legal truck route. Between SR 33 South and SR 33 North it is designated a California Legal Advisory Truck Route with a Maximum King Pin to Rear Axle (KPR) distance of thirty feet. From SR 33 North to Triangle Road in Mariposa County, SR 140 is a TA truck route consistent with the Surface Transportation Assistance Act (STAA). From Triangle Road to the Yosemite Park Boundary, the route is again a California Legal Advisory Truck Route, with a maximum KPR distance of thirty two feet.

Between its junction with SR 49 in the town of Mariposa to the Yosemite boundary (PM 22.8 to PM 51.8) it is officially designated part of the State Scenic Highways and Historic Parkways State Scenic Highway System. It is eligible to be part of the State Scenic Highways from PM 21.2 to 22.8.

A portion of MER 5 and all of MER 6 border the Merced River which is designated a Wild and Scenic River. Areas extending up to a quarter of a mile from the ordinary high water mark of the river are subject to the provisions of the Wild and Scenic Rivers Act.⁷

⁷ Public Law 90-542; 16 U.S.C. 1271 et seq.

COMMUNITY CHARACTERISTICS

SR 140 serves Merced County with a population of 255,793 and Mariposa County with a population of 17,755. Both Counties combined represent less than 1% of the entire population of California, and with their respective median annual incomes being substantially lower than that for the State, reflect the relative poverty of the San Joaquin Valley and Sierra Nevada foothills compared to the rest of the State. The racial and ethnic composition of Merced County is 58% White, 3.9% African American, 1.4% Native American or Alaskan, 7.4% Asian, and 0.2% Pacific Islander; with 54.9% of the total population identifying as Latino or Hispanic. The racial and ethnic composition of Mariposa County is 88.2% white, 0.3% African American, 2.9% Native American or Alaskan, 1.1% Asian, and 0.1% Pacific Islander, with 9.2% of the entire population identifying as Latino or Hispanic.⁸

Although both counties have distinct ethnic profiles, they possess similar socio-economic characteristics when compared to the State as a whole: median income was \$35,532 for Merced County, and \$34,626 for Mariposa County (California's is \$58,328). Oddly, poverty rates for the two counties appear to reflect a greater skew in income: Merced County has a rate of 24.8% of the population with incomes below the federal poverty level, well above that for California at 16.4%, while Mariposa County's poverty rate is at 16.2%.⁹ Much of the disparity can partially be attributed to differences in household size and composition. For Merced County, 45.4% of all households had at least one member under the age of 18, 14.1% of all households were headed by a single adult female, with households averaging 3.25 persons, and with families averaging 3.69 persons in size. For Mariposa, 25.6% of all households had at least one member under the age of 18, 8.0% of all household were headed by a single adult female, with households averaging 2.37 persons, with families averaging 2.89 persons in size. These differences are further reflected in the median age of a resident of Merced County being about 29 years, while for Mariposa County that age is around 43 years.¹⁰

From a standpoint of economic justice, the SR 140 corridor within Merced County serves communities with profiles of high health vulnerability with a medium to high social vulnerability index.¹¹ One index of high health vulnerability is asthma, which may be linked in part to exposure to high concentrations of vehicle exhaust associated with transportation. Similar concerns likely apply to SR 140 in Mariposa County, but have not been documented.

The respective economic roles SR 140 has in both counties are relatively similar. By providing access to Yosemite, it permits both counties to take advantage of Yosemite tourism which has seen annual visitation rates of four million visitors for each of the past four years.¹² Approximately 21% of all workers in Mariposa County, and 7% of all workers in Merced County work in the Arts, Entertainment, Recreation, Accommodation, and Food Services Industry Sector (Tourism).¹³ Many of these workers are employed at Yosemite.¹⁴ Of the fifteen reported industry sectors tabulated by the census, tourism is the largest employment sector in Mariposa County and the sixth largest in Merced County.

SR 140 provides access to five communities within the two counties—the Cities of Gustine and Merced, and the towns of Planada, Mariposa, and Midpines. With the exception of Mariposa, SR 140 does not provide connections to the administrative or commercial centers of the communities it passes through. Though a 'Main Street' in the

⁸ US Census, 2010.

⁹ US Census, 2010–2014

¹⁰ This comparison follows up on the *San Joaquin Valley: A Region in Transition*, Cowen, Tadlock, Congressional Research Office, Library of Congress, 2015 that made a similar comparison prior to the recession.

¹¹ *Land of Risk, Land of Opportunity*, London, Johnathan, et al. UC Davis Center for Regional Change, 2011 p 12

¹² The number of visitors entering Yosemite via SR 140 is estimated to be between a quarter to a third of all visitors.

¹³ Census Transportation Planning Products, Five Year Census 2006 to 2010.

¹⁴ Yosemite estimates a daily commute of 250 to 300 park employees each weekday on SR 140.

town of Mariposa, SR 140 was realigned by the State during the depression era, relinquishing Eighth Street where most of the administrative services for the county are located for the current alignment along Charles Street while still accessing the historic portion of the town.

LAND USE

SR 140 extends through six land use planning agencies—the Counties of Merced and Mariposa, the Cities of Gustine and Merced, the US Forest Service, and the US Fish and Wildlife Service. Within the Counties of Merced and Mariposa, the land uses tend towards agriculture and rural residential in both counties, though this changes in the towns of Planada and Mariposa to higher density residential housing and commercial. Within the City of Gustine, SR 140 accesses residential, recreational, commercial, and industrial land uses. For the City of Merced, SR 140 accesses light, medium, and heavy density residential areas and commercial land uses. In both the San Luis National Wildlife Refuge and the Stanislaus National Forest, SR 140 travels through public lands subject to conservation management plans.

The potential in Merced and Mariposa counties for the development of “Smart Mobility” land uses and improvements appears slight. This is due in part to the low population density, low household incomes, and substantial participation of the local workforce in industrial sectors that do not line up with transit use or active transportation. Segments of SR 140 within the City of Merced may be poised for intensification of use and improvements for active transportation, but as a transportation corridor SR 140’s greatest utility is for interregional travel, while SR 59/ Dr. Martin Luther King Jr. Boulevard and 16th Street more directly serve and provide connection to the suburban center and historic downtown.

LAND USE	
MERCED COUNTY	
Segment	Place Type ¹⁵
MER 1	5b—Rural Settlements and Agricultural Lands
MER 2	5a—Rural Towns
MER 3	5a—Rural Towns
MER 4	5b— Rural Settlements and Agricultural Lands, 6—Protected Lands
MER 5	5b--Rural Settlements and Agricultural Lands
MER 6	5b--Rural Settlements and Agricultural Lands
MER 7	5b--Rural Settlements and Agricultural Lands
MER 8	4b—Suburban Corridors
MER 9	4b—Suburban Corridors
MER 10	5b--Rural Settlements and Agricultural Lands
MER 11	5a—Rural Towns
MER-12	5b--Rural Settlements and Agricultural Lands
MARIPOSA COUNTY	
MPA 1	5b--Rural Settlements and Agricultural Lands
MPA 2	5b--Rural Settlements and Agricultural Lands
MPA 3	5a—Rural Towns
MPA 4	5b--Rural Settlements and Agricultural Lands
MPA 5	6—Protected Lands
MPA 6	6—Protected Lands

¹⁵ Places types follow designations in the Smart Mobility Framework, 2011

SYSTEM CHARACTERISTICS

Currently, SR 140 is a two lane conventional highway with the exception of two signalized four lane sections within the City of Merced. The four lane section in MER 8 reflects heavy local traffic volumes between SR 99 and the Home Depot Shopping Center driveway between X and Virginia Streets. The four lane section in MER 9 reflects the merging of north to south traffic volumes from 21st Street and Parsons Avenue onto SR 140. Both four lane sections are in segments that have several signalized intersections spaced at short intervals, with posted speeds less than 45 MPH.

As of 2015, segments MER 8, MER 9, and MPA 3 will have deficient LOS, and may merit future bypasses, widening, or operational improvements. There are no proposed projects to address these deficiencies in the Merced County or the Mariposa County RTPs. These deficiencies continue to persist to the HY of 2040.

By the HY of 2040, only segment MER 6 is anticipated to develop a deficient LOS in addition to the three already deficient segments. As the segment connects two minor arterials, Franklin and Applegate Roads, and is less than four miles long, widening to four lanes appears to be the best strategy compared to operational improvements or installation of passing lanes, but action is not recommended at this time. Immediate and surrounding land uses do not appear to support the future growth seen in traffic demand modeling. A study may need to be undertaken to better assess the need and any options for improvement.

Although traffic congestion is light and intermittent on SR 140, upgrading and expanding the corridor's Intelligent Transportation System (ITS) elements is being considered in an update to the ITS strategic planning specific to traffic incident control and management. Several segments lack Traffic Monitoring Stations (TMS), and may be expected to have these in place by 2040 with the exception of MPA 1. Improvement to MPA 5 with the installation of Ferguson Slide improvements should result in the removal of the temporary traffic signal. Currently planned enhancements are the addition of fifteen CMS with associated CCTV and maintenance vehicle pullouts, seven Remote Weather Information Stations (RWIS) and four Highway Advisory Radio (HAR) signs and Flashing Beacons (FB). Scheduling for these improvement will likely rely upon their inclusion with other highway improvements to avoid multiple highway construction closures. TMS included in the Performance Measurement System (PeMS) are in MER 4, MER 5, MER 6, MPA 3, and MPA 4. It is unclear at this time whether further expansion of the PeMS network is needed for SR 140.

SYSTEM CHARACTERISTICS						
MERCED COUNTY						
Segment #	MER 1	MER 2	MER 3	MER 4	MER 5	MER 6
Existing Facility						
Facility Type	Conventional					
General Purpose Lanes	Two					
Lane Miles	9.38	3.74	1.54	18.78	26.50	8.16
Centerline Miles	4.19	1.87	0.77	9.39	13.25	4.08
Passing Lanes	None					
Truck Climbing Lanes	None					
20-25 Year Concept Facility						
Facility Type	Conventional					
General Purpose Lanes	Two					
Lane Miles	9.38	3.74	1.54	18.78	26.50	8.16
Centerline Miles	4.19	1.87	0.77	9.39	13.25	4.08
Passing Lanes	None					
Truck Climbing Lanes	None					
Post 25 Year Facility						
Facility Type	Expressway					
General Purpose Lanes	Two					Four
Lane Miles	9.38	3.74	1.54	18.78	26.50	8.16
Centerline Miles	4.19	1.87	0.77	9.39	13.25	4.08
Aux Lanes	None					
Passing Lanes	None					
Truck Climbing Lanes	None					
ROW Needs	None					
Transportation Monitoring System Elements¹⁶						
Elements (2015)	None	None	None	None	TMS	TMS
Elements (2040)	TMS	TMS	TMS	TMS	TMS	TMS

¹⁶ Abbreviations: TMS: Traffic Monitoring Station; CMS: Changeable Message Sign; CCTV: Closer Circuit Television; HAR: Highway Advisory Radio; FB: Flashing Beacon

SYSTEM CHARACTERISTICS (Continued)						
MERCED COUNTY						
Segment #	MER 7	MER 8	MER 9	MER 10	MER 11	Mer-12
Existing Facility						
Facility Type	Conventional					
General Purpose Lanes	Two	Two (Four)	Two (Four)	Two		
Lane Miles	2.96	1.94	3.50	12.60	0.72	12.48
Centerline Miles	1.48	0.75	1.61	6.30	0.36	6.24
Passing Lanes	None					
Truck Climbing Lanes	None					
20-25 Year Concept Facility						
Facility Type	Conventional					
General Purpose Lanes	Two	Two (Four)	Two (Four)	Two		
Lane Miles	2.96	1.94	3.50	12.60	0.72	12.48
Centerline Miles	1.48	0.75	1.61	6.30	0.36	6.24
Passing Lanes	None					
Truck Climbing Lanes	None					
Post 25 Year Facility						
Facility Type	Expressway					
General Purpose Lanes	Four					
Lane Miles	2.96	1.94	3.50	12.60	0.72	12.48
Centerline Miles	1.48	0.75	1.61	6.30	0.36	6.24
Aux Lanes	None					
Passing Lanes	None					
Truck Climbing Lanes	None					
ROW Needs	None					
Transportation Monitoring System Elements¹⁴						
Elements (2015)	FB, TMS	Signal	Signal, CMS	None	Signal, FB, CMS	None
Elements (2040)		TMS	TMS	TMS	TMS	TMS

SYSTEM CHARACTERISTICS (Continued)						
MARIPOSA COUNTY						
Segment #	MPA 1	MPA 2	MPA 3	MPA 4	MPA 5	MPA 6
Existing Facility						
Facility Type	Conventional					
General Purpose Lanes	Two					
Lane Miles	19.00	23.44	1.76	12.60	39.98	7.26
Centerline Miles	9.50	11.72	0.86	6.30	19.79	3.63
Passing Lanes	Yes		None	Yes		None
Truck Climbing Lanes	None	Yes	None			
20-25 Year Concept Facility						
Facility Type	Conventional					
General Purpose Lanes	Two					
Lane Miles	19.00	23.44	1.76	12.60	39.98	7.26
Centerline Miles	9.50	11.72	0.86	6.30	19.79	3.63
Passing Lanes	Yes		None	Yes		None
Truck Climbing Lanes	None	Yes	None			
Post 25 Year Facility						
Facility Type	Expressway					
General Purpose Lanes	Two					
Lane Miles	19.00	23.44	1.76	12.60	39.98	7.26
Centerline Miles	9.50	11.72	0.86	6.30	19.79	3.63
Aux Lanes	None					
Passing Lanes	Yes		None	Yes		None
Truck Climbing Lanes	None	Yes	None			
ROW Needs ¹⁷	None	8-30 feet	None	Unclear		None
Transportation Monitoring System Elements¹⁴						
Elements (2015)	None	TMS	TMS, CMS, CCTV, HAR	CMS, CCTV	Signal, CMS, TMS, CCTV,	None
Elements (2040)	None			TMS		TMS

BICYCLE FACILITY

The existing bicycle facility on the SR 140 corridor is a Class III bicycle route, with the exception of a bicycle lane on a portion of MER 2 in the City of Gustine. Local agencies have not made upgrading the facility from shared lanes to exclusive bicycle lanes or paths upon the corridor a priority¹⁸. Aside from a parallel alternative bicycle route on Childs Avenue, terrain and geography limit the opportunity to provide less congested local alternatives to bicycle travel on the highway. As bicycle LOS is below automobile LOS for all highway segments in the corridor, given sufficient demand, there may exist a future need to upgrade the bicycle facility to where bicycle travel is segregated from automobiles. Outside of river crossings, where bridge widening would be required, installation of a Class II or IV facility may best address this concern, particularly when adjoining federal land use agencies are present, and Class I bicycle paths conflict with existing management plans.

The current bicycle plan in Mariposa County¹⁹ proposes retention of the Class III facility with signage and widened shoulders. Future growth in bicycle use along the SR 140 corridor, given the current LOS of F, would portend a need to shift away from a Class III facility to a concept Class II or Class IV facility as the least intensive of expansion

¹⁷ Unclear refers to Tier II projects in the MLTC RTP 2012 that may already be installed

¹⁸ Merced County Regional Bicycle Transportation Plan, October 2008, various pages: Mariposa County Bicycle Plan, 2013

¹⁹ Mariposa Bicycle and Pedestrian Plan, 2011

Bicycle Facility							
Segment	State Bicycle Facility		Parallel Bicycle Facility				
	Bicycle Access Prohibited	Facility Type	Parallel Facility Present	Seg. ID	Name	Location Description	Facility Type
MERCED COUNTY							
MER 1	No	Class III	No				
MER 2	No	Class II	Yes		Several local streets	Several signed bike routes in Gustine	Class III
MER 3	No	Class III	No				
MER 4	No	Class III	No				
MER 5	No	Class III	No				
MER 6	No	Class III	No				
MER 7	No	Class III	No				
MER 8	No	Class III	No				
MER 9	No	Class III	No				
MER 10	No	Class III	Yes	10.1	Childs Avenue	Parallel 1 mile south	Class III
MER 11	No	Class III	Yes	11.1	Childs Avenue	Parallel 1 mile south	Class III
MER 12	No	Class III	No				
MARIPOSA COUNTY							
MPA 1	No	Class III	No				
MPA 2	No	Class III	No				
MPA 3	No	Class III	No				
MPA 4	No	Class III	No				
MPA 5	No	Class III	No				
MPA 6	No	Class III	No				

strategies in an environmentally sensitive corridor, depending on local priorities and needs.²⁰ Either improvement would be inconsistent with Yosemite plans which preclude expansion of the existing driving surface. Development of a facility with logical termini would probably extend between Gustine and resort towns outside of Yosemite.

District 10 plans to update its current Bicycle Plan. With the State’s current emphasis upon active transportation (walking and bicycling) the District anticipates growth and development of bicycle travel corridors between population centers and popular recreation areas such as Yosemite. Recently, this led to designation of SR 33 as an interregional bicycle route by the State. Although at this time only SR 4 in Alpine County experiences substantial bicycle recreation use, there are indications of increasing bicycle travel between the San Francisco Bay Area (Bay Area) and the San Joaquin Valley, with the possibility of a pent up demand for bicycle touring similar to what is seen in Western Europe and areas north of the Bay Area. From existing local bicycle and active transportation plans District 10 has formulated a potential bicycle route within the SR 120 corridor consisting of proposed Class I and Class II facilities, but lacks current bicycle planning in Tuolumne County to make a complete connection to Yosemite. A similar corridor aligned with the SR 140 corridor is desired, but faces the lack of a contemporary bicycle or active transportation plan for Mariposa County.

SR 140 is an older highway with design features that address the needs of automobiles. Automobile and truck volumes are sufficiently high in the corridor that permitting bicycles in the travel lane consistent with being a Class III bicycle facility without shoulder refuge may result in persistent vehicular conflicts between bicyclists and

²⁰ There are present old railroad grades that may be converted to bicycle trails, however the cost may be greater than that for a bicycle lane due to the potential presence of cultural resources and expense of crossing the Merced River .

automobiles. Bridges lack the shoulder or sidewalks to allow separation of bicycle traffic from automobiles. In many locations highway shoulders lack the paved widths or obstruct safe refuge with rumble strips on the fog line. Although no capacity increasing projects are anticipated for the corridor, it has become necessary for any highway or bridge projects that involve shoulder or travel lane upkeep consider the needs of bicycle refuge and allow a bicycle corridor that permits continuous travel without interruption due to lack of passage or safe conduct.

PEDESTRIAN FACILITY

In assessing the prospect of SR 140 as a complete street facility, four pedestrian facilities were identified in urban and urbanizing areas (MER 2, MER 8, MER 9, and MPA 3). Future need for pedestrian facilities may likely exist in the unincorporated community of Planada on MER 11, particularly if commercial and residential development should continue to expand northwards across SR 140. Pedestrian facilities on MER 2 are present from Linden Avenue east to the 4th Avenue right turn where they are only present on the north (westbound) side of the highway to 3rd Avenue. Crosswalks and curb ramps are for the most part present, but are not to current ADA design standards. For MER 8, sidewalks are intermittent to nonexistent between Sydney Street and Massacio, but are present with curb ramps eastwards from Sydney Street to the SR 99 freeway. Segment MER 9 possesses sidewalks with ADA ramps along with crosswalks in both directions at both signalized and unsignalized intersections. MPA 3 has intermittent sidewalks that cover a small portion of the segment—sidewalks are present on both sides of the highway from the block between 5th and 6th Streets, and appear in two locations on the north (west) side of the highway on from 6th to 10th Streets. Crosswalks are present, but may occur at intersections lacking sidewalks or ramps accessing sidewalks on side streets. Many of the curb ramps are not compliant with current ADA standards. District 10 will continue in its efforts to improve walkability in the SR 140 corridor by upgrading ADA ramps, and help facilitate local public work agencies in the installation of sidewalks.

Several rural school districts straddle SR 140. Pedestrian and bicycling needs of students may be addressed by safe routes to schools application in order to fund improvements that integrate active transportation to and from school. Providing and upgrading Safe and sheltered walking and bicycling facilities has become a consideration in proximity to schools in the development of highway projects in effort to fulfill Caltrans commitment to complete streets. One rural school crossing zone was observed at Scott Road (Mer 6) for McSwain Elementary School.

PEDESTRIAN FACILITY			
Segment	Pedestrian Access Prohibited	Sidewalk Present	Alt. Facility
MERCED COUNTY			
MER 1	No	No	
MER 2	No	Yes--intermittent	
MER 3 – MER 7	No	No	
MER 8	No	Yes--intermittent	
MER 9	No	Yes	
MER 10 —MER 12	No	No	
MARIPOSA COUNTY			
MPA 1—MPA 2	No	No	
MPA 3	No	Yes--intermittent	
MPA 4 –MPA 6	No	No	

TRANSIT FACILITY

Transit Facility																	
Segment	Mode & Collateral Facility	Name	Route End Points	Ridership	Headway (hrs)	Operating Period	ITS & Technology	Stations			Amenities	Bikes Allowed on Transit	Location Description	# Parking Spaces			
								Cities	Postmiles								
MERCED COUNTY																	
MER 1	No Transit Service																
MER 2	Intercity	STA-45 W	Gustine to Patterson		1+	6 days		No Bus Stations			Yes	No Bus Stations					
MER 2, 3,4,5,6,7	Intercity	Gustine Shuttle, Hilmar Shuttle	Merced TRANSPO to Los Banos		2 +	6 days					Yes						
MER 8	Local	M-1	Loop		0.5-1	Week					Yes						
	Intercity	Gustine Shuttle, Hilmar Shuttle			2 +	6 days					Yes						
MER 9	Local,	M-5	Loop		0.5-1	Week					Yes						
	Intercity,	Planada Commuter			2 +	Week					Yes						
	Interregional	YARTS			1 +						Yes						
MER 10, 11	Intercity,	Planada Commuter	Loop		2+	Week					Yes						
	Interregional	YARTS			1 +						Yes						
MER 12	Interregional	YARTS	1		1 +	Week					Yes						
MARIPOSA COUNTY																	
MPA 1	Interregional	YARTS	2		1 +	Week					No Bus Stations			Yes	No Bus Stations		
MPA 2	Interregional	YARTS	3		1 +	Week		Yes									
MPA 3	Interregional	YARTS	4		1 +	Week		Mariposa	N/A	N/A	Yes	N/A	22				
MPA 4	Interregional	YARTS	5		1 +	Week		No Bus Stations			Yes	No Bus Stations					
MPA 5	Interregional	YARTS	6		1 +	Week		Midpines	N/A	N/A	Yes	N/A	22				
MPA 6	Interregional	YARTS	6		1 +	Week		No Bus Stations			Yes	No Bus Stations					

SR 140 supports local, intercity, and interregional transit. Local bus route M-1 (Merced Transit, The Bus) runs a short distance between 11th Street and Sydney on SR 140 (MER 8) with daily service of 17 round trips between 6:38 AM and 10:47 PM with weekend service consisting of six trips scheduled between 7:30 A.M. and 5:32 P.M. Local bus route M-5 runs along SR 140 between Parsons Avenue and Motel Dr. (MER 9) with daily service between the hours of 6:30 A.M. to 11:05 P.M. on weekdays, and 8:00 A.M. to 6:16 P.M. on weekend. No scheduled stops are on SR 140.

Three intercity transit services run on SR 140. Two are Merced Transit and one is Stanislaus Transit. The first runs from the Merced Transit Center (Transpo) to Gustine, and south on SR 33 to Santa Nella and onto Los Banos with three round trips on weekdays between 6:45 AM and 4:12 PM, with a single interrupted trip on weekends.²¹ No stops are on SR 140. The second runs between the Transpo and Planada on SR 140, and south on Santa Fe Drive to Le Grand with seven round trips between the hours of 6:05 A.M. and 8:13 P.M. weekdays, and with five round trips between 7:00 A.M. and 5:15 P.M. weekends. The third runs from Patterson to Gustine with seven weekday round trips, and operates between 5:40 A.M. and 9:21 P.M. on weekdays, and with five trips operating between 6:00 AM and 8:06 PM on Saturdays.

There is no fixed route deviated transit service in Mariposa County, which currently offers a dial a ride service with once weekly routes serving alternate portions of the County.

Interregional transit between Merced and Mariposa County is provided by YARTS which runs from the Merced Regional Airport to Yosemite Valley along SR 140 seven days a week with service between the hours of 5:22 A.M. and 8:17 P.M. with several stops on the route.

FREIGHT

The SR 140 corridor lacks a strong freight presence in District 10. Compared to other east to west truck routes between I-5 and SR 99 in District 10, SR 140 is substandard. The corridor lacks the design standards consistent with the STAA, between I-5 and SR 33, and is a TA truck route from the City of Gustine to the City of Merced. East of the City of Merced and into Mariposa County, the terminal destination for SR 140 is Yosemite which has truck entry restrictions, with the TA truck route ending at Triangle Road west of the town of Midpines, some twenty miles shy of the Yosemite entrance. Other than the Class I railroad (Atchison, Topeka, and Santa Fe) that follows the highway alignment of MER 10, there is no support for rail. Gustine provides transfer of goods from trucks to rail, the facility is served by a California Northern Railroad, a Class III rail line with daily service. Although SR 140 approaches (via Thornton Road) the Merced Regional Airport (Macready Field) off of MER 8, local and regional access is provided from the east by Childs Avenue from SR 99. Macready Field provides commuter flights to Oakland and Los Angeles, as well as medical evacuation flights, but provides few freight services.

ENVIRONMENTAL CONSIDERATIONS

The SR-140 corridor travels through three distinct environmental contexts—the reclaimed Tulare Lake bed and the San Joaquin River Valley, the Sierra Nevada foothills, and the Merced River Canyon. West of the City of Merced, SR 140 encounters various environmental resources—wetlands; prehistoric and historic cultural resources; endangered, threatened, and sensitive biological species; and prime farmlands. Because the route borders a national wildlife refuge, Section 4 (f) considerations may come into play. East of the City of Merced to the town of Midpines, SR 140 encounters similar environmental resources— prehistoric and historic cultural resources; endangered, threatened or sensitive biological species; along with hazardous materials such as

²¹ In 2016, the Hilmar route was modified to employ SR 140 to connect to the Transpo.

naturally occurring asbestos, mining waste associated with gold extraction, and scenic and aesthetic resources. From Midpines to the Yosemite boundary, SR 140 encounters prehistoric and historic cultural resources; endangered, threatened or sensitive biological species; wetlands; along with scenic and aesthetic resources, and encroaching upon a Wild and Scenic River (the designation applies between Briceberg Road and the Yosemite boundary).

There are considerable global warming issues for the SR 140 corridor. Of concern would be the San Joaquin River and Merced River drainages as bridge crossings are increasingly vulnerable to more frequent and higher magnitude flooding. Additional concerns may apply to the Merced River canyon, where an increased frequency of landslides, slumps, and other mass movements blocking segments of highway may occur.

ENVIRONMENTAL SCAN									
Segment	Cultural Resources	Floodplain	Hazardous Materials	Air Quality			Waters and Wetlands	Special Status Species	
				Ozone	Particulate Matter				Carbon Monoxide
					2.5	10			
MERCED COUNTY									
MER 1	Low	None	Low	Non-attainment	Unclassified	Low	Moderate to High		
MER2	Low	None	Low			Low	Moderate to High		
MER 3	High	within 100 year flood plain	Moderate			Low to Moderate	Moderate to High		
MER 4	High	within 100 year flood plain	Low			Low to Moderate	Moderate to High		
MER 5	Low	within 100 year flood plain	Low			Low to Moderate	Moderate to High		
MER 6	Low to Moderate	within 100 year flood plain	Low			Low to Moderate	Moderate to High		
MER7	Moderate	within 100 year flood plain	Low			Low to Moderate	Moderate to High		
MER 8	Low	within 100 year flood plain	Low			Low to Moderate	Moderate to High		
MER 9	Low	within 100 year flood plain	Moderate			Low to Moderate	Moderate to High		
MER 10	Moderate	within the 100 year flood plain	Moderate			Low	Moderate		
MER 11	Moderate	within the 100 year flood plain	Moderate			Low	Moderate		
MER 12	Moderate	within the 100 year flood plain	Low			Low	Moderate		
MARIPOSA COUNTY									
MPA 1	High	None	Low	Non-attainment	Unclassified	Low to Moderate	Moderate		
MPA2	High	Within 100 year flood plain	High			Low to Moderate	High		
MPA3	High	Within 100 year flood plain	Moderate			Low to Moderate	High		
MPA4	High	Within 100 year flood plain	High			Low to Moderate	High		
MPA5	High	Within 100 year flood plain	Low			Low to Moderate	High		
MPA6	High	Within 100 year flood plain	Low			Low to Moderate	High		

CORRIDOR PERFORMANCE

The precision and accuracy of three variables determine the accuracy of measurements taken of corridor performance. These are the proportion of peak hour traffic occurring in the highest volume fifteen minute interval to the total peak hour volume (the peak hour factor or PHF); the proportion of Peak Hour to AADT (K); and, the proportion of peak hour commuters traveling in one direction to those traveling in the opposite direction (Directional Split or D). Over time, as a corridor serves regions with greater urban characteristics, the expectation is to have a PHF increase from a value of 0.88 to around 0.92; to have an increasing AADT; and to have a decreasing K. For instance, the rate of growth for AADT will exceed that for peak hour traffic volumes, because eventually the peak period of travel will exceed one hour. A decreasing D permits efficient use of all the facility's lanes, and indicates a balanced work commute in both directions during the peak hour(s).

The key consideration in the application of these variables is that they measure conditions for Class I highways, but less so for Class II and Class III highways. Most of the segments on SR 140 were modeled as Class I, but two segments were considered Class II—MPA 5 and MPA 6. Given these segments have a posted speed limit below 55 MPH; Depression Era shoulders and lane designs; numerous vertical and horizontal curves—all located within a scenic river canyon. These physical conditions, combined with frequent and unexpected pull offs from and merges into the lane of traffic by other drivers, result in driver expectations different from those that characterize a commute to work. The planning outcome is that assumptions regarding improving LOS on these segments is relaxed as a criteria for improvement, while variables that address the values for recreational uses and access are emphasized.

A serious constraint upon improving the recreational experience upon SR 140 between Midpines and Yosemite are safety considerations associated with erosion. Several slides and debris flows have closed the highway for several days in recent months. The Ferguson Slide has temporarily closed the two lane highway until a new design can remedy the debris movement without endangering highway users, resulting in an emergency signal controlled one lane route on the opposite side of the river. Although the two lane highway is scheduled to reopen, there remains the possibility for slides and debris flows to close other segments of the highway while slope treatments would be at odds with the aesthetic attraction of the highway.

There has been concern with the accuracy of Caltrans traffic counts with their ability to measure traffic conditions. Throughout District 10, the values reported appear inconsistent with growth since the time of measurement. Original counts in some locations may have been estimated or verified twenty years ago or longer. High peak hour volumes at anomalous hours have been reported suggesting errors in the recording equipment²², and have been translated into elevated K values, similarly anomalously high D values have been obtained. For these reasons, the three variables, PHF, K, and D are estimated to be consistent with model default values, particularly for the HY, rather than those empirically derived.

The 2010 traffic census provides the most recent year of measurement of peak hours on SR 140. For the most part both the AM and PM peak hour volumes have values of K that approach 10% of AADT (8.24% to 10.95%)²³. These peak hour volumes are comprised of ten measurements at five count stations, two in Merced County and three in Mariposa County. Five of these peak hour measurements occur on a Saturday or a Sunday, four of which are reported in Mariposa County.

The measurement of high K values, along with weekend peak hours suggest a corridor that is not performing in a manner consistent with an interregional work commute, but for recreational purposes. That the peak hour

²² For example, the 2010 peak hour report gives a September peak hour at 11 PM for SR 140 at SR 165.

²³ Sampling is intermittent rather than continuous at the count stations.

volumes reported are low, suggest a corridor operating at under capacity, and unlikely to need capacity increasing improvements. Given the overall context, MER 6's need for widening to four lanes should be viewed with some skepticism. For this reason, the need for four lanes is addressed as a post 25 year concept facility. Further study and analysis may bear out a need for four lanes, but upgrade is not recommended at this time.

LOS employs a qualitative measure of traffic congestion that relies in part upon both subjective, though repeatable observations of congestion as well as the ratio of the volume of traffic to the full capacity of a highway lane at a particular speed (V/C). Congestion is better measured by the underlying quantitative ratio of volume to capacity (V/C). LOS best serves as a comparison to a performance standard such as concept LOS, rather than as a performance measure, as the V/C might be quite variable between two segments though both may share the same LOS value.

Although VMT has replaced LOS as a measurement of Corridor Performance, the absence of rural highway segments that exceed their respective concept LOS suggest little need at this time to employ VMT in order to characterize SR 140's performance. What makes the route less amenable to this analysis is the strong recreation component noted above, as increased VMT is associated with the workday commute, as well as a characteristic of, and measurement of the impact of land use development expanding local and regional traffic.

The portion of SR 140 west of Merced appears to provide little in the way of interregional or intercity travel. Traffic volumes in rural segments are roughly equal, with higher volumes occurring in the Cities of Gustine and Merced. The only anomaly is MER 6, but its increased traffic volume may reflect the influx of traffic from north to south running local connectors on Applegate and Franklin roads, associated with the unincorporated low density housing development that extends north to SR 99 near Atwater. Although in close proximity to both the Cities of Merced and Atwater, the MER 6 is not included in either's sphere of influence, and should not anticipate local changes in land use or housing density.

Segments that serve urbanized areas (MER 2, MER 3, MER 8, and MER 9) appear to perform differently from rural segments. Although generally possessing a higher level functional classification, these segments have higher traffic volumes, a greater number of driveways and street access points, and traffic signals. Because they are integrated into the local traffic network, patterns where they serve as origins or destinations for intercity or interregional travel are not discernable. A similar observation may apply to MPA 3 which serves the town of Mariposa, but much of the traffic on that segment is interregional with Yosemite as a destination, and it is the only segment that can be clearly considered a "Main Street". However, there appears little in the way of local interest to bypass these segments, and are not considered as future strategies beyond the HY.

Corridor Performance ²⁴						
MERCED COUNTY						
Segment #	MER 1	MER 2	MER 3	MER 4	MER 5	MER 6
Basic System Operations						
AADT (BY)	1170	5990	3420	3340	3475	5640
AADT (HY)	1865	10060	5670	6410	6810	10531
VMT (BY)	4902.3	11201.3	2633.4	31362.6	46043.75	23011.2
VMT (HY)	7814.35	18812.2	4365.9	60189.9	90232.5	42966.48
Truck Traffic						
Total AADTT (BY)	146	839	407	351	403	654
Total Trucks (% of AADT) (BY)	12.50%	14.00%	11.90%	10.50%	11.60%	11.60%
5+ Axle AADTT (BY)	80	587	226	184	258	419
5+Axle Trucks (% of AADT) (BY)	55.00%	70.00%	55.60%	52.50%	64.00%	64.00%
Bottlenecks Data						
Bottleneck Existing:	Not Reported					
Bottleneck Location						
Bottleneck Queue (length):						
Bottleneck Causality:						
Peak Hour Traffic Data						
Peak Period Length	0.25 Hr	0.25 Hr	0.25 Hr	0.25 Hr	0.25 Hr	0.25 Hr
Peak Hour Direction:	East	East	East	East	5	6
Peak Hour Time of Day	1500	1500	1500	1500	1500	1500
Peak Hour VMT (BY):	401.99	918.51	215.94	2571.73	2550.82	1274.82
Peak Hour VMT (HY):	640.78	1542.60	358.00	4935.57	4998.88	2380.34

²⁴ Acronyms: AADT: Average Annual Daily Traffic; VMT:Vehicle Miles Traveled; AADTT: Average Annual Daily Truck Traffic

Corridor Performance (continued)						
MERCED COUNTY						
Segment #	MER 7	MER 8	MER 9	MER 10	MER 11	MER 12
Basic System Operations						
AADT (BY)	6140	7650	13785	7400	6650	5300
AADT (HY)	10922	12450	22260	12740	11830	8780
VMT (BY)	9087.2	5737.5	22193.85	46620	2394	33072
VMT (HY)	161653	9337.5	35838.6	80262	4258.8	54787.2
Truck Traffic						
Total AADTT (BY)	479	306	690	266	732	444
Total Trucks % of AADT (BY)	7.80%	4.00%	5.00%	3.60%	11.00%	8.37%
5+ Axle AADTT (BY)	244	132	194	57	156	268
5+Axle Trucks (% of AADT) (BY)	50.98%	43.00%	28.11%	21.30%	21.30%	60.40%
Bottlenecks Data						
Bottleneck Existing:	Not Reported					
Bottleneck Location						
Bottleneck Queue (length):						
Bottleneck Causality:						
Peak Hour Traffic Data						
Peak Period Length	0.25 Hr.	0.25 Hr	0.25 Hr	0.25 Hr	0.25 Hr	0.25 Hr
Peak Hour Direction:	East	East	East	East	East	East
Peak Hour Time of Day	1500	1500	1500	1500	1500	1500
Peak Hour VMT (BY):	503.43	317.86	1229.54	2582.75	132.63	1832.19
Peak Hour VMT (HY):	895.52	517.30	1985.46	4446.51	235.94	3035.21

Corridor Performance (continued)						
MARIPOSA COUNTY						
Segment #	MPA 1	MPA 2	MPA 3	MPA 4	MPA 5	MPA 6
Basic System Operations						
AADT (BY)	5300	4480	9290	3840	1750	1310
AADT (HY)	8780	7240	13450	5450	2215	1580
VMT (BY)	50350	52505.6	7989.4	75993.6	6352.5	4755.3
VMT (HY)	83410	84852.8	11567	107855.5	8040.45	5735.4
Truck Traffic						
Total AADTT (BY)	444	125	287	202	193	67
Total Trucks (% of AADT) (BY)	8.37%	2.78%	3.09%	5.25%	11.00%	5.10%
5+ Axle AADTT (BY)	224	32	65	47	112	20
5+Axle Trucks (% of AADT) (BY)	50.40%	26.00%	22.60%	23.50%	58.40%	29.20%
Bottlenecks Data						
Bottleneck Existing:	Not Reported					
Bottleneck Location					Ferguson Slide	
Bottleneck Queue (length):					Varies	
Bottleneck Causality:					Temporary One Way	
Peak Hour Traffic Data						
Peak Period Length	0.25 Hr	0.25 Hr	0.25 Hr	0.25 Hr	0.25 Hr	0.25 Hr
Peak Hour Direction:	East	East	West	East	East	East
Peak Hour Time of Day	1500	1600	1700	1300	1300	1300
Peak Hour VMT (BY):	2789.39	4883.02	874.84	2649.02	3792.26	520.71
Peak Hour VMT (HY):	4620.91	7891.31	1266.59	3759.68	4799.92	628.03

KEY CORRIDOR ISSUES

- The SR 140 corridor serves a greater volume of recreational traffic compared to the daily work commute, particularly for segments east of the City of Merced. This is reflected by peak traffic volumes occurring on weekends, and the ratio of peak traffic volumes to total volumes being quite high (over 10%).
- A bicycling corridor might be developed in the future that includes or parallels SR 140, as a Class I, II, or IV. Development will depend upon local planning and cooperation between the Counties of Mariposa, and Merced as well as Yosemite.

CORRIDOR CONCEPT

CONCEPT RATIONALE

The central purpose of a TCR is to provide future direction on planning strategies to optimize interregional travel within a highway corridor for District 10. Caltrans currently emphasizes an approach that focuses upon sustaining and maintaining corridors, and less upon capacity expansion. Discussion of maintenance and design upgrades unrelated to system expansion are generally excluded from the TCR for this reason. Included in this approach are the strategies of Smart Growth, Context Sensitive Solutions, and Complete Streets, that attend to local interests and vision. At present, there are no planned projects to increase capacity; and there is no clear analytical indication for the need to increase capacity within the corridor. The planned and programmed projects for the corridor largely address operational deficiencies—improvements for STAA trucks, and intersection improvements.

In the case of SR 140 it is unclear how the route serves interregional travel in the sense of a work commute between two regions. The corridor does provide a work commute between Mariposa County and Merced County, but the population served by this is slight, and cost to improve the commute likely exceeds its benefits. Although the City of Merced may function as an interregional work trip generator, major centers of employment like the Bay Area or Sacramento are too distant to be served by the corridor while the nearest commute attractors (Fresno and Modesto) are accessible by other State highways with greater capacity.

SR 140 provides interregional travel for recreational purposes. However, as a recreational route, proposals for increasing highway capacity or operational betterment may degrade the values inherent in the tourist attraction. Yosemite has planned to reduce automobile congestion through transit solutions. YARTS was specifically conceived to address this need. Widening and straightening the portion of SR 140 that enters Yosemite may provide a quicker and possibly safer driving experience, but at the loss of travelers experiencing the natural beauty and the feeling for how people traveled the area in the past, with the likely outcome of increasing Yosemite congestion.

Given the rolling to mountainous terrain throughout Mariposa County, there exists some need for passing lanes. Several of these are proposed in the current RTP, and are reflected in the tables.

There is also a need for better bicycle connectivity in the corridor, particularly in Mariposa County. The State's advocacy of active transportation as a partial strategy to reduce the overall greenhouse gas footprint of transportation, and reduce carbon emissions to levels found in 1990 may lead to an increase in bicycle touring by residents of major urban areas. This has led to designation of SR 33 as a statewide interregional bicycle route, and may require similar upgrades for bicycle access to recreation destinations such as Yosemite. Such is suggested for SR 140 as either a Class II or Class IV since current bicycle LOS is F for the Class III facility now in place.

PLANNED AND PROGRAMMED PROJECTS AND STRATEGIES

PLANNED/PROGRAMMED PROJECTS AND STRATEGIES						
Segment	Description	Planned or Programmed	Location	Source	Purpose	Implementation Phase
MERCED COUNTY						
MER 1, MER 3 through MER 12	There are no planned or programmed projects.					
MER 2	Gustine Roundabout	Programmed	SR-140/33 PM 5.3	Status of Projects	Intersection Improvement	PS&E
MARIPOSA COUNTY						
MPA 1 through MPA 4, MPA 6	There are no planned or programmed projects.					
MPA 5	SR-140 Slope Repair	Programmed	2.1 miles west of Bull Creek Road	Status of Projects	Maintenance, safety	PS&E

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT

PROJECTS AND STRATEGIES TO ACHIEVE CONCEPT					
Segment(s)	Description	Location	Source	Purpose	Implementation Phase
MERCED COUNTY					
MER 1	None are under consideration at this time.				
MER 2	STAA Improvements	SR 33/140 in Gustine	SHOPP and Minors 310 Operational Improvement Program	Enhanced goods movement	Mid Term
MER 3	None are under consideration at this time.				
MER 4-5	Intersection improvement and install traffic signal	Intersection of SR 140/SR 165	SHOPP and Minors 310 Operational Improvement Program	Reduction in daily vehicle hours of delay	Long Term
MER 5-6	Intersection improvement for STAA	Intersection of SR 140 and Applegate Road	SHOPP and Minors 310 Operational Improvement Program	Enhanced goods movement	Long Term
MER 7-8	None are under consideration at this time.				
MER 3-12	Bicycle Facility (Class I, II, IV)	Parallel Facility	N/A	Safety	Long Term
MARIPOSA COUNTY					
MPA 1-6	Bicycle Facility (Class I, II, IV)	Parallel Facility	N/A	Safety	Long Term
MPA 1	None are under consideration at this time.				
MPA 2	Passing Lane	Cathay's Valley	RTP	Improve Operations	Long Term
MPA 3	None are under consideration at this time.				
MPA 4	Passing Lane	N/A	RTP	Improve Operations	Long Term
MPA 5	Realignment	N/A	RTP	Improve Operations	Long Term
MPA 6	None are under consideration at this time.				

APPENDIX: TERMS AND ACRONYMS

Terms

Annual Average Daily Traffic (AADT) -- the total traffic volume on a given highway or segment in a year divided by 365. The year is from October 1st through September 30th. Raw traffic counts are obtained through a sampling program of highway locations throughout the District, rather than continuous sampling throughout the year (though this may not be accurate for PeMS stations that continuously monitor traffic volumes). These counts are adjusted to compensate for daily and seasonal variability compared to previous records.

Base year – the initial year of analysis, usually, the year that recent data is available.

Bikeways:

Class I (Bike Path) – a separate travel right of way for the exclusive use of bicycles, pedestrians, and possibly equestrians.

Class II (Bike Lane) – a lane within a shared right of way for use of bicycles. Usually separated from motorized vehicle traffic by striping, and may permit merging at approaches to intersections for right turns.

Class III (Bike Route) – shared right of way between motorized vehicles and bicycles, may have wide shoulders to accommodate separation of the two modes, or may be signed to alert motorists to shared use.

Bottlenecks – a location where the carrying capacity is substantially less than elsewhere on a route. Often this occurs with a lane reduction, or excessive merging and weaving, or driver distraction, or a surge in demand, or a combination of these and other factors.

California Transportation Plan (CTP) – a statewide, long-range transportation plan with a minimum 20-year planning horizon intending to address both future mobility needs and reduce greenhouse gas (GHG) emissions. The CTP defines performance-based goals, policies, and strategies to achieve a collective vision for California's future, statewide, integrated, multimodal transportation system. The CTP is prepared in response to federal and State requirements and is updated every five years.

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.

Concept LOS – the minimum acceptable LOS over the next 20-25 years.

Conceptual Project – an action or a project that needed to maintain mobility or serve multimodal users, but is not included in a fiscally constrained plan and is not 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.

Terms (Continued)

Facility Concept – describes the future highway facility and the strategies that may be needed to be deployed within the next 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, TDM and incident management.

Facility Type – refers to a highway as being either a freeway, expressway, conventional, or a 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.

Headway – the time between two successive vehicles as they pass a point on the roadway, measured from the same common feature of both vehicles.

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

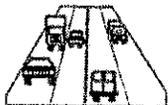
Intermodal Freight Facility – a location where different transportation modes and networks (air, marine, rail, truck) interconnect and allow freight to be transferred (transloaded) from one mode to another.

Intelligent Transportation System (ITS)—an integrated network of communications-based information and electronics technologies to collect real time traffic information, process it, and take appropriate actions. The intended outcomes are to improve transportation safety, mobility and to enhance worker productivity by reducing travel delay.

Level of Service (LOS) – 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.

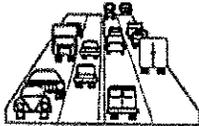


LOS B is also indicative of free-flow conditions. Average travel speeds are the same as in LOS A, but drivers have slightly less freedom to maneuver.



Terms (Continued)

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 different modes of commuting within a travel corridor (automobile, subway, bus, rail, bicycle, pedestrian, or air).

Park-and-Ride – location where commuters park their personal vehicles and continue their trip by carpool, vanpool, or transit.

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.

Peak Period – the part of day during which traffic congestion is at its greatest. Typically, this happens twice a day, in the morning and in the evening during the time most people commute to work or return (rush hour). Peak Period is defined for individual routes, not a District or statewide standard.

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.

Terms (Continued)

Postmile – a measured location on a route within the State Highway System. Typically measured on routes from county lines, the values of a post mile will increase from south to north, or west to east. When a section of road is relocated, new post miles (usually noted by an alphabetical prefix such as "R" or "M") are established for it. If a 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 – an improvement or action identifying funding amounts by year, and included in short term project funding documents such as the State Transportation Improvement Program (STIP) or the State Highway Operation and Protection Program (SHOPP). Programming refers to projects permitted for expenditure of monies allocated for project development and implementation (are subject to oversight by project managers).

Railroads:

Class I – a carrier having annual operating revenues of \$250 million or more. This class includes the nation's major railroads. In California, Class I railroads include Union Pacific Railroad (UP) and Burlington Northern Santa Fe Railway (BNSF).

Class II – a carrier having annual operating revenues between \$250 million and \$20 million. Class II railroads are considered mid-sized freight-hauling railroad in terms of operating revenues. They are considered "regional railroads" by the Association of American Railroads.

Class III – a carrier having annual operating revenues of \$20 million or less. The typical Class III is a short line railroad, which feeds traffic to or delivers traffic from a Class I or Class II railroad.

Route Designation – refers to design standards applicable to a route based upon legislative intent. Typical legislative designations include but National Highway System (NHS), Interregional Route System (IRRS), Freeway and Expressway System, and 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.

Segment – A portion of a facility between two points.

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.

System Preservation - the unmet needs estimate for preserving the state's transportation system incorporates three elements: preventive maintenance, rehabilitation and reconstruction, and regulatory mandates.

Terms (Continued)

- Preventive maintenance applies cost-effective treatments to existing transportation infrastructure to help preserve it, slowing down future deterioration and maintaining or improving the functional condition of the infrastructure (without significantly increasing the structural capacity). Preventive maintenance strategies are typically applied to assets that are in good condition and have significant remaining service life. This ensures the structural integrity of transportation systems that serve people and freight.
- Rehabilitation and reconstruction strategies are applied to transportation infrastructure that is in fair to poor condition. The goal here is to restore assets to an acceptable operating condition.
- Preservation efforts also include the cost of regulatory mandates. Examples of regulatory mandates include storm water retrofitting required by the Clean Water Act (CWA) and state water quality control boards, and improvements required by the Americans with Disabilities ACTC (ADA).

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

Tier I – fully to partially programmed projects

Tier II - fiscally constrained projects that are not programmed. Projects in this category must be from a fiscally constrained document/list (such as the fiscally constrained project list in an RTP) and not from an unconstrained document (such as a TCR).

Tier III - projects that the District will advocate to be included in fiscally constrained projects lists (RTP, SHOPP) during the 20-25 year planning horizon. These are projects that are not currently in a fiscally constrained project list.

Tier IV - projects that have a demonstrated need within the 20-25 year time horizon and have been identified as high priority by the District but are unlikely to receive funding within the 20-25 year time horizon. These are likely projects that will be programmed if an unexpected funding source becomes available, like an initiative or local measure.

Tier V - other projects identified as needed by the District: these may be within the 20-25 year time horizon, beyond the 20-25 year time horizon, or only conceptual in nature.

Transportation Management System (TMS) -- 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 TMS and information systems, and for electronic toll collection systems.

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.

Terms (Continued)

Vehicle Miles Traveled (VMT) – the total number of miles traveled by motor vehicles on a road or highway segments.

Acronyms

AADT - Annual Average Daily Traffic
AB – Assembly Bill
ACE - Altamont Commuter Express
ADA - Americans with Disabilities Act of 1990
ADT - Average Daily Traffic
APCD - Air Pollution Control District
BNSF - Burlington Northern Santa Fe
BRT - Bus Rapid Transit
CALTRANS - California Department of Transportation
CAPM - Capital Preventive Maintenance
CARB – California Air Resources Board
CCTVs - Closed Circuit Television Cameras
CHP - California Highway Patrol
CMA - Congestion Management Agencies
CMAQ - Congestion Mitigation and Air Quality
CMIA - Corridor Mobility Improvement Account
CMS - Changeable Message signs
COOP - Cooperative Agreements
CSMP - Corridor System Management Plan
CSS - Context Sensitive Solutions
CTC - California Transportation Commission
CTP - California Transportation Plan
D – Directional Split
DOF- Department of Finance
DSMP - District System Management Plan
DWR - Department of Water Resources
EB - Eastbound
EIS - Environmental Impact Statement
EIR - Environmental Impact Report
FHWA - Federal Highway Administration
FAE - Freeway and Expressway
GHG - Green House Gas
HAR - (Highway Advisory Radio (HAR)
HDM – Highway Design Manual
HFST – Friction Surface Treatment
HOT - High occupancy toll lane
HOV - High occupancy vehicle lane
HPP - High Profile Projects
HSIP - Highway Safety Improvement Program
HSR - High Speed Rail
ICES - Intermodal Corridor of Economic Significance
IGR - Intergovernmental Review
IIP - Interregional Improvement Program
INVEST – Infrastructure Voluntary Evaluation Sustainability Tool
IOS - Initial Operating Section
IRRS - Interregional Road System
ITS - Intelligent Transportation System

Acronyms (Continued)

ITIP – Interregional Transportation Improvement Program
ITSP - Interregional Transportation Strategic Plan
ITTS - Interregional Road System
K – Variable that expresses the ratio of peak hour volume to total traffic volume
KM - Kilometer
KPRA - Kingpin to Rear Axle
LOS - Level of Service
MAP-21 - Moving Ahead for Progress in the 21st Century
MAX - Modesto Area Express
MCAG - Merced County Association of Governments
MCLTC - Mariposa County Local Transportation Commission
MER – Merced County
MPA – Mariposa County
MPO - Metropolitan Planning Organizations
MVP – Maintenance Vehicle Pullouts
N/A - Not available
NHS - National Highway System
OWP – Overall Work Program
PA&ED - Project Approval/Environmental Document
PHF – Peak Hour Factor
PID - Project Initiation Document
PM - Post Mile
PPNO - Planning/Programming Number
PS&E - Plans, Specifications, and Estimates
PSR - Project Study Report
RHNA - Regional Housing Needs Allocation
RIP - Regional Improvement Program
ROW - Right of Way
RP – California Rail Plan
RSTP - Regional Surface Transportation Program
RTIP - Regional Transportation Improvement Program
RTIF-Regional Transportation Impact Fee
RTP - Regional Transportation Plan
RTPAs - Regional Transportation Planning Agencies
RTPA - Regional Transportation Planning Agencies
RWIS - Roadway Weather Information System
SAFETEA - Safe, Accountable, Flexible and Efficient Transportation Equity Act of 2005
SB - Senate Bill
SCS - Sustainable Community Strategies
SHA - State Highway Account
SHOPP - State Highways Operations and Protection Program
SHS - System Highway System
SHSP - Strategic Highway Safety Plan
SJVGMAP - San Joaquin Valley Goods Movement Action Plan
SMF - Smart Mobility Framework
SR - State Route

Acronyms (Continued)

SRA – State Recreation Area
STRAHNET - Strategic Highway Network
STAA - Surface Transportation Assistance Act
STIP - State Transportation Improvement Program
STRAIN - Structure Replacement and Improvements Needs
TASAS – Traffic Accident Surveillance and Analysis System
TCR - Transportation Concept Report
TE - Test and Evaluation Project
TEA-21 - Transportation Equity Act for the 21st Century
TERO - Tribal Employment Rights Ordinance
TDM - Transportation Demand Management
TMC - Transportation Management Centers
TMD – Transportation Demand Modal
TMS - Transportation Management System
TSDP - Transportation System Development Program
TSMO - Transportation System Management and Operations
US - United States
UTC - Ultimate Transportation Concept
UP - Union Pacific
YARTS - Yosemite Area Regional Transportation System
YOSEMITE - Yosemite National Park