



State of the Corridor Report

2011 Report on the State Route 49 Corridor System Management Plan

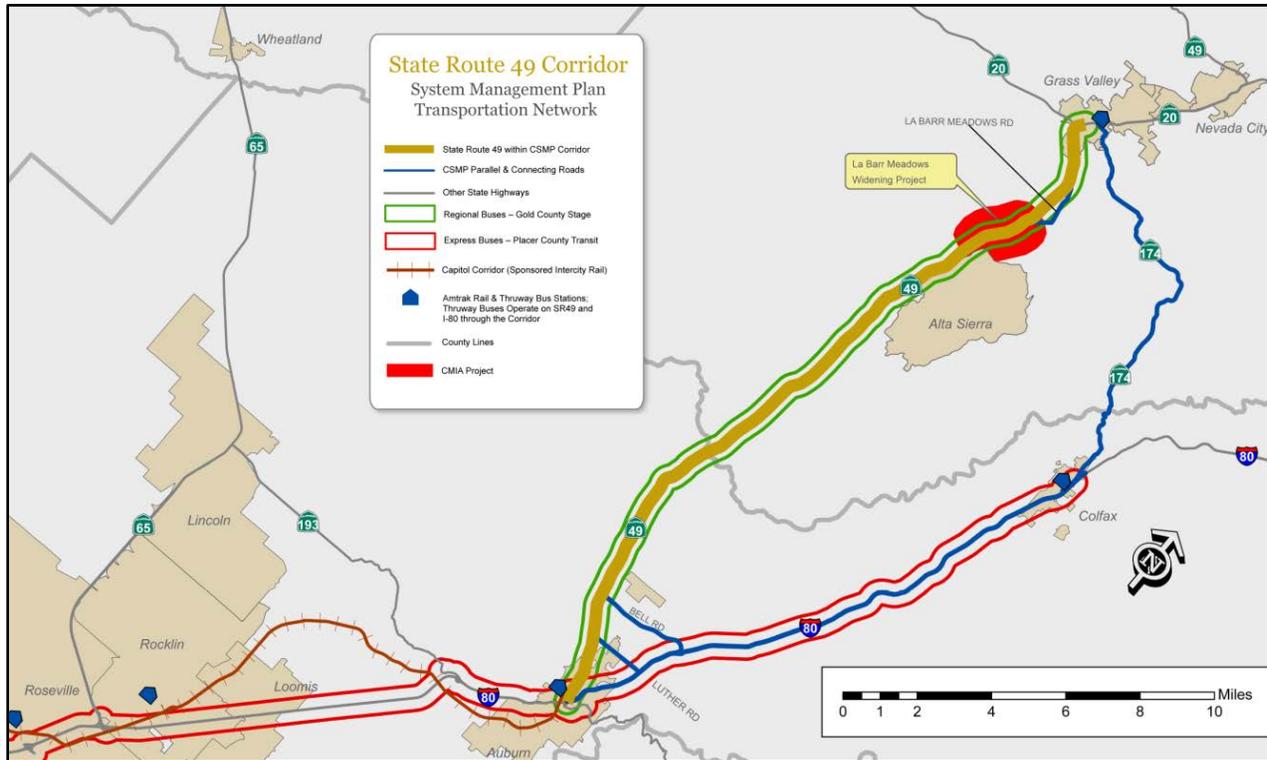


Figure 1

Overview

Corridor System Management Plans (CSMPs) are comprehensive operations and management plans intended to maintain and enhance corridor mobility through the integrated management of all travel modes within the corridor. This includes highways and freeways, parallel and connecting local and regional roadways, public transit (bus, bus rapid transit, light rail, intercity rail) and bikeways. Together these facilities comprise the CSMP managed network and are displayed in Figure 1. CSMPs have been developed to provide one unified concept for managing, operating, and preserving a corridor for all travel modes and across all jurisdictions resulting in the integration of capital improvements, traffic management, and transit management strategies. Each CSMP includes current management strategies, existing travel conditions and mobility challenges, corridor performance management, proposed management strategies, and needed capital improvements. The State Route (SR) 49 corridor begins at the intersection of Interstate 80 (I 80)/SR 49 in Placer County and ends at the SR 49/20 junction in Nevada County.

Purpose of the State of the Corridor Report

The annual State of the Corridor (SOTC) Reports maintains the momentum started by the completion of the 2009 CSMPs and the 2010 SOTC Reports by monitoring and reporting annual corridor performance and ongoing implementation of CSMP strategies. The SOTC Reports document the movement towards true integrated multimodal corridor system management, as well as anticipated corridor mobility challenges, and impediments to CSMP implementation. The 2011 SR 49 SOTC Report includes the following components:

- Status of the Corridor Mobility Improvement Account Bond Project
- SR 49 CSMP Priority Projects Status
- Major Corridor Accomplishments
- Performance Measures
- Moving Forward
 - CSMP Strategies
 - Traffic Operation System Improvements
 - Micro-simulation Modeling
- Glossary

Corridor Mobility Improvement Account Bond Project Status

CSMPs were developed for corridors associated with the Corridor Mobility Improvement Account (CMIA Program, supported by the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006, Proposition 1B. One project on the SR 49 corridor in District 3 was awarded CMIA funds. The status of the project is as follows:

SR 49/La Barr Meadows Road Widening: In May of 2011 Caltrans and Nevada County officials held a ground breaking ceremony for the SR 49/La Barr Meadows Project. The \$29 million project will widen a 1.5 mile section of the highway between Little Valley Road and Cornette Way from a two to a four-lane highway, with new concrete safety barriers. A new traffic signal will be added at La Barr Meadows Road, making it easier and safer for local residents to access the highway. The project was funded with \$7.6 million from Proposition 1B and \$2 million from the American Recovery Reinvestment Act (ARRA) and is expected to be completed by the end of 2012.

SR 49 CSMP Priority Projects Status

The 2009 SR 49 CSMP was a unique “first generation CSMP” because two large major capital projects located between Wolf/ Combie and Lime Kiln Roads in Nevada County were redefined into eight smaller projects based on a phasing plan developed by Caltrans and the Nevada County Transportation Commission (NCTC). The result of the cooperative and comprehensive effort was a prioritized collection of SR 49 corridor projects. Table 1 shows the status of each project.

Table 1: Phased Projects

County	Priority	Location	Project Description/Priority	Project Status	Total Cost Estimate (X \$1,000)	Completion Year	
NEV SR 49	1	North of Wolf/ Combie Road to South of Wolf Creek Bridge	Extend northbound (NB) passing lane.	Project completed July 2010	\$1,000	2010	
	2	Construct turn lanes, median refuge areas, and frontage roads at various locations including, but not limited to, the following locations:					
		Cerrito Road	Construct NB right turn lane with sight-distance wedge, and re-stripe median as a 2 lane left turn lane to the south of the intersection.	Pending inclusion into the Nevada County Regional Transportation Plan (RTP).	TBD	TBD	
		Ladybird Drive	Construct southbound (SB) right turn lane and NB left turn lane.	Included in the Caltrans 2013-14 SHOPP (NB widening to add 12-foot wide paved shoulder approaching IC and 12-foot wide paved shoulder taper leaving IC only)	\$780 (total project cost EA 1F910)	2013/14	
		Carriage Road	Construct NB right turn lane and sight-distance wedge; eliminate existing Cilvus Road connection and connect to Carriage Rd IC.	Included in the Caltrans 2013-14 SHOPP (Right turn lane and sight distance wedge only).	\$780 (total project cost EA 1F910)	2013/14	
		Brewer Road	Construct NB right turn lane and median refuge area.	Included in Caltrans 2013-14 SHOPP (Right turn lane for NB traffic only).	\$480 (total project cost EA 1F880)	2013/14	
		Travertine Court to Auburn Road	Construct frontage roads and intersection improvements.	Pending inclusion into the Nevada County RTP.	TBD	TBD	
		Round Valley Rd to Quail Creek Road					
		Alta Sierra Drive to Pingree Road					
		Wellswood Way to Christian Life Way					
		Smith Road	Construct intersection improvements.	Included in the Caltrans 2013-14 SHOPP (Right turn lane for SB traffic only).	\$480 (total project cost EA 1F880)	2013/14	
	3	South of Cornette Way to Christian Life Way	Widen to 5 lanes; connect Wellswood to proposed intersection on the northern side near the church.	Included in draft 2010 Nevada County RTP in the unconstrained project list 2010-2030	\$39,000	TBD	
	4	Christian Life Way McKnight Way to Over Crossing	Widen to 5 lanes; at intersection near Crestview, limit to right turn only on the east side to avoid need for a traffic signal installation.	Included in draft 2010 Nevada County RTP in the unconstrained project list 2010-2030	\$38,000	TBD	
	5	South side of Alta Sierra to South of Kenwood Drive	Second SB through lane with median and shoulder widening; leave Pingree as a 3-way intersection, connect Ponderosa to Pingree; connect Lady Jane Road to Little Valley Rd intersection.	Included in draft 2010 Nevada County RTP in the unconstrained project list 2010-2030	\$31,500	TBD	
6	North of Lime Kiln Road to South of Alta Sierra Drive	Widen to 5 lanes; connect Auburn further south as 3-way intersection, leave Pekolee as 3-way-intersection; combine Round Valley and Quail Creek intersection.	Included in draft 2010 Nevada County RTP in the unconstrained project list 2010-2030	\$42,000	TBD		
7	South of Lime Kiln Road to north of Cherry Creek Road	Lengthen 2 SB lanes; eliminate southerly connection and improve northerly connection with Cherry Creek Road	Included in draft 2010 Nevada County RTP in the unconstrained project list 2010-2030	\$13,500	TBD		
8	Cameo Drive to Holcomb/Cherry Creek Road	Complete widening to 5 lanes, eliminate Cameo Drive intersection.	Included in draft 2010 Nevada County RTP in the unconstrained project list 2010-2030	\$76,000	TBD		

Major Corridor Accomplishments

Transit and Bicycle Performance Measures: The existing performance measures were improved to more fully incorporate these critical modes into the corridor management process. See the section regarding “Performance Measures” for details.

SR 49 Priority 1 Operational Improvement Project: In July of 2010, the construction of the SR 49 NB passing lane extension from Wolf /Combie Road to south of the Wolf Creek Bridge was completed. This project was identified in the 2009 SR 49 CSMP Phasing Plan as the priority 1 project that reduces congestion and improves safety.

Grass Valley Tinloy Transit Center: In 2010 construction began on the Grass Valley Tinloy Transit Center. The facility will have a 330 foot transit-vehicle-only transfer bay along the north side of Tinloy Street, with an Americans with Disable Act (ADA) compliant sidewalk/passenger waiting area covered by two shelters. A restroom and bicycle parking facilities will be provided. Construction is scheduled to be completed in the Summer of 2011.

Performance Measures

A diverse mixture of transportation modes and roadways such as state highways, major arterial roadways, transit services and bicycle facilities, make up the managed network and combine to provide mobility in the SR 49 corridor. Continuous monitoring of the network through the use of performance measures is an integral part of corridor management and investment decision making by aiding in the identification of immediate, efficient, and effective system operational strategies, and capital improvements.

State Highway System Performance Measures

The delay values for Table 2 were calculated using traffic counts and tachometer (tach) run data collected for the typical mid-week commute (Tuesday, Wednesday, and Thursday) at time periods that would provide average daily recurrent congestion, specifically Spring and Fall of 2010. Before the data was used in delay/travel time calculations, it was analyzed against draft 2010 traffic volume data provided by the District 3 Traffic Census Unit to remove any outliers. The tach runs captured peak commute congestion using standard probe vehicle techniques.

The performance measures may appear somewhat inconsistent when compared to each other. For example, in some instances, delay/travel time increases where as traffic volumes decline and in other cases it is the reversed. Changes in reported delay/travel can occur for reasons other than changes in traffic volumes, such as the effects of non-recurrent congestion including roadway incidents (traffic collisions, stalled vehicles, etc.), weather conditions (rain, fog, etc.), roadway construction activities, economic changes, and mode shifts. These inconsistencies may limit the value of the reported performance measures comparing a 2-year period; however, over longer periods of time trends can be illustrated. The corridor system management process is still in the early stages of development, and the value of reporting performance will become clearer over time, as will the ability to see trends and make better use of the data.

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Table 2: SR 49 Performance Measures on State Highway System 2009 and 2010 (Calendar Year)

County	Location	Post Miles	Distance (Miles)	2009 Average Annual Daily Traffic ¹	2010 Average Annual Daily Traffic ¹	2009 LOS ¹	2010 LOS ¹	2009 Total Vehicle Hours of Delay ²		2010 Vehicle Hours of Delay ²		2009 Minutes of Delay per Vehicle ²	2010 Minutes of Delay Per Vehicle ²	2009 Minutes of Delay per Person ²	2010 Minutes of Delay Per Person ²	2009 Vehicle Travel Time (Minutes) ²	2010 Vehicle Travel Time (Minutes) ²	Distressed Pavement (lane miles) ⁴	2006-2009 Reported Collision Rate Comparison (%) ⁵	2007-2010 Reported Collision Rate Comparison (%) ⁵
								Daily	Peak Hour ³	Daily	Peak Hour ³	Peak Hour ³	Peak Hour ³	Peak Hour ³	Peak Hour ³					
PLA	I 80 to Bell Road	3.21/6.38	3.17	50,000	50,000	D	D	566	187	559	184	1.93	1.91	1.76	1.73	6.69	6.66	6	168%	69%
	Bell Road to the PLA/NEV County line	6.38/11.37	4.99	28,000	28,500	C	C	74	24	61	20	0.54	0.45	0.49	0.40	5.98	5.89	14	96%	-8%
NEV	PLA/NEV County line to Wolf/Combie Road	0.00/2.19	2.19	34,000	34,500	C	C	33	11	29	9	0.20	0.18	0.19	0.16	2.39	2.37	0	27%	-59%
	Wolf/Combie Road to SR 20	2.19/15.06	12.87	31,000	31,000	E	E	644	213	598	197	4.11	4.15	3.74	3.77	18.86	18.90	1	61%	-41%

¹Average Annual Daily Traffic and Level of Service (LOS) numbers are based on draft 2010 traffic volume data provided by the District 3 Traffic Census Unit and methodologies outlined in 2000 Highway Capacity Manual using HCS 4.1E. LOS calculations based on draft 2010 peak hour volume data provided by the District 3 Traffic Census Unit

² Delay is the average additional travel time by vehicles/persons traveling under 60 mph or under posted speed limit for non-freeway segments. Delay is derived from Tach Run Data

³ Peak Hour is the hour in which the most hourly delay occurs

⁴ Source: 2009 Caltrans Division of Maintenance *Pavement Summary Report*. Distressed pavement is categorized as (1) "Major Structural Distress" which indicates the pavement has severe cracking and is likely to have a poor ride, (2) "Minor Structural Distress", which indicates the pavement has moderate cracking and may have a poor ride, and (3) "Poor Ride Quality (Only)", which indicates the pavement exhibits few cracks but has a poor ride condition. No new data available from 2010 SOTC Report update. New data is anticipated August 2011 and will be included in the 2012 SOTC Reports.

⁵ Source: 2007 through 2010 Caltrans *Traffic Accident Surveillance and Analysis System (TASAS)* summary data of the percentage above, or below, the statewide average for fatal, injury and property damage-only collisions on comparable facilities.

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Transit and Bicycle Performance Measures

As part of the 2011 SOTC Report development, a concerted effort was made to include performance measures for transit and bicycles to improve the existing CSMP performance measures and more fully incorporate these critical modes into the corridor management process. Transit providers and bicycle advocates were engaged in focus group settings to develop the performance measures. In addition, group interviews were held with Regional Transportation Planning Agencies (RTPAs), the Sacramento Area Council of Governments (SACOG) Transit Coordinating Committee (TCC), and the Sacramento Bicycle and Pedestrian Advisory Committee (BPAC). Presentations were given to the SACOG BPAC and SACOG TCC. In most all cases, there were spirited discussions about the need and purpose for these measures and a review of potential measures. Both transit and bicycling offer significant challenges in providing true “outcome” measures which could be reported and tracked on an annual basis to show progress in their contribution to corridor mobility.

It was decided that a “gap analysis” including, but not limited to, infrastructure needs would be used. Although this is an “output” and not an “outcome” measure, it is appropriate at this preliminary stage of system management and reporting. Continued collaboration with stakeholders is necessary to develop and implement future “outcome” transit and bicycle performance measures. Meanwhile, the gap analysis will report on the implementation progress of the infrastructure and other enhancements planned and awaiting development that will improve the contribution of the mode to corridor mobility. Projects selected for inclusion in the gap analysis connect to or are on the managed system network identified in the original 2009 CSMP. The 2011 SOTC Reports will establish the baseline by listing these transit and bicycle system infrastructure needs and service enhancements for future annual measurement and reporting.

After reviewing the draft 2010 Nevada County RTP, the 2005 Placer County Short Range Transit Plan, the Placer County Transportation Planning Agency (PCTPA) 2010-11 Unmet Transit Needs, and the Placer County RTP 2010-2035 and local and regional government and transit agency review it was determined that there are no transit gaps along the SR 49 corridor. The sources used for the bicycle gap analysis were the 2007 Nevada County Bicycle Master Plan, 2001 the Placer County Regional Bikeway Plan, and the SACOG Regional Bicycle, Pedestrian, and Trails Master Plan (Amended 2009).

Table 4: SR 49 Corridor Bicycle System Gap Analysis

County	Project Description	Total Cost Estimate (1,000)s
PLA	On SR 49 from Lincoln Way to the Nevada County line: Construct Class II Bicycle Lane.	\$2,000
PLA	On Bell Rd from Bowman to Dry Creek: Upgrade to Class II Bicycle Lane	TBD
PLA	On Luther Rd, from Bowman to SR 49: Upgrade to Class III Bike Route.	TBD
NEV	On SR 49 from Placer County line to Alta Sierra Dr: Construct Class III Bicycle Route.	TBD
NEV	On SR 49 from Alta Sierra Dr to the McKnight Way Interchange: Construct Class II Bicycle Lane.	TBD

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Moving Forward

SR 49 CSMP Strategies

During the development of the 2009 CSMP a number of strategies were identified to assist in the effort to enhance corridor mobility. The following strategies listed in Table 5 are a subset of the original strategies that were implemented during 2010-2011 fiscal year. The implementation actions do not represent the final enactments of individual strategies but are part of the ongoing long-term implementation progress.

Table 5: SR 49 CSMP Strategies

Strategy	Description	Implementation	Implementation Challenges
Maintain and operate the existing corridor multi-modal transportation infrastructure.	Maintain the existing investment for all modes of the transportation system and provide adequate resources for daily operations, including operating subsidies for transit services.	Completed the 2010-11 Placer County Transit Unmet Needs.	Funding availability, funding competition within the region.
Fully coordinate the delivery of transportation services and facilities in the corridor, including daily operations and system planning for enhancements.	Interagency operational coordination to maximize the efficiency and effectiveness of all modes operating in the corridor with a focus on the CSMP transportation network defined in this CSMP. Use of an existing group or committee to provide initial oversight for this strategy.	2009 CSMP Priority 1 Project was completed in July of 2010.	Diverse interests and competing priorities and limited resources.
Construct planned and programmed corridor capital improvement projects.	Implementation of the capital improvements in the corridor included within the approved Metropolitan/Regional Transportation Plan for all transportation modes within the scope, schedule, and cost specified.	2009 CSMP Priority 1 Project was completed in July of 2010.	Funding availability, funding competition within the region.
Continually monitor and analyze the CSMP transportation network to improve system performance.	Monitor transportation performance measures and make system modifications, as appropriate, on a frequent and timely basis.	Developed a gap analysis for transit and bicycle projects for inclusion into the 2011 SR 49 SOTC Report.	Staff resources and data availability.
Improve bike-pedestrian access in the CSMP transportation network.	Construct additional bicycle paths/lanes, and related improvements to improve access and connectivity to transit, park and ride lots, and destination points.	Developed a gap analysis for transit and bicycle projects for inclusion into the 2011 SR 49 SOTC Report.	Funding availability, funding competition within the region.

Traffic Operational System Improvements

The primary method for the SR 49 corridor system management is the development, implementation, and use of system and operational management strategies to facilitate efficient and effective transportation network use. Examples of traffic operation system (TOS) projects and methods, needed for traffic monitoring and information dissemination, include Bluetooth Readers (BTR), Closed Circuit Television Systems (CCTV), Changeable Message Signs (CMS), Extinguishable Message Signs (EMS), Electronic Tag Readers (ETR), Highway Advisory Radio (HAR), Roadside Weather Information Systems (RWIS), and Traffic Monitoring Stations (TMS). Collectively, these very low cost strategies allow the system to operate at optimal performance without adding significant through-capacity.

Table 6 includes the priority system and operational improvement project needs for the SR 49 corridor.

Table 6: Traffic Operational System Improvements

SR 49 Corridor Traffic Operational System Improvements								
County	Post Mile (From)	Post Mile (To)	Location	Project Description	Project Type	Estimated Total Cost (1,000s)	Proposed Completion Year	
PLA	3.3	8.97	SR 49 Placer County ITS – from Garfield to Lorenson Road				\$936	2025
	3.3		Garfield Street	Install Blue Tooth Readers and TMS	BTR/TMS			
	3.74		Fulweiler/Elm Avenue	Install CCTV	CCTV			
	4.5		Palm Avenue	Install TMS	TMS			
	5.2		Luther Road	Install CCTV and TMS	CCTV/TMS			
	6.4		Bell Road	Install CCTV	CCTV			
	7.4		Dry Creek Road	Install BTR/CCTV/TMS	BTR/TMS /CCTV			
	9.0		Lorenson Road	Install TMS	TMS			
NEV	1.8	15.06	SR 49 Nevada County ITS – from Streeter to SR 49/20 Interchange				\$1,622	2025
	1.8		Streeter Road	Install BTR and TMS	BRT/TMS			
	2.19		Wolf/Combie Road	Install CCTV	CCTV			
	3.4		Running M Drive	Install TMS	TMS			
	7.2		Lime Kiln Road	Install BTR and TMS	BRT/TMS			
	9.0		Alta Sierra Drive	Install TMS	TMS			
	10.0		Timberland Drive	Install CMS	CMS			
	R13.7		McKnight Way	Install BTR, CCTV and TMS	BTR/TMS /CCTV			
	14.0		SR 49/20	Install CMS	CMS			
15.1		SR 49/20	Install CCTV and TMS	CCTV/TMS				
NEV	R12.7		South Auburn St SR 20/49 NB	Install traffic signal	Signal	\$857	TBD	
NEV	R13.2		Bennett Street/ SR 20/49 NB	Install traffic signal and ADA compliant ramps	Signal	\$636	TBD	
NEV	R13.3		Bennett Street/SR 20/49 southbound (SB)	Install traffic signal and ADA compliant ramps	Signal	\$697	TBD	
NEV	R13.6		SR20/49 NB ramps Idaho/Maryland Road	Install coordinated signals at ramps and Railroad Avenue	Signal	\$1,144	TBD	
NEV	R14.6		SR 20/49 SB ramps Brunswick Road	Improve operations of the intersection and eastbound (EB) Brunswick Road access to SB	Ramp	\$892	TBD	
NEV	R13.2		Bennett Street /SR 20/49 NB	Install traffic signal and ADA compliant ramps	Signal	\$636	TBD	
Parallel Roadway Traffic Operational System Improvements								
County	Location (To/From)		Project Description		Type of Project	Estimated Total Cost (1,000s)	Proposed Completion Year	
NEV	SR 49/ Combie Road		Provide second SB left-turn lane with receiving lane		Turn Lane	\$2,346	2020-2030	
NEV	SR 174/Brunswick Road		Realign SR 174 to create 4-way intersection and install signal		Signal	\$4,270	2020-2030	

Micro-simulation Modeling

Future micro-simulation modeling of the SR 49 corridor strategies may be advantageous to help identify the best corridor improvements, but such modeling is dependent on resource availability and the agreement of all agencies including the NCTC, PCTPA, the Cities of Auburn and Grass Valley, the Counties of Nevada and Placer, and Caltrans that there is a need.

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Glossary

Allocation: An administrative distribution of funds for programs that do not have statutory distribution formulas

Annual Average Daily Traffic: The average 24-hour volume, being the total number during a stated period divided by the number of days in that period. Unless otherwise stated, the period is a year. The term is commonly abbreviated as ADT or AADT.

Auxiliary Lane: A lane which is added to a highway at an interchange on-ramp, and which drops at the next downstream off-ramp for weaving, truck climbing, speed change, or for other purposes supplementary to through traffic movement. The lane may extend through an interchange where the lane begins at the loop on-ramp of the upstream interchange and terminates at the loop or slip off-ramp of the next downstream interchange.

Bikeway: The Streets and Highway Code Section 890.4 defines a "Bikeway" as a facility that is provided primarily for bicycle travel.

- Class I Bikeway (Bike Path) provides a completely separated right of way for the exclusive use of bicycles and pedestrians with cross flow by motorists minimized.
- Class II Bikeway (Bike Lane) provides a striped lane for one-way bike travel on a St or highway.
- Class III Bikeway (Bike Route) provides for shared use with pedestrian or motor vehicle traffic.

Bottleneck: Is created when demand at a location on a given route exceeds the effective capacity resulting turbulence that reduces traffic flow.

Bus Rapid Transit: A combination of facility, systems, and vehicle investments that convert conventional bus services into a fixed-facility transit service, greatly increasing their efficiency and effectiveness to the end user.

California Transportation Commission (CTC): The Commission is responsible for the programming and allocating of funds for the construction of highway, passenger rail and transit improvements throughout California.

Changeable Message Sign: A sign that is capable of displaying more than one message, changeable manually, by remote control, or by automatic control.

Connector: Highway or freeway road which connects to another highway or freeway. It can be part of an interchange or a longer roadway.

Conventional Highway: A highway without control of access which may or may not be divided. Grade separations at intersections or access control may be used when justified at spot locations.

Electronic Tag Readers (ETR): An apparatus for object identification which includes a portable electronic tag reader having a transceiver capable both of reading identification information from electronic tags and transmitting collected information to a base unit for remote analysis

Extinguishable Message Sign (EMS): Used to display a fixed message such as TUNE RADIO TO 1610 AM or ALL TRUCKS EXIT AT SCALES. It can also be used as a roadside sign to display fixed messages with flashing beacons to draw attention to the activated sign.

Expressway: An arterial highway with at least partial control of access, which may or may not be divided or have grade separations at intersections.

Freeway: A divided arterial highway with full control of access and with grade separations at intersections.

Highway Advisory Radio (HAR): HAR units are used when there is a need to provide extensive roadway information to motorists, such as chain control or adverse weather conditions.

High Occupancy Vehicle Lane: A freeway lane which is limited to high occupancy vehicles and motorcycles during peak travel periods. It is accepted that high occupancy vehicle lanes may allow some specific types of vehicles (e.g. zero-emission vehicles) during restricted periods.

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Incident Management: Technologies that allow transportation managers to identify and respond quickly to incidents on the highway system.

Intelligent Transportation Systems (ITS): Electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.

Level of Service: A qualitative assessment of a road's operating conditions. For local government comprehensive planning purposes, level of service means an indicator of the extent or degree of service provided by, or proposed to be provided by, a facility based on and related to the operational characteristics of the facility. Level of service indicates the capacity per unit of demand for each public facility. 2) This term refers to a standard measurement used by transportation officials which reflects the relative ease of traffic flow on a scale of A to F, with free-flow being rated LOS-A and congested conditions rated as LOS-F.

Metropolitan Planning Organization (MPO): The organization designated by the governor and local elected officials as responsible, together with the state, for the transportation planning in an urbanized area. It serves as the forum for cooperative decision making by principal elected officials of general local government. [23 CFR 405.104]

Metropolitan Transportation Plan: The official multimodal transportation plan addressing no less than a 20-year planning horizon that is developed, adopted and updated by the MPO through the metropolitan transportation planning process [23 CFR 405.104]

Micro-simulation Modeling: Used to simulate the behavior of individual vehicles within a predefined road network and are used to predict the likely impact of changes in traffic patterns resulting from changes to traffic flow or from changes to the physical environment.

Multimodal: The availability of transportation options using different modes within a system or corridor.

Operational Improvement: A capital improvement for installation or implementation of a transportation system management and operations program. This includes Intelligent Transportation System elements such as transportation security surveillance and control equipment; a computerized signal system; a motorist information system; an integrated traffic control system; an incident management program; equipment and programs for transportation response to man-made and natural disasters; or a transportation demand management facility, strategy, or program; and such other capital improvements to a public road as the Secretary may designate by regulation. The term does not include a resurfacing, restorative, or rehabilitative improvement; construction of an additional lane, interchange, or grade separation; or construction of a new facility on a new location.

Paratransit Service: Transportation service required by ADA for individuals with disabilities who are unable to use fixed-route transit systems. The service must be comparable to the fixed route service.

Peak Hour: Is the hour in which the most hourly delay occurs.

Performance Measurement System (PeMS): A traffic data collection, processing and analysis tool for assessing the performance of the Transportation system. PeMS obtains 30-second loop detector count and occupancy data from over 26,000 individual lane detectors in real-time from the Transportation Management Centers in Caltrans Districts 3, 4, 5, 6, 7, 8, 10, 11 and 12. The result is a web-based tool that is very valuable for planners, modelers as well as operations and systems engineers for corridor studies, operational analyses and many other traffic purposes.

Performance Measures: Indicators of transportation system outcomes with regard to such things as average speed, reliability of travel, and accident rates.

Post Mile: Mileage measured in statute, miles from a county line or the beginning of a route to another county line or the ending of the route. Each post mile along a route in a county is a unique location on the State Highway System.

Project Initiation Document/Project Study Report: A project initiation document is required for all major projects prior to their being programmed in a State or local programming document. It clearly defines the design concept and design scope of the most likely project alternatives and to tie them to realistic cost estimates and schedules so that an alternative selected for programming or local commitment has a high probability of standing up

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throughout the project development process as a commitment in terms of scope, cost and schedule. It is essential that all work incidental to the project be included in the scope and cost estimates, such as safety elements and upgrades, mitigation, rehabilitation of existing, etc.

Ramp Metering: A traffic management strategy which utilizes a system of traffic signals on freeway entrance and connector ramps to regulate the volume of traffic entering a freeway corridor in order to maximize the efficiency of the freeway and thereby minimize the total delay in the transportation corridor.

Regional Transportation Plan: State mandated document prepared biennially by all RTPAs. The Plan describes existing and projected transportation needs, conditions and financing affecting all modes within a 20-year horizon.

Regional Transportation Planning Agency: The agency responsible for the preparation of RTPs and RTIPs and designated by the California Business Transportation and Housing Agency to allocate transit funds. RTPAs can be local transportation commissions, COGs, MPOs or statutorily created agencies.

Roadside Weather Information System (RWIS): Utilizes meteorological measurement stations strategically positioned alongside the highway to collect local pavement and atmospheric data. Weather data such as air temperature, precipitation, and wind speed are measured and collected and road sensors are used to determine if the roadway surface is wet, dry, frosted, snow covered, or iced.

Tachometer Run: Congestion data collected using probe vehicles and Global Positioning System units

State Highway Operation and Protection Program Plan (Plan): Required by Streets and Highways Code Section 164.6. A ten-year state rehabilitation plan, prepared each odd-numbered year, by the Department that identifies rehabilitation needs, schedules for meeting those needs, and strategies for cost control and program efficiencies.

State Highway Operation and Protection Program (SHOPP): Required by Government Code Section 14526.5. A four-year listing of projects proposed for construction consistent with the goals and priorities in the latest SHOPP Plan. SHOPP projects are limited to capital improvements relative to maintenance, safety and rehabilitation of State highways and bridges that do not add new capacity lanes to the system.

Traffic Accident Surveillance and Analysis System (TASAS): A system that provides a detailed list and/or summary of accidents that have occurred on highways, ramps, or intersections on the state highway system.

Transition Lane: The extension of an existing general purpose or auxiliary lane to provide supplementary operational capacity in areas of closely spaced interchanges or where parallel arterial capacity does not exist.

Traffic Monitoring Stations (TMS): The hub of a transportation management system, where information about the transportation network is collected and compiled with other operational and control data to manage the transportation network and produce traveler information.