

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 I 80/SR 51 SOTC Report includes the following components:

- Status of the Corridor Mobility Improvement Account Projects
- Major Corridor Accomplishments
- Performance Measures
- Moving Forward
 - CSMP Strategies
 - Traffic Operations Improvement Strategies
 - 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. Two projects on I 80/SR 51 in District 3 were awarded CMIA funds. The status of these projects is as follows:

I 80 “Fixing the Bottleneck” High Occupancy Vehicle Lanes (HOV) Project: Phase 1 of the project, completed in 2008, extended eastbound (EB) on-ramp from Riverside Avenue/Auburn Boulevard creating an auxiliary lane through to the Douglas Boulevard interchange (IC). Phase 2 consists of constructing east and westbound (WB) HOV and auxiliary lanes from west of the Sacramento/Placer County line to Miners’ Ravine Bridge with bridge widening and ramp modifications. Construction is expected to be completed on September 15, 2011. Phase 3 of this project, which extends the HOV and auxiliary lanes from Miners’ Ravine Bridge to east of the State Route 65 (SR 65) IC and widens Miners’ Ravine Bridge in both directions, is scheduled for completion on November 15, 2011.

I 80 “Across the Top” HOV Lanes Project: In May of 2010, the California Transportation Commission (CTC) approved \$65 million of CMIA savings for the I 80 “Across the Top” HOV project that adds bus/carpool lanes and Traffic Operations Systems (TOS) elements between the Sacramento River Bridge and the Watt Avenue Sacramento Regional Transit (SacRT) light rail station. This project was identified in the 2009 I 80/SR 51 CSMP as a “Key Project” that will enhance mobility options along the corridor by providing significant travel time advantages for express bus services and carpools serving job centers in Downtown Sacramento and the Roseville areas. In August of 2011 the CTC voted to combine, for construction only, the I 80 maintenance project that rehabilitates 53 lane miles of pavement from the Sacramento River Bridge to Norwood Avenue to the existing CMIA project. The benefits of constructing the two projects simultaneously are a reduction of construction cost by avoiding duplicate work and a reduction of construction delay since travelers are only impacted once. The project was advertised May 14, 2011 and bids were opened on May 25, 2011. The contract is expected to be awarded in July 2011, construction is expected to begin in September 2011, and the project is expected to be completed December 2015

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.

I 80 Bicycle and Pedestrian Bridge Project: Currently, the only I 80 crossing available to bicyclists commuting from Natomas are crossings east of Interstate 5 (I 5) at San Juan and Truxel Roads. Construction began in the Summer of 2010 that adds crossings over I 80 and the West Drainage Canal to link north Natomas to Downtown Sacramento. The project will reduce 3.2 miles of out of direction travel for bicyclists and is anticipated to open in September 2011.

I 80 HOV/HOT Conversion Study

I 80 Winters Operation Coalition: The I 80 Winters Operation Coalition is comprised of representatives from California, Nevada, Utah and Wyoming. The goal is to initiate a single strategic planning effort between the states and reach consensus on how to best link freeway operational processes and data to maximize winter mobility along the I 80 corridor. In October of 2010 Caltrans, Nevada DOT, Arizona DOT, Wyoming DOT, Utah DOT, and Nebraska DOT met to discuss activities accomplished since the January 2010 Kick-Off Meeting and held detailed discussions on the topics of freight, weather information, traveler information, maintenance, and traffic management center (TMC) operations. In May of 2011 the Coalition meet to discuss the Winter of 2010-11 operations and maintenance, major storms that required coordination, new initiatives or processes, challenges, and successes. For more information please visit the website <http://www.kimley-horn.com/projects/i-80coalition/index.html>.

I 80/ SR 65 IC Project Study Report (PSR): The project includes constructing bi-directional HOV direct connector lanes between I 80 and SR 65, replacing the eastbound (EB) to northbound (NB) SR 65 loop connector with a flyover connector, structure widening of the east Roseville viaduct, possible replacement of the Taylor Road overcrossing, and widening the southbound (SB) SR 65 and westbound (WB) I 80 to NB SR 65 connectors. In 2009, Caltrans initiated the project by completing a Project Study Report that documents agreement on the projects scope, schedule, and estimated cost. In early Spring 2011, PCTPA began development of the Project Approval & Environmental Document (PA&ED). The PA&ED phase of the project includes the development of purpose and need, alternative analysis, preliminary design, environmental document/report, and public meetings. This phase is expected be completed in Spring 2015.

I 80 West El Camino Signal Project: In August of 2010 construction began on the West El Camino Signal Project. The project includes signaling the I 80/ West El Camino IC off-ramps, widening the EB off-ramp, providing a continuous sidewalk along the north side of West El Camino Ave between Orchard Lane and El Centro Road, placing signal interconnection between ramp terminal signals and the Orchard Lane signal, and constructing a dedicated lane to the WB on-ramp from EB West El Camino Ave. The project will improve traffic circulation within the interchange area, relieve congestion on the off-ramp and improve bicycle and pedestrian movements. Construction is anticipated to be completed in September 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 I 80 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

Since the completion of the 2009 CSMP, additional detection has been completed offering better Caltrans Performance Measuring System (PeMS) coverage and more reliable data. As a result, the 2010 SOTC Report provides the baseline data for the performance measures, which are being use to track system performance.

The delay values for Table 1 were calculated from data obtained from PeMS and the draft 2010 traffic volume data provided by the District 3 Traffic Census Unit. PeMS uses loop detectors embedded in the pavement of freeways to measure speeds at various locations. Delay is calculated by comparing the free-flow speed of a segment to observed speeds in PeMS. The data was collected for the typical mid-week commute (Tuesday, Wednesday, and Thursday) at time periods that would provide average daily recurrent congestion, specifically the 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. For areas that had no PeMS coverage, “tach runs” were used to calculate delay and travel times in the Spring of 2010 on Tuesdays, Wednesdays, and Thursday during non-holiday weeks. 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 traffic volumes decline and in other cases it is the reverse. 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.

Table 1: I 80/SR 51 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					
Interstate 80																				
YOL	YOL/SOL County line to the Mace Boulevard Interchange	0.00/2.68	2.68	125,000	125,000	E	E	157	31	138	28	0.23	0.24	0.25	0.26	2.83	2.82	2	58%	-43%
	Mace Boulevard Interchange to the US 50 jct.	2.68/9.55	6.88	145,000	150,000	F	F	2,298	229	544	113	0.41	0.49	0.46	0.54	7.21	7.01	1	55%	-49%
	US 50 to YOL/SAC Co line	9.55/11.72	2.17	90,000	86,000	D	D	214	23	55	6	0.19	0.06	0.21	0.06	2.26	2.04	3	64%	-45%
SAC	YOL/SAC Co line to I 5 jct.	0.00/2.55	2.55	90,000	86,000	D	D	112	16	333	48	0.12	0.23	0.13	0.26	2.47	2.65	4	74%	-38%
	I 5 jct. to SR 51	2.55/10.99	8.44	149,000	144,000	F	F	1,869	413	1,736	407	3.02	3.06	3.32	3.36	11.46	11.36	18	65%	-41%
	SR 51 to SAC/PLA Co line	10.99/18.00	7.01	224,000	213,000	F	F	655	159	1,228	225	0.54	1.12	0.66	1.36	7.32	7.90	18	69%	-36%
PLA	SAC/PLA Co line to the SR 65 jct.	0.00/4.16	4.16	165,000	165,000	F	F	968	221	619	166	1.12	0.72	1.23	0.79	5.02	4.88	5	69%	-21%
	SR 65 jct. to Sierra College Blvd Interchange	4.16/7.42	3.26	119,000	114,000	E	E	151	21	73	9	0.23	0.04	0.25	0.05	3.49	3.16	5	41%	-60%
State Route 51																				
SAC	US 50/SR 99 jct. to Arden Way/SR 160 Interchange	0.00/4.35	4.35	163,000	159,000	F	F	2,255	670	1,977	535	5.96	4.48	6.76	5.08	10.31	8.83	2	135%	29%
	Arden Way/SR 160 Interchange to I 80 Interchange	4.35/8.86	4.61	137,000	146,000	F	F	848	219	1,069	243	2.11	1.95	2.32	2.15	6.62	6.46	3	96%	-13%

¹ Average 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 2010 PeMS traffic data and 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.

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 Government (SACOG) Transit Coordinating Committee (TCC), and the Sacramento Bicycle and Pedestrian Advisory Committee (BPAC). Presentations were given to 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, included in Tables 2, 3, and 4, connect to or are on the managed system network identified in the original 2009 CSMP. The 2011 SOTC Report will establish the baseline by listing these transit and bicycle system infrastructure needs and service enhancements for future annual measurement and reporting.

The sources used for the transit gap analysis were the 2011-30 El Dorado Regional Transportation Plan, the Sacramento Regional Transit District 10-Year Capital Improvement Plan and 5-Year Capital Improvement Plan Master List of all Projects 2010-15, the Sacramento Regional TransitAction Plan, and the Yolo County Transit District Long-Range Plan 2009-10 and 2018-19. The sources used for the bicycle gap analysis were the SACOG Regional Bicycle, Pedestrian, and Trails Master Plan (Amended 2009), 2011 Sacramento County Bicycle Master Plan, the Placer County Regional Transportation Plan 2010-2035, and the 2009 Interstate 80 and Capital City Freeway CSMP.

Table 2: I 80/SR 51 CSMP Transit System Gap Analysis

Transit Operator	Project Description	Total Cost Estimate (1,000)s
Sac RT	Light Rail Transit Blue Line extension to Citrus Heights (Tier 3 project in TransitAction Plan)	\$384,000
Sac RT	Light Rail Transit Blue Line extension to Roseville (Tier 3 project in TransitAction Plan)	TBD
PCT	Bus Rapid Transit (BRT) /Hi-Bus with connections to other transit system operations in Sacramento County	\$82,526
SACOG	Universal Transit Fare Card implementation throughout the SACOG region	\$10,451
Roseville DPW	Louis/Orlando Transfer Point: In Roseville, on Louis Boulevard at Orlando Ave, develop and construct an improved transfer point and a 75-space Park & Ride lot	\$5,777
Roseville DPW	Improvements to Sierra Gardens Transfer Point, including new bus turn-outs, shelters, restrooms, and landscaping.	\$2,542
PCTPA & Sac RT (only within their jurisdiction)	I 80 BRT Hi-Bus-1: Add BRT along Watt/80 LRT, SR 65, Roseville Galleria, Blue Oaks, Foothills, Sunset, and proposed CSU, in Placer County.	\$4,800 (phase 1 only)
PCTPA	I 80 BRT -2: Add BRT along I 80. Add additional routes proposed Watt Ave	\$270,544 (all 3 phases)
PCTPA	I 80 BRT-3: Add BRT along I 80. Additional routes proposed along and Sierra College Blvd	\$270,544 (all 3 phases)
Sac RT	Antelope Hi-Bus/BRT Corridor: Extend light rail from Watt Ave to Antelope Rd (Tier 2 project in TransitAction Plan)	\$23,861
City of Rocklin	In Rocklin, Rocklin Rd adjacent to the UPRR tracks: Construct approximately 175 additional spaces, including lighting and landscaping, to the existing parking lot at the existing Rocklin Multi Modal station	\$580

Table 3: I 80/SR 51 CSMP Bicycle System Gap Analysis

County	Project Description	Total Cost Estimate (1,000)s
YOL	Class I Bike Path from Sacramento/Reed Ave to Yolo Causeway	\$1,500
SAC	Auburn Blvd, Class II Bike Lane from Howe Ave to Citrus Heights city limits	\$1,831
YOL	Class I Bike Path from Sacramento Ave/Reed Ave to Yolo Causeway	\$1,500
SAC	I 80/UPRR-Roseville Rd Overcrossing (OC): Construct pedestrian and bicycle crossing	TBD
SAC	I 80/Greenback OC between Greenback Lane and Antelope Blvd: Construct pedestrian and bicycle crossing	TBD
SAC	I 80/Foothill Golf Center OC: Construct pedestrian and bicycle crossing	TBD
SAC	Arcade Creek Path, Class I Bike Path between Winding Way and Citrus Heights city limits	\$11,368
SAC	Roseville Rd, Class II Bike Lane from Sacramento city limits to Antelope Rd	\$1,014
SAC	Arcade Creek Path, Class I Bike Path between Winding Way and Citrus Heights city limits	\$11,368
SAC	Roseville Road, Class II Bike Lane from Sacramento city limits to Antelope Rd	\$1,014
SAC	Roseville Road, Class II Bike Lane from Antelope Rd to Roseville city limits	\$512
SAC	Winding Way, Class II from Auburn Blvd to San Juan Ave	\$968
SAC	SR 51 /Sutter's Landing: Construct bicycle and pedestrian bridge	\$7,530
PLA	I 80 to Royer Park Class I Bike Path Phase 2 – Segment 3	\$938
PLA	I 80 to Royer Park Class I Bike Path Phase 2 – Segment 3	\$938
PLA	I 80 to Royer Park Class I Bike Path Phase 2 – Segment 3	\$938
PLA	I 80 to Royer Park Class I Bike Path Phase 2 – Segment 3	\$938
PLA	I 80 to Royer Park Class I Bike Path Phase 2 – Segment 2	\$414

Table 4: I 80/SR 51 CSMP Rail

County	Project Description	Total Cost Estimate (1,000)s
YOL	Capitol Corridor: Provide crossover point to allow greater dispatching capability and increase track capacity	\$5,000
SOL thru PLA	Capitol Corridor Rail replacement and expansion: Davis to Colfax	\$204,125
SOL thru PLA	Sacramento Intermodal Transportation Facility Phase 2: Incorporate components such as a transitway and circulation, site and parking improvements, passenger amenities and refurbishing of the depot to foster greater use of the building.	\$29,100
SOL thru PLA	Capitalized Maintenance Phase 3: Tie tamping and general track maintenance.	\$8,000
SOL thru PLA	Sacramento to Roseville 3 rd Main Track	\$269,755

Moving Forward

I 80/SR 51 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: I 80/SR 51 CSMP Strategies

Strategy	Description	Implementation Actions	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.	Close coordination between Planning & Traffic Operations to identify detection need locations. Incorporated corridor needs into 3-Year PID Program, TSDP, and seeking funding opportunities.	Funding availability, funding competition within the region.
Construct planned and programmed key capital projects along the State Highway System and parallel roadways that serve to reduce congestions along SR 65 and I 80	Implementation of the capital improvements identified in the 2009 CSMP Key Programmed and Planned Project lists and approved in the regional transportation plans for all transportation modes within the scope, schedule, and cost specified.	Move forward with the widening of Washington Blvd (2009 SR 65 Key Capital Project) in Roseville, by actively pursuing Federal funding to reconstruct the Washington/Andora underpass under the Union Pacific Railroad	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.	Developed the 2011 I 80/SR 51 SOTC report.	Diverse interests and competing priorities and limited resources.
Complete express Bus/Carpool lane network.	Complete the regional express bus/carpool lane network, including freeway-to-freeway HOV lane connectors.	Continued work on I 80 HOV Lanes "Fixing the Bottleneck" Phases 2 and 3 and I 80 "Across the Top" HOV Lanes Project.	Funding availability, funding competition within the region. Public agency and public acceptance of network.
Expand P&R lots at key locations	Add additional capacity to existing P&R lots at or approaching capacity near transit stations and other locations.	Developed gap analysis for transit and bicycle projects for inclusion into the 2011 SOTC reports. Transit gap analysis includes P&R lots.	Funding availability, funding competition within the region, and available land.
Improve bike-pedestrian access in the CSMP transportation network.	Construct additional bicycle paths / lanes, and related improvements to improve access and connectivity to transit, P&R lots, and destination points.	Developed gap analysis for transit and bicycle projects for inclusion into the 2011 SOTC Report.	Funding availability and funding competition within the region.

Traffic Operational System Improvements

The primary method for I 80/SR 51 corridor system management is the development, implementation, and use of system and operational management strategies to facilitate efficient and effective transportation network use; including ramp metering, auxiliary lanes, transition lanes, and short mixed flow lane extensions. Examples of traffic operation system (TOS) projects and methods, needed for traffic monitoring and information dissemination, include Closed Circuit Television Systems (CCTV), Changeable Message Signs (CMS), Extinguishable Message Signs (EMS), Electronic Tag Readers (ETR), Highway Advisory Radio (HAR), Ramp Metering Systems (RMS), 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 I 80/SR 51 corridor.

Table 6: Traffic Operational System Improvement

I 80 Traffic Operational System Improvements							
County	Post Mile (From)	Post Mile (To)	Location	Project Description	Type of Project	Estimated Total Cost (1,000s)	Proposed Completion Year
YOL	0	2.7	Solano/Yolo County line to Mace Blvd	Construct bus/carpool lanes	Bus/Carpool Lanes	\$100,000	2035
YOL	0.2		I 80/Richards Blvd IC	Reconstruct the north side to remove the loop on and off-ramp and replace with new ramp in diamond configuration, NB on-ramp at Richards Blvd, and install traffic signal	Interchange Improvements	\$12,866	2015
YOL	2.7	9.2	Mace Blvd (in Davis) to Downtown Sacramento	Construct bus/carpool lanes	Bus/Carpool Lanes	\$301,955	2035
YOL	5.5		I 80/Webster UC (Road 32a)	Add EB ramp metering	Ramp Meters	\$468	
YOL	5.6		I 80/ Webster UC (Road 32b)	Add WB ramp metering	Ramp Meters	\$468	
YOL	9.2		I 80/Enterprise Blvd IC	Construct I 80 EB on-ramp and install ramp meter.	Interchange Improvements	\$5,619	2016
YOL	R 11.2		I 80/Reed Ave	Widen Reed Ave and ramps at the intersection, limit some local street access, add ramp metering to the on-ramps	Interchange Improvements	\$12,350	2017
SAC	M0.0	M10.1	I 80/Across the Top : RT Station Longview to the Sacramento River	Construct bus/carpool lanes	Bus/Carpool Lanes	\$74,500	2016
SAC	M1.4	M8.6	West El Camino IC to Pinell	Install ramp meters	Ramp Meters	\$8,000	2015
SAC	M1.4		I 80/West El Camino IC	Widen to 4 lanes and modify ramps, and add ramp meters to on-ramps	Ramps	\$33,133	2020
SAC	M2.6		I 80/5 IC	IC improvements, including bus/carpool lane freeway to freeway connectors	Bus/Carpool Lanes	\$100,000	2023
SAC	M5.0		I 80/Northgate IC	Extend existing I 80 WB off-ramp onto Northgate Blvd and add auxiliary lane to WB on-ramp and ramp meter	Auxiliary Lanes	\$15,060	2020
SAC	M5.0	M6.1	I 80/Northgate to Northwood	Construct auxiliary lanes	Auxiliary Lanes	\$9,000	2015
SAC	10.8		I 80/Watt RT Station EB on-ramp	Install ramp meter.	Ramp Meter	\$468	TBD
SAC	R11.0	17.9	SR 51 to Placer County line	Install fiber optic and connect existing ITS elements (CCTV, RMS, TMS, etc) to allow for faster communication data rates and reduced operational costs.	Intelligent Transportation Systems	\$1,400	TBD
SAC	16.0		I 80/Antelope Truck Scale	Widen off-ramp & Weigh in Motion	Intelligent Transportation Systems	\$2,800	2017
SAC	16.7		I 80/Antelope EB on-ramp	Install ramp meter	Ramp Meters	\$468	TBD
SAC	VAR	VAR	Along I 80 corridor in Sacramento County	Install HAR	Intelligent Transportation Systems	\$1,400	2018
PLA	0	2.8	I 80/Ravine Bridge: West of Sacramento/Placer County line to Miner's	Fix the Bottleneck: Phase 2: Construct W/EB bus/carpool lanes and auxiliary lanes, with bridge widening and ramp modifications	Bus/Carpool Lanes	\$47,576	2013
PLA	2.9	5.1	Miner's Ravine to SR 65	Fix the Bottleneck: Phase 3: Construct W/EB extensions of the bus/carpool and auxiliary lanes with bridge widening in both directions.	Bus/Carpool Lanes	\$33,848	2013
PLA	6.1		I 80/Rocklin Rd IC: Rocklin Rd onto both W/EB I 80	Construct a combination of loop/flyover ramps to eliminate left-turn movements and add ramp meter to EB on-ramp	Ramps	\$29,850	2020
PLA	4.2		I 80/SR 65 IC	IC improvements, including bus/carpool lane connector ramps.	Bus/Carpool Lanes	\$30,000	2035

SR 51 Traffic Operational System Improvements							
SAC	0	8.6	SR 51 TOS in Sacramento County	Add TMS, CCTV, HAR, CMS, and other system management infrastructure	Intelligent Transportation System	\$3,000	2020
SAC	0	8.6	SR 99/US 50 IC to I 80	Add bus/carpool lanes	Bus/Carpool Lanes	\$75,000	2025
SAC	1.4	2.6	NB E St to the American River Bridge	Add transition lane	Transition Lanes	\$3,000	2020
SAC	1.4	3.1	SB Exposition Blvd to E St	Add transition lane	Transition Lanes	\$3,000	2025
SAC	2.0	2.1	SR 51/Richards Blvd at two SB off-ramps	Add ramp meters	Ramp Meters	\$936	TBD
SAC	2.6	3.1	NB American River Bridge to Exposition Blvd	Add transition lane	Transition Lanes	\$3,000	2025
SAC	3.0	3.2	SB between the Exposition Blvd ramps	Add auxiliary lane	Auxiliary Lanes	\$2,000	2020
SAC	3.1	3.7	NB Exposition Blvd to SR 160	Add transition lane	Transition Lanes	\$3,000	2025
SAC	3.4		SR 51 /Exposition Blvd IC	Add NB on-ramps	Ramps	\$24,829	2023
SAC	4.0	4.2	SR 51/ SB Arden Way (EB/WB), and NB Arden Way (EB/WB)	Install ramp metering	Ramp Meters	\$1,872	TBD
SAC	4.1		SR 51/160 NB on-ramp	Install ramp meter	Ramp Meters	\$468	TBD
SAC	5.4		SR 51/Marconi Ave on-ramp	Install ramp meter	Ramp Meters	\$468	TBD
SAC	5.5	8.7	N/SB from Marconi to Watt Ave	Add transition lane	Transition Lanes	\$3,000	2025
I 5 Traffic Operational System Improvements (Impact I 80/SR 51)							
SAC	26.7	32.7	From I 80 IC to Sacramento International Airport	Construct Bus/Carpool lanes PA&ED only. Total Costs = \$100M	Bus/Carpool Lanes	\$10,000	2020
Parallel Roadway Traffic Operational System Improvements							
County	Location	Project Description			Type of Project	Estimated Total Cost (1,000s)	Proposed Completion Year
PLA	Nevada St from SR 49 to I 80	Widen from 2 to 3 lanes, signalization, bike lanes, sidewalks, and bus turnouts			Signal	\$225	2014
Transit Traffic Operational System Improvements							
SAC	SACOG region	Implement Universal Transit Fare Card			Fare Card	\$10,451	TBD
SAC	R St: 29th St and 30th St	29th St. Light Rail Station Enhancements: Add 2 shelters, a surveillance camera, flashing pedestrian crossing signs, 2 visible message signs, and other transit amenities			Intelligent Transportation Systems	\$281	2014
Rail Traffic Operational System Improvements							
Various	Capitol Corridor	Positive Train Control: Install wayside signal system			Intelligent Transportation Systems	\$13,300	Programmed
Various	Capitol Corridor/ San Joaquin	Wireless Network Phase 2: Includes real-time right of way camera applications for security program			Intelligent Transportation Systems	\$30,100	TBD
Various	Capitol Corridor	Positive Train Control: Install wayside signal safety system.			Intelligent Transportation Systems	\$31,700	TBD

Micro-simulation Modeling

Since the beginning of the development of the CSMPs, Caltrans has been developing micro-simulation traffic models for several CSMP corridors, including the I 80/SR 51 corridor. These micro-simulation models will enable Caltrans and its regional partners to evaluate corridor mobility improvement strategies, the sequencing of those improvements, and the prioritization of capital investments. The models are nearing completion and are expected to be available for use in late 2011. Comprehensive reports for each new model will be drafted. This information, including sample model simulation outputs, will be posted on our website.

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.

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

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.