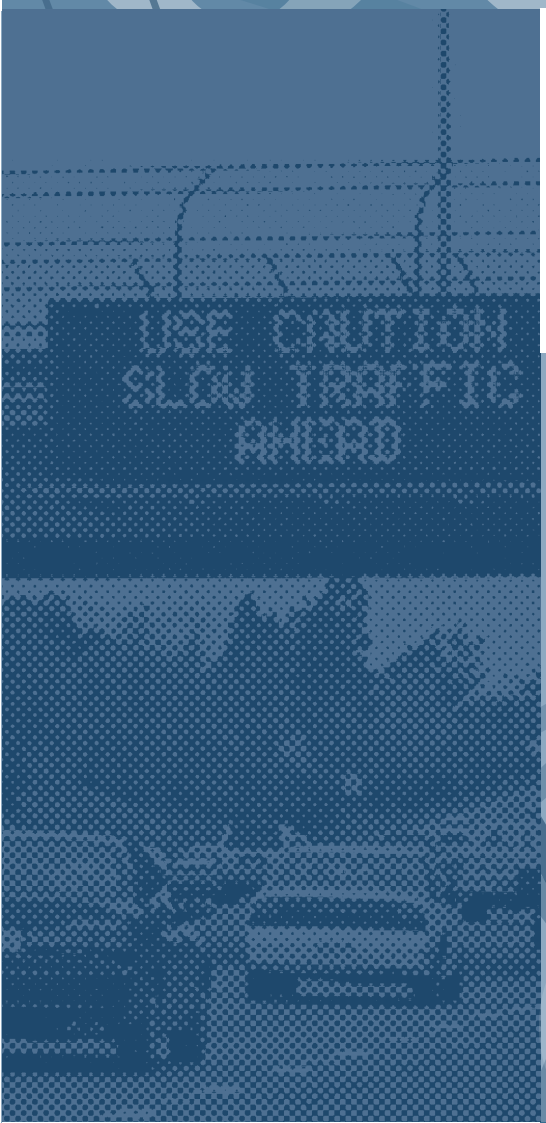
Interstate 80 and Capital City Freeway

Corridor System Management Plan

May 2009



csmp

CALTRANS DISTRICT 3

corridor system management plan

Caltrans®

Interstate 80/Capital City Freeway Corridor System Management Plan

APPROVED BY:

Jody Jones 6/22/09

JODY JONES, Date
District 3 Director
California Department of Transportation

I accept this Corridor System Management Plan for the Interstate 80/Capital City Freeway Corridor as a document informing the regional transportation planning process.

ACCEPTED BY:

6/30/09

MIKE MCKEEVER, Date
Executive Director
Sacramento Area Council of Governments

ACCEPTED BY:

6-24-09

CELIA MCADAM, Date
Executive Director
Placer County Transportation Planning Agency

Corridor System Management Plan

May 2009

stakeholder acknowledgement

District 3 wishes to acknowledge the time and contributions of many stakeholders and partner agencies. These representatives participated in project development team and focused group meetings and provided essential information, advice and feedback for the preparation of this CSMP. The stakeholders/partners include:

- California Highway Patrol;
- The County of Placer, Sacramento, Yolo and Solano;
- The Cities of Rocklin, Roseville, Citrus Heights, Sacramento, West Sacramento, and Davis;
- Placer County Transportation Planning Agency (PCTPA), Sacramento Area Council of Governments (SACOG), Sacramento Transportation Authority (STA), and Solano Transportation Authority (STA);
- Transportation Management Associations (TMAs) representing employers, property owners and residents of South Natomas, North Natomas, Yolo County, and McClellan Park;
- Transit service providers: Amtrak, Capital Corridor Joint Powers Authority (CC), Fairfield/Suisun Transit System (FTS), Placer County Transit (PCT), Roseville Transit (RT), Sacramento Regional Transit District (SRTD), University of California-Davis (UCD), and Yolo County Transportation District (YCTD);
- Port of West Sacramento and Sacramento International Airport;
- Sacramento Area Bicycle Advocates; and
- Sacramento Metropolitan Chamber of Commerce.

A website, **www.corridormobility.org**, has been created to support the development of the CSMPs and to provide stakeholders and the public with more information and an opportunity to provide input and review documents.

DISCLAIMER

The information, opinions, commitments, policies and strategies detailed in this document are those of Caltrans District 3 and do not necessarily represent the information, opinions, commitments, policies and strategies of partner agencies or other organizations identified in this document.

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executive summary

Caltrans and our partners are taking a dynamic turn in transportation planning and operations with the creation of Corridor System Management Plans (CSMPs) for corridors associated with the ***Corridor Mobility Improvement Account (CMIA) and Highway 99 Bond Program*** projects! Recognizing that Californians rely on transportation facilities and services to get to business, recreational, and service destinations, regardless of which agency may operate or fund a facility or service, CSMPs are being developed to plan and manage transportation across modes and jurisdictional boundaries. The CSMP approach is consistent with the goals and objectives of the *Governor's Strategic Growth Plan*, including public accountability for bond funded projects.

This CSMP directly supports implementation of the "Fixing the Bottleneck" CMIA project.

The CSMP outlines a foundation to support partnership based, integrated corridor management of various travel modes (transit, cars, trucks, bicycles) and infrastructure (rail tracks, roads, highways, information systems, bike routes), to provide mobility in the most efficient and effective manner possible. This approach brings facility operations and transportation service provisions together with capital projects into a coordinated system management strategy that focuses on high demand travel corridors such as Interstate 80 (I-80) and the Capital City Freeway (State Route 51 or SR 51).

This CSMP directly supports the implementation of the ***"Fixing the Bottleneck"*** CMIA project in the corridor, which includes construction of Bus/carpool and Auxiliary Express lanes, and related improvements along I-80 from just west of the Sacramento/ Placer County line to State Route 65 (SR 65).

The objectives of the CSMP are to improve safety on the transportation system, reduce travel time or delay on all modes, reduce traffic congestion, improve connectivity between modes and facilities, improve travel time reliability, and expand mobility options along the corridor in a cost effective manner.

CSMPs are being developed to plan and manage transportation across modes and jurisdictional boundaries.

The managed transportation network for this *I-80 CSMP* includes I-80 from State Route 113 (SR 113) in Solano County to Sierra College Boulevard in Placer County, the entirety of the Capital City Freeway, select parallel and connector roadways, transit facilities and services, and bicycle routes.

This CSMP includes the following chapters:

Current Corridor System Management Strategies: Documents a variety of multi-modal system management technologies and elements, ranging from vehicle detection devices, ramp metering, bus/carpool lanes and traveler information systems to the STARNET partnership.

Major Corridor Mobility Challenges: Identifies key challenges to mobility along the corridor, which include severe highway and roadway traffic congestion, limited parallel roadway capacity, lack of signal coordination on key arterials, an incomplete bus/carpool lane system, an incomplete set of freeway auxiliary lanes, loss or dropping of freeway lanes at specific locations, incomplete ramp metering, transit facilities approaching capacity, inadequate transit capital and operations funding needed to grow transit ridership, gaps and barriers within the bicycle route network, and lengthy barriers restricting cross corridor travel by all modes.

Performance Measures: Evaluates system performance to better monitor outcomes for corridor management and investment decision-making. Performance measures include level of service, delay, distressed pavement, collision rate, reliability, productivity, and capacity.

Planned Corridor System Management Strategies: Identifies current and future Level of Service (LOS), concept facility, and a primary set of strategies and capital improvements that respond to the major corridor mobility challenges. To implement some of these strategies, key capital projects are identified. The list is not inclusive of all projects in the corridor; this CSMP incorporates by reference all projects contained in the SACOG 2035 *Metropolitan Transportation Plan* (MTP).

Existing highway operations data shows that for the *I-80 CSMP* corridor, almost all segments are forecasted to operate under Level of Service (LOS) "F" conditions in 20 years under the *No-Build* and *Concept (Build)* scenarios. However, with the implementation of operational strategies and key capital projects, the severity and the duration of the traffic congestion can be significantly reduced.

Congestion and Bottleneck Analysis: Evaluates specific locations and causality of existing recurrent highway traffic congestion, which contributes to travel delays, and identifies bottlenecks along I-80 and the Capital City Freeway in the both directions during the AM and PM peak periods. This analysis provides additional supportive details to the mobility challenges within the *I-80 CSMP* corridor and concludes that I-80 and SR 51 are the top congested freeway routes in the Sacramento area.

Major and minor bottle necks on I-80 and SR 51 are identified and described. The major bottlenecks on I-80 are located at Enterprise Boulevard, Mace Boulevard, Northgate Boulevard, Raley Boulevard, SR 51, Elkhorn Boulevard, the weigh station, Antelope Road, Auburn Boulevard, Riverside Avenue, and Atlantic Street. The major Bottlenecks on the Capital City Freeway are located at E Street, Exposition Boulevard, El Camino Avenue, Marconi Avenue, and Watt Avenue.

The system will be continuously monitored using identified performance measures and Traffic Operations Systems data, and will be reported in an annual ***State of the Corridor Report*** and subsequent CSMP updates. This information will be used to continually improve system performance.

what is a CSMP?

A CSMP is a foundation document supporting the **partnership-based, integrated management** of various **travel modes** (transit, cars, trucks, bicycles) and **infrastructure** (rail track, roads, highways, information systems, bike routes) in a corridor so that mobility along the corridor is provided in the most efficient and effective manner possible.

CSMP success is based on the premise of managing a selected set of transportation components within a designated corridor as a system rather than as independent units.

Caltrans has traditionally prepared a Transportation Concept Corridor Report (TCCR) that served as the long range planning document for I-80 and SR 51. The TCCR would identify existing route conditions and future needs, including existing and forecasted travel data, concept LOS standard, and the facility needed to maintain the concept LOS over the next 20 years. With the development of the more comprehensive CSMP, the need for a separate TCCR is eliminated. This CSMP will serve as the TCCR for the segment of I-80 and for all of SR 51 within the CSMP boundaries and includes information regarding the future facility needed to maintain an acceptable LOS (Concept LOS and Facility, see page 53).

The *I-80/Capital City Freeway CSMP (I-80 CSMP) Network* includes Interstate 80 from State Route 113 in Solano County to Sierra College Boulevard in Placer County, and the entirety of the Capitol City Freeway, as well as select parallel and connecting roadways, transit services and bike routes. Together, these facilities comprise the CSMP managed network, as shown in Figure 1 and listed in Table 1.

The parallel and connector roadway, transit, and bicycle route components of the managed network were selected for inclusion in the corridor in consultation with the respective local agencies. It is anticipated that as the CSMP concept matures, additional facilities will be added to the managed CSMP transportation network.

The CSMP focuses on strengthening institutional partnerships, gathering and analyzing data, monitoring system performance, implementing operational strategies, and identifying and implementing strategic capital investments.

The CSMP focuses on strengthening institutional partnerships, gathering and analyzing data, monitoring system performance, implementing operational strategies, and identifying strategic capital investments. The CSMP will evolve with changing development patterns, travel demands, and technological innovations.

I-80 near Douglas, severe congestion in both directions

An annual ***State of the Corridor Report*** will be produced to document system performance and track CSMP implementation progress. The CSMP document will be updated every two years or more frequently as needed.

CSMPs are being created for corridors associated with the CMIA and Highway 99 Bond Programs, supported by the ***Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006***, Proposition 1B. Figure 2 depicts the general location of each of the CSMP corridors within the Caltrans District 3 service area and identifies the Proposition 1B projects associated with the respective CSMP.

Each CSMP identifies current management strategies, existing travel conditions and mobility challenges, corridor performance management, and planned management strategies and capital improvements.

The CSMP is consistent with the SACOG *MTP 2035* and public workshops' polling, the *2005 PCTPA Regional Transportation Plan* (RTP), background reports for the Caltrans District 4 *I-80 East CSMP*, city and county general plans, regional blueprint planning, and multimodal planning. The CSMP, by reference, incorporates all projects listed in the current MTP and RTP. Because the CSMP is corridor focused, it highlights key locations where modes interact and land use decisions may have the greatest potential of reducing the need for travel and influencing modal choice.

CSMPs will assist in fulfilling the goals of recently enacted legislation such as Assembly Bill 32 that addressed air quality and green house gas emissions and Senate Bill 375 that address land use by:

- Improving mobility on the state highway system to more optimum speeds to reduce vehicle emissions, and
- Providing viable transportation alternatives and accessibility across modes to encourage transit and bicycling and decrease single occupant auto use.

The CSMP also supports Caltrans policies such as Deputy Directive (DD) 64, *Complete Streets-Integrating the Transportation System,* and DD 98, *Integrating Bus Rapid Transit into State Facilities* by bringing many modes under the same active management effort, thereby ensuring that each mode is analyzed and optimized to work together.

The CSMP is based on technical information depicted in four supporting working papers:

- Working Paper 1 provided an overview of the corridor system management planning process and a definition of the CSMP transportation network, including a rationale for the selection of the specific corridor limits and modes in the corridor planning process.
- Working Paper 2 defined current services being provided by the CSMP transportation network, proposed performance measures for the corridor, and provided baseline data regarding the current CSMP transportation network for the proposed performance measures.

Typical afternoon commute on I-80 near Truxel Road

- Working Paper 3 described existing corridor management activities, including all facilities and services currently in use to maximize mobility within and through the corridor, such as traffic operations systems elements, facilities such as bus/carpool lanes, traveler information services, and transportation demand management programs.
- Working Paper 4 provided an assessment of current corridor performance by identifying the major problems inhibiting efficient corridor operations for each element (mode) of the CSMP transportation network.

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Figure 1: I-80 CSMP Transportation Network

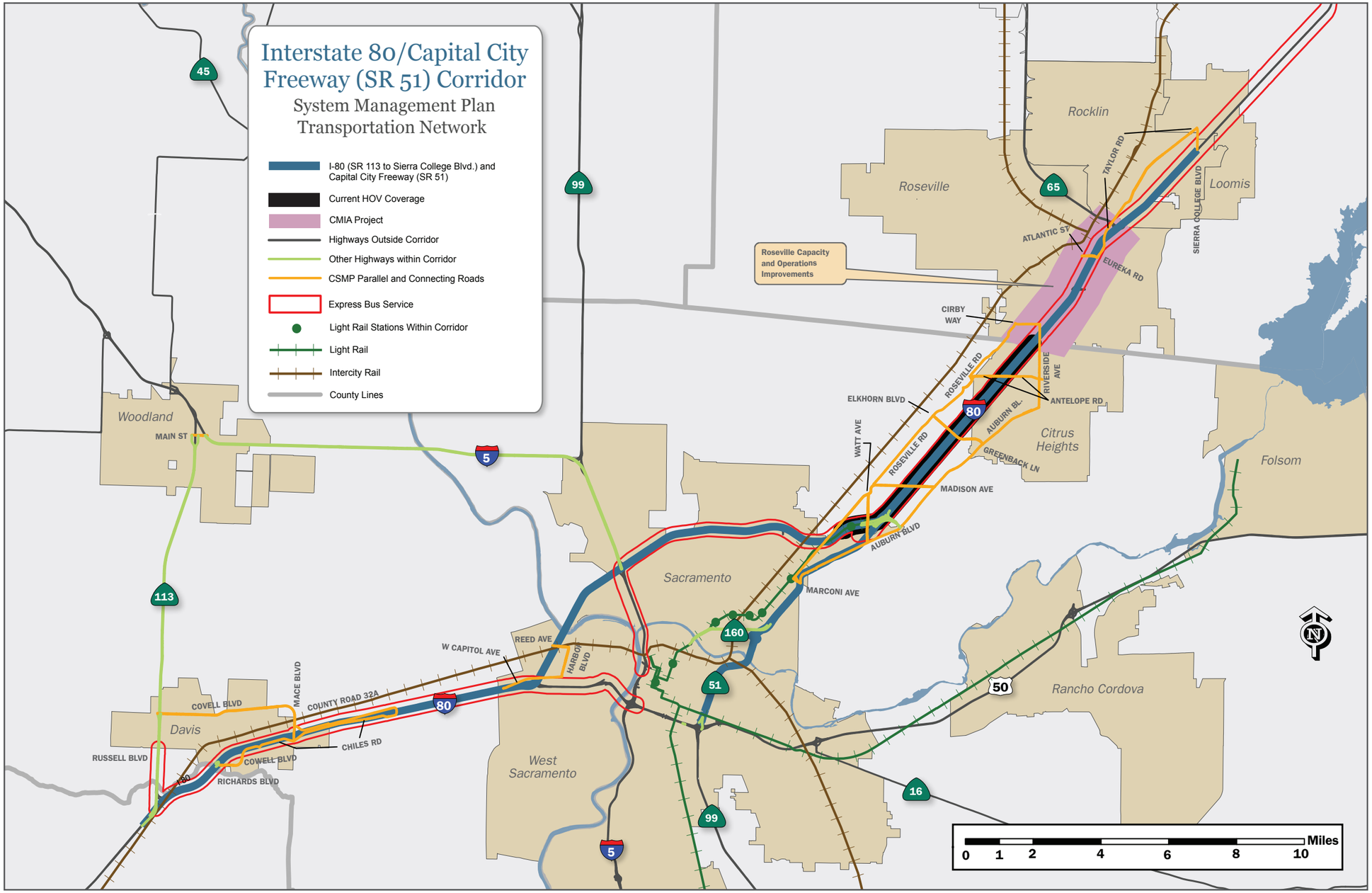


TABLE 1: I-80 CSMP TRANSPORTATION NETWORK

Location	I-80					Parallel and Connecting Roadways				Mass Transit						Bike Routes[6]	
										Heavy Rail and Light Rail			Bus				
County	From	To	No. Lanes/ Facility Type[1]	HOV Lanes[2]	Aux. Lanes[2]	Roadway	From	To	No. of Lanes[7]	Operator/ Services[3]	From	To	Operator/ Services[3]	From	To	From	To
SOL	SR 113 North	Yolo/ Solano County line	8-10F	0	0	SR 113[5,6]	I-80	Russell Bl.	4F	CC/ICR	City of San Jose	2nd & H St., Davis	FST/EB	Fairfield	Davis	Vaughn St.	Runge Rd.
																Runge Rd.	Tremont Rd.
																Tremont Rd.	Old Davis Rd.
																Old Davis Rd.	Arboretum
YOL	Yolo/Solano County line, City of Davis	Mace Bl. IC, City of Davis	6-8F	0	0	SR 113[5,6]	Russell Bl.	I-5, Woodland	4F	CC/ICR	City of San Jose	2nd & H St., Davis	FST/EB	Davis	Downtown Sacramento	Arboretum	Putah Cr. U. X-ing
						I-5[4,6]	SR 113	I-80, Sacramento	4-6F + Auxi.							Putah Cr. U. X-ing	Olive Dr.
						Main St.[5]	SR 113, Woodland	I-5, Woodland	5		2nd & H St., Davis	401 I St., Sacramento	YCTD/LT	Woodland	Mace Bl., Davis	Olive Dr.	Old Hwy. 40
						Covell Bl.	SR 113	Mace Bl.	4							Old Hwy. 40	CR 32 A
						Mace Bl.[5]	Covell Bl.	Chiles Rd.	4				YCTD/LT	Mace Bl., Davis	West Sacramento	CR 32 A	Yolo Causeway
						Cowell Bl.	I-80/ Richards Bl.	Chiles Rd.	2-4				YCTD/LT	West Sacramento	Downtown Sacramento	Russell Bl.	A St.
						Chiles Rd.[4,6]	Cowell Bl.	I-80 Yolo Causeway	2							A St.	3rd St.
													YCTD/LT	Downtown Sacramento	Sacramento Airport	3rd St.	L St.
																L St.	2nd St.
													YCTD/LT	Sacramento Airport	Woodland	2nd St.	Mace Bl.
																Mace Bl.	CR 32 A
																CR 32 A	Yolo Causeway
YOL	Mace Bl. IC, City of Davis	U.S 50 Junction, City of West Sacramento	6F	0	0	CR 32	Mace Bl.	CR 105	2				YCTD/EB	Mace Bl., Davis	Downtown Sacramento		
						CR 32A[5]	CR 105	I-80 Yolo Causeway	2				YCTD/EB	SR 113	Downtown Sacramento		
						Break in Parallel Roads between CR 32A, Chiles Rd., and Enterprise Bl./W. Capitol Av.											
						W. Capital Av.[4,5]	I-80/ Enterprise Bl./W. Capitol Av. U-Xing	Harbor Bl.	4								

TABLE 1: I-80 CSMP TRANSPORTATION NETWORK *(CONTINUED)*

Location	I-80					Parallel and Connecting Roadways				Mass Transit						Bike Routes[6]	
										Heavy Rail and Light Rail			Bus				
County	From	To	No. Lanes/ Facility Type[1]	HOV Lanes[2]	Aux. Lanes[2]	Roadway	From	To	No. of Lanes[7]	Operator/ Services[3]	From	To	Operator/ Services[3]	From	To	From	To
YOL	U.S 50 Junction, City of West Sacramento	Yolo/ Sacramento County line, Sacramento River Bridge	6F	0	0	Harbor Bl.	W. Capitol Av.	Reed Av.	4				UCD/EB	UC, Davis	UC Davis Med. Ctr., Sacramento	I-80 Yolo Causeway	Enterprise Rd. Exit/W.Capitol Av.
						Reed Av.[5]	Harbor Bl.	I-80	4							W. Capitol Av.	Tower Bridge
						Break in Parallel Road Connectors between Reed Av. IC & W. El Camino Av. IC											
SAC	Yolo/Sacramento County line, Sacramento River Bridge	I-5 Junction	6F	PR	0					Amtrak/ TR	401 I St., Sacramento	201 Pacific St., Roseville	Amtrak/20	401 I St., Sacramento	201 Pacific St., Roseville	Tower Bridge	Front St.
										CC/ICR	401 I St., Sacramento	201 Pacific St., Roseville				Front St.	Neasham Ci.
																Neasham Ci.	2nd St.
																2nd St.	I St.
																I St.	Sac. River Bike Trail
					PR											Sac. River Bike Trail	Jibboom St.
																Jibboom St.	Am. River Bike Tr.

TABLE 1: I-80 CSMP TRANSPORTATION NETWORK *(CONTINUED)*

Location	I-80					Parallel and Connecting Roadways				Mass Transit						Bike Routes[6]	
										Heavy Rail and Light Rail			Bus				
County	From	To	No. Lanes/ Facility Type[1]	HOV Lanes[2]	Aux. Lanes[2]	Roadway	From	To	No. of Lanes[7]	Operator/ Services[3]	From	To	Operator/ Services[3]	From	To	From	To
SAC	I-5 Junction	SR 51 Junction	6F	PR	0	Roseville Rd.[4,6]	Auburn Bl. @ Marconi Av.	Cirby Wy.	2-6	SRTD/LR/ numerous daily trips	Watt Av., LR Station	7th Str., Downtown Sacramento	SRTD/ LRF	Watt Av., LR Station	Antelope Rd.	Am. River Bike Tr.	Tribute Rd..
						Auburn Bl.[4,6]	Marconi Av.	Riverside Av.	2-4				SRTD/ LRF	Watt Av., LR Station	Madison Av./ Hillside Av.	Railroad Bikeway	Sac. No. RR Bkwy.
					PR	Watt Av.[5]	Roseville Rd.	Auburn Bl.	6				SRTD/ LRF	Watt Av., LR Station	Greenback Ln./ Auburn Bl.	Railroad Bikeway	20th St.
													SRTD/ LRF	Watt Av., LR Station	Madison/ Sunset Avs.	20th St.	E St.
																E St.	Alhambra Bl.
																Alhambra Bl.	T St.
																28th St.	T St.
																T St.	Alhambra Bl.
			10F	E-2	0											Railroad Bikeway	Tribute Rd.
																Tribute Rd.	Railroad Bikeway
																Fee Dr.	Tribute Rd.
																Blumenfeld Dr.	Fee Dr.
																Harvard Dr.	Blumenfeld Dr.
																Sac. No. RR Bkwy.	El Camino Av.
																El Camino Av.	Auburn Bl.
																Auburn Bl.	Haggin Oaks Trail
			8F													Haggin Oaks Trail	Fulton Av.

TABLE 1: I-80 CSMP TRANSPORTATION NETWORK *(CONTINUED)*

Location	I-80					Parallel and Connecting Roadways				Mass Transit						Bike Routes[6]	
										Heavy Rail and Light Rail			Bus				
County	From	To	No. Lanes/ Facility Type[1]	HOV Lanes[2]	Aux. Lanes[2]	Roadway	From	To	No. of Lanes[7]	Operator/ Services[3]	From	To	Operator/ Services[3]	From	To	From	To
SAC	SR 51 Junction	Sacramento/ Placer County Line	14F	E-2	E-2 to 6	SR 244[5]	I-80	Auburn Bl.	6F							**or** Sac. No. Railroad Bikeway	Grand Av.
						Madison Av.[5]	Roseville Rd.	Auburn Bl.	6							Grand Ave.	Roseville Rd.
						Elkhorn Bl./ Av. Greenback[5,6]	Roseville Rd. Underpass	Auburn Bl.	2-6							Winters St.	Longview Dr. LRT
			11F			Antelope Rd.[5]	Roseville Rd.	Auburn Bl.	4-6							Longview Dr. LRT	Roseville Rd.
																Roseville Rd.	Cirby Wy.
																Cirby Wy.	Vernon St.
PLA	Sacramento/Placer County Line	SR 65 Junction, City of Roseville	10F	E-2	E-2	Riverside Av.[5]	Auburn Bl.	Cirby Wy.	4	CC/ICR	201 Pacific Street, Rsvl.	City of Auburn	PCT/EB	Colfax	Downtown Sacramento	Vernon St.	Atlantic St.
																Auburn Bl.	Riverside Dr.
			6F	PR	PR	Cirby Wy.[5]	Roseville Rd.	Riverside Av.	4							Riverside Dr.	Vernon St.
										Amtrak/TR	201 Pacific Street, Rsvl.	Colfax	PCT/LT	City of Auburn	Watt Av., LR Station	Atlantic St.	Wills Rd.
						Atlantic St./Eureka Rd.[5]	Wills Rd./Galleria Bl.	Taylor Rd.	4-6							Wills Rd.	Galleria Bl.
													Amtrak/20	201 Pacific Street, Rsvl.	Colfax	Galleria Bl.	Antelope Creek Trail
											Colfax	Reno					
			8F		E-2								Amtrak/20	Colfax	Reno	Antelope Creek Trail	Springview Dr.
PLA	SR 65 Junction, City of Roseville	Sierra College Boulevard, City of Rocklin	6F	0	0	Taylor Rd.[4]	Eureka Rd.	Plumber St.	2-4				RT/EB/1-7	Taylor Rd.	SR 51	Springview Dr.	Sunset Bl.
						Pacific St.	Plumber St.	Taylor Rd.	2-4					SR 51	Downtown Sacramento	Sunset Bl.	Taylor Rd.
						Taylor Rd.[4]	Pacific St.	Sierra College Bl.	2							Taylor Rd.	Pacific St.
						Sierra College Bl.	I-80	Taylor Rd.	2							Pacific St.	Sierra College Bl.

TABLE 1: I-80 CSMP TRANSPORTATION NETWORK *(CONTINUED)*

Location	Capital City Freeway (SR 51)					Parallel and Connecting Roadways				Mass Transit						Bike Routes[6]	
										Heavy Rail and Light Rail			Bus				
County	From	To	No. Lanes/ Facility Type[1]	HOV Lanes[2]	Aux. Lanes[2]	Roadway	From	To	No. of Lanes[7]	Operator/ Services[3]	From	To	Operator/ Services[3]	From	To	From	To
SAC	U.S. 50/SR 99 Junction	Arden Wy./ SR 160 Interchange	6F (U.S. 50 to J St.)	E-2	E-2 (U.S. 50 to J St.)					SRTD/LR/ numerous daily trips	Watt Av., LR Station	7th Str., Downtown Sacramento				Jibboom St.	Am. River Bike Tr.
																Am. River Bike Tr.	Railroad Dr.
			5F (SR 160 to Arden)	0	0											Railroad Dr.	Sac. No. Railroad Bikeway
																Sac. No. Railroad Bikeway	El Camino Av.
SAC	Arden Wy./SR 160 Interchange	I-80 Interchange	6F	0	E-2 (Arden to Marconi)	Auburn Bl.[4,6]	Marconi Av.	Riverside Av.	2-4	SRTD/LR/ numerous daily trips	Watt Av., LR Station	7th Str., Downtown Sacramento	SRTD/ LRF	Watt Av., LR Station	Antelope Rd.	El Camino Av	Auburn Bl.
						Watt Av.[5]	Roseville Rd.	Auburn Bl.	6							**or** Sac. No. Railroad Bikeway	Grand Av.
						Roseville Rd.[4,6]	Auburn Bl. @ Marconi Av.	Cirby Wy.	2-6							Grand Av.	Roseville Rd.
						Marconi Av.[5]	Roseville Rd.	Auburn Bl.	2-4							Roseville Rd.	Cirby Wy.
						SR 160	16th St./ American River Bridge	SR 51	6F/4F							Cirby Wy.	Vernon St.
					0											Vernon St.	Atlantic St.

1 F = Freeway, No. of Lanes includes HOV and Auxiliary Lanes

2 E = Existing, PR = Programmed, PL = Planned, see text for specific locations

3 CC = Amtrak Capitol Corridor, ICR = Intercity Rail, TR = Thruway Rail, YCTD = Yolo County Transportation District
FTS = Fairfield/Suisun Transit System, UCD = UC, Davis Medical Center Shuttle, SRTD = Sacramento Regional Transit District
RT = Roseville Transit, and PCT = Placer County Transit, LR = Light Rail, EB = Express Bus, LT = Limited, LRF = Light Rail Feeder

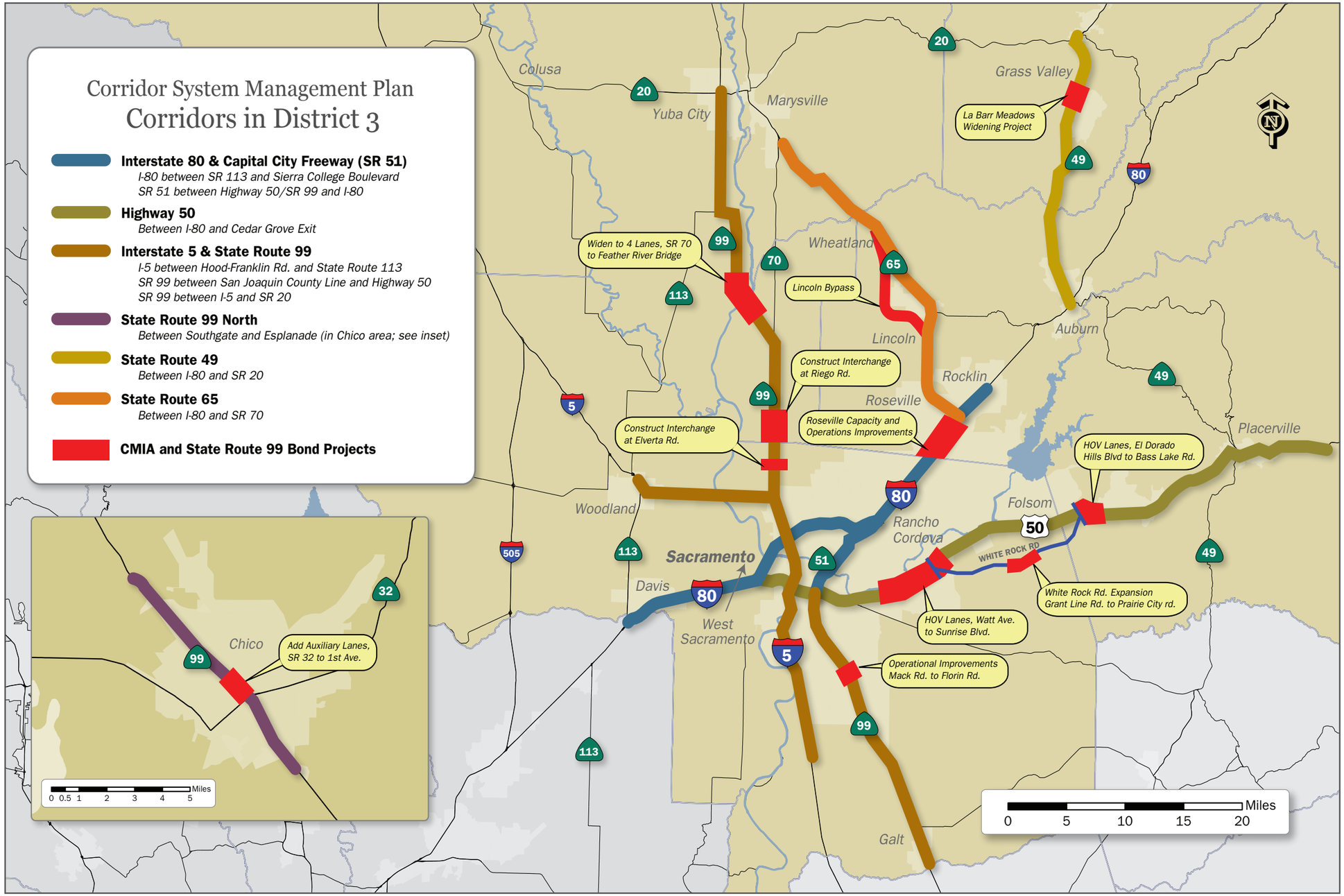
4 Roadway located in more than one TCR segment

5 Connecting Road that connects a major Parallel Road to an I-80 or SR 51 Interchange

6 Some routes extend through multiple TCR segments and jurisdictions

7 No. of lanes does not include turn lanes

Figure 2: CSMP Corridors in District 3



need, purpose, goal and objectives

There is a **need** for a planning approach that brings facility operations and transportation service provision together with capital projects into one coordinated system management strategy that focuses on high demand travel corridors such as I-80 and the Capital City Freeway.

A CSMP is needed for the I-80/Capital City Freeway corridor to address severe traffic congestion that often exceeds the capacity of existing facilities, transit ridership demands that exceed the capacity of the transit system, and bicycle facilities that do not provide a fully linked network of bike routes.

The **purpose** of the CSMP is to create a partnership planning process and resulting guidance document that focuses on system management strategies and coordinated capital investments so that all the pieces of the corridor function as an efficient transportation system, seamlessly connect with adjacent CSMP corridors, and that performance evaluation measures are included to track the effectiveness of the strategies and projects.

The I-80 CSMP directly supports the implementation of the Proposition 1B Bond "Fixing the Bottleneck," project located in Placer County.

Serious bottleneck on I-80 from Riverside to Douglas

The **goal** of the CSMP is to improve mobility along the I-80/Capital City Freeway corridor by focusing on the integrated management of a subset of the entire transportation network within the corridor, including select freeways, parallel and connecting roadways, transit, and bicycle components of the corridor.

The **objectives** of the CSMP are to **reduce travel time or delay** on all modes, **improve connectivity** between modes and facilities, **improve travel time reliability, improve safety** on the transportation system, and **expand mobility options** along the corridor in a cost effective manner. Implementation of the CSMP will **increase access** to jobs, housing, and commerce.

CONSISTENCY WITH OTHER STATE TRANSPORTATION PLANS AND POLICIES

The CSMP approach is consistent with the goals and objectives of the Governor's ***Strategic Growth Plan***, which among other things commits to minimizing increases in traffic congestion. Key elements of the strategy are illustrated in Figure 3.

At the base of the pyramid, and the foundation of transportation system management, is system monitoring and evaluation. It is essential to understand what is happening on the transportation system so that the best decisions can be made based on reliable data. The next few layers up the pyramid are focused on making the best use of existing resources and reducing the demand for new transportation facilities, particularly for peak hour travel. The top layer of the pyramid is system expansion. This layer assumes that all the underlying components are being addressed and that system capacity expansion investments are necessary.

Corridor system management is consistent with the **Caltrans Mission**:

Improve Mobility Across California

Corridor system management is also consistent with **Caltrans' Goals**:

- **SAFETY**: Provide the safest transportation system in the nation for users and workers.
- **MOBILITY**: Maximize transportation system performance and accessibility.
- **DELIVERY**: Efficiently deliver quality transportation projects and services.
- **STEWARDSHIP**: Preserve and enhance California's resources and assets.
- **SERVICE**: Promote quality service through an excellent workforce.

The CSMP is also consistent with the *California Transportation Plan* (CTP), the statewide, long-range transportation plan for meeting future mobility needs. The CTP defines goals, policies, and strategies to achieve our collective vision for California's future transportation system.

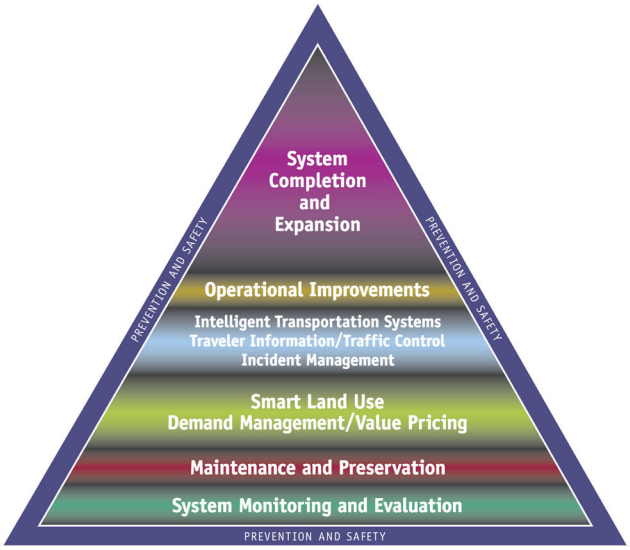


Figure 3: Strategic Growth Plan Strategy

AIR QUALITY PLANNING

Corridor System Management seeks to create conditions where vehicle flow on highways and roads occurs at a steady pace and travelers have a range of mobility options that enable them to travel other than by single occupant vehicle. System expansion is focused only where needed when travel demand exceeds the capacity of the well managed existing system. These conditions are beneficial to attaining air quality goals and reducing green house gas emissions.

Sacramento Regional Transit Bus with Bicycle Racks

current corridor system management strategies

The I-80/Capital City Freeway CSMP corridor is complex and is one of the most important corridors in Northern California. The corridor is vital for goods movement and serves as an important commute route within the Sacramento region and for long distance commuters traveling to or from the Bay Area.

The corridor also provides access to world renowned recreation areas in the Sierra Nevada Mountains and Lake Tahoe Basin. Peak commute and recreational travel periods are heavily congested, with demand for travel often exceeding the capacity of existing facilities and services. Severe traffic congestion is common and commute transit services often operate at maximum ridership capacity. There is extensive and expanding urban development along many parts of the corridor, which suggests increased future transportation demand.

There are a wide variety of system management strategies and elements currently being implemented by jurisdiction and transportation service providers.

Given the complexity of the corridor and its extensive geographic range, there are a wide variety of system management strategies and elements currently being implemented by jurisdictions and transportation service providers. Strategies and elements range from vehicle detection devices to traveler information systems to traffic flow control mechanisms. A common element among all the strategies and elements is data collection and analysis. There is presently some system management coordination among the entities such as the Sacramento Transportation Area Network (STARNET).

The STARNET web application initial release is anticipated for the late fall of 2009. Features to be included in the initial release will include: Changeable Message Sign (CMS) display, a chain control application, integration of Regional Transit data, California Highway Patrol incident data, connectivity to the 511 systems (web and telephone), Closed Circuit Television (CCTV) display and interagency messaging and coordination, Caltrans, Transportation Management Center (TMC), Kingvale Operation Center, City of Sacramento Traffic Operation Center (TOC), Sacramento County TOC, Roseville TOC, and Elk Grove TOC. STARNET's associated management

CHP officer working with the TMC

strategies can and will evolve as the application is implemented throughout the region and as additional features are added in annual releases.

A variety of system management strategies are used throughout the *I-80 CSMP* corridor transportation network to improve the efficiency and effectiveness of the transportation system. These strategies, which are often referred to as traffic operations system (TOS) elements, and transportation management facilities and services, are discussed below by transportation mode.

STATE HIGHWAY SYSTEM

With the construction of California's State Highway System (SHS) virtually complete in the Sacramento region, Caltrans' major emphasis on highway projects has largely shifted from new construction to focused capacity expansions, reconstruction, operation, and maintenance of existing facilities.

Merging traffic on I-80 near Truxel during peak commute times contributes to traffic congestion

The SHS has an extensive set of system management strategies in operation. Some cities, counties, and transit operators also have robust system management elements and programs applied to their facilities or services. There are also specific instances of system management linkages among transportation modes and services at particular locations.

These strategies work as a system to gather, analyze, and disseminate information through the Caltrans TMC. Information about collisions, other incidents, road closures, and emergency notifications are fed into this information hub and disseminated to public and private information users. The TMC operates 24 hours a day, seven days a week.

An inventory of the existing TOS elements are listed in Table 2 and graphically depicted on Figure 5. Transportation system management facilities and services utilized by Caltrans along the I-80 CSMP corridor are identified as follows:

Auxiliary lanes are located on I-80 east and west bound between the Capital City Freeway on-ramps, Madison Avenue, and Greenback Lane/Elkhorn Boulevard, and extend further east in the west bound lanes to Riverside Avenue in Roseville. Auxiliary lanes are also located in both northbound and southbound directions on Capitol City Freeway between Highway 99 and J Street as well as between the Arden Way and Marconi Avenue interchanges. A graphic depiction of auxiliary lanes is shown in Figure 4.

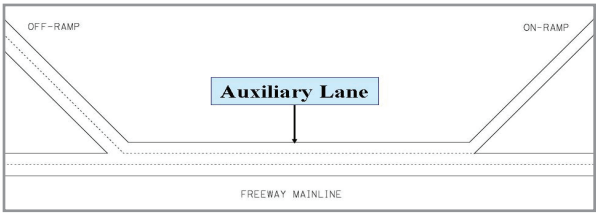


Figure 4: Auxiliary Lane

Express Bus/Carpool Lanes are operating on I-80 between the Longview Drive Interchange and the Riverside Avenue/ Auburn Boulevard Interchange. There is also a short segment on Capital City Freeway from the US 50/ SR 99 interchange to E Street in downtown Sacramento. Bus/Carpool lanes, which require two or more people per vehicle or air quality exemption, can provide a travel time advantage to people who use the lanes.

TABLE 2: I-80 CSMP EXISTING HIGHWAY TOS ELEMENTS

County/ City	Post Miles	Highway & Location	TOS Elements[1]							
			TMS	RM	HAR	RWIS	CMS/ EMS	VS	CCTV	WIM
I-80										
SOL/ Unincorp.	42.67/44.72	SR 113 N. to Solano/Yolo County line	–	–	–	–	–	–	–	–
YOL/Davis	0.00/0.23	Solano/Yolo County line to Richards Bl. IC	3	–	–	–	–	–	–	–
	0.23/0.84	Richards Bl. IC to Olive Av. WB Off-Ramp	–	–	–	–	–	–	–	–
	0.84/0.89	Olive Av. WB Off-Ramp to Pole Line O-Xing	–	–	–	–	1	–	–	–
	0.89/2.68	Pole Line O-Xing to Mace Bl. IC	2	–	–	–	–	–	–	–
	2.68/5.78	Mace Bl. IC to Webster/Chiles Bl. IC	3	3		1	1	1	1	
YOL/ Unincorp.	5.78/9.18	Webster/Chiles to Enterprise./W. Capital Av.	3	–	–	1	–	–	1	–
YOL/W. Sacramento	9.18/9.55	Enterprise Bl./W. Capital Av. to U.S. 50 Jct.	–	1	–	–	–	–	–	–
	9.55/11.22	U.S. 50 Jct. to Reed Av. IC	1	–	–	1	–	–	–	–
	11.22/11.72	Reed Av. IC to Yolo/Sacramento County line	–	–	–	–	–	–	–	–
SAC/ Sacramento	0.00/1.36	Yolo/Sac. County line to W. El Camino Av.	1	–	–	–	1	–	2	–
	1.36/2.55	West El Camino Av. IC to I-5 Jct.	1	–	–	–	1	–	–	–
	2.55/2.87	I-5 Junction to San Juan U-Xing	2	–	1	–	–	–	1	–
	2.87/3.64	San Juan U-Xing to Truxel Rd. IC	1	–	–	–	–	–	–	–
	3.64/4.98	Truxel Rd. IC to Northgate Bl. IC	2	4	–	–	1	–	2	
	4.98/6.12	Northgate Bl. IC to Norwood Av. IC		2	–	–	–	–	1	–
	6.12/7.13	Norwood Av. IC to Rio Linda Bl. U-Xing	2	1	–	–	–	–	–	–
	7.13/7.63	Rio Linda Bl. to Marysville/Raleys Bls. IC	2	1	–	–	–	–	1	–
	7.63/8.67	Marysville/Raleys Bls. IC to Winters Av. IC	2	2	–	–	–	–	–	–

TABLE 2: I-80 CSMP EXISTING HIGHWAY TOS ELEMENTS *(CONTINUED)*

County/ City	Post Miles	Highway & Location	TOS Elements[1]							
			TMS	RM	HAR	RWIS	CMS/ EMS	VS	CCTV	WIM
SAC/ Sacramento	8.67/9.39	Winters Ave. IC to Longview Dr. IC	1	2	–	–	–	–	–	–
	9.39/10.35	Longview Dr. IC to SR 244 Jct.	3	2	–	–	–	–	1	–
	10.35/10.36	SR 244 Jct. to Watt Av. IC	1	1	–	–	–	–	–	–
	10.36/10.74	Watt Av. IC to SRT Light Rail WB Ramp	1	2	–	–	–	–	–	–
	10.74/10.79	SRT Light Rail WB Ramp to EB Ramp	–	–	–	–	–	–	–	–
	10.79/10.99	SRT Light Rail EB Ramp to SR 51 Jct.	–	–	–	–	–	–	–	–
SAC/ Unincorp.	10.99/12.48	SR 51 Jct. to Madison Av. IC	3	3	–	–	–	–	1	–
	12.48/14.45	Madison Av. to Elkhorn Bl./Greenback Ln. IC	2	4	–	–	2	–	2	–
SAC/Citrus Heights	14.45/16.69	Elkhorn Blvd./Greenback Ln. to Antelope Rd.	2	4	1	–	–	–	1	1
	16.69/18.00	Antelope Rd. IC to Sac./Placer County line	2	–	–	–	1	–	–	1
PLA/ Roseville	0.00/0.27	Sac./Placer County Line to Riverside/ Auburn	–	2	–	–	–	–	–	–v
	0.27/0.69	Riverside Av./Auburn Bl. IC to Cirby Wy.	1	2	–	–	–	–	1	–
	0.69/1.98	Cirby Wy. O-Xing to Douglas Bl. IC	–	1	–	–	–	–	1	–
	1.98/2.57	Douglas Bl. to Rocky Ridge/Lead Hill Bl.	–	2	–	–	–	–	1	–
	2.57/3.07	Rocky Ridge/Lead Hill to Atlantic St./ Eureka	–	–	–	–	–	–	–	–
	3.07/3.43	Atlantic St./Eureka Rd. to Roseville Pkwy.	–	–	–	–	–	–	–	–
	3.43/3.66	Roseville Pkwy. O-Xing to Taylor Rd. IC	–	–	–	–	–	–	–	–
	3.66/4.16	Taylor Rd. IC to SR 65 Jct.	–	–	–	–	–	–	–	–
	4.16/6.06	SR 65 Jct. to Rocklin Rd. U-Xing	1	1	–	–	–	–	–	–
PLA/ Rocklin	6.06/7.42	Rocklin Rd. to Sierra College Bl. O-Xing	1	1	–	–	–	–	–	–
	7.42	Sierra College Bl. O-Xing	1	–	–	–	–	–	–	–
TOTAL			**44**	**41**	**2**	**3**	**8**	**1**	**17**	**2**

TABLE 2: I-80 CSMP EXISTING HIGHWAY TOS ELEMENTS *(CONTINUED)*

County/ City	Post Miles	Highway & Location	TOS Elements[1]							
			TMS	RM	HAR	RWIS	CMS/ EMS	VS	CCTV	WIM
Capital City Freeway (SR51)										
SAC/ Sacramento	0.00/0.08	SR50/SR99 to 29th/30th T Sts.	–	–	–	–	–	–	–	–
	0.08/0.77	29th/30th T Sts. to 29th/30th P Sts.	2	2	–	–	–	–	2	–
	0.77/1.26	29th/30th P Sts. to 29th/30th J Sts.	1	2	–	–	–	–	–	–
	1.26/1.44	29th/30th J Sts. to E St. U-Xing	–	1	–	–	–	–	1	–
	1.44/2.20	E St. U-Xing to Elvas U-Pass	2	–	–	–	1	–	–	–
	2.20/3.14	Elvas U-Pass to Exposition Bl. O-Xing	2	–	–	1	1	–	1	–
	3.14/4.04	Exposition Bl. O-Xing to Arden Wy. U-Xing	1	2	–	–	–	–	1	–
	4.04/4.74	Arden Wy. U-Xing to El Camino Av. O-Xing	1	2	–	–	–	–	2	–
	4.74/5.50	El Camino Av. Xing to Marconi Av. O-Xing	1	2	–	–	1	–	–	–
	5.50/5.96	Marconi Av. O-Xing to Howe Av.	1	–	–	–	–	–	1	–
	5.96/6.21	Howe Av. to Bell Av. Connection	1	–	–	–	–	–	–	–
	6.21/6.79	Bell Av. Connection to Fulton Av. O-Xing	–	1	–	–	–	–	–	–
	6.79/7.97	Fulton Av. O-Xing to Watt Av. O-Xing	–	4	–	–	–	–	1	–
	7.97/8.66	Watt Av. O-Xing to I-80 Jct.	1	2	–	–	–	–	1	–
TOTAL			**13**	**18**	**0**	**1**	**3**	**0**	**10**	**0**

1 TOS Elements include: TMS (Traffic Monitoring Detection Station), RM (Ramp Meter), HAR (Highway Advisory Radio), RWIS (Roadway Weather Information Service), CMS (Changeable Message Sign), EMS (Extinguishable Message Signs), VS (Visibility Sensor), CCTC (Closed-circuit television camera), and WIM (Weigh-In-Motion detection). Inventory data from Caltrans, Headquarters, Traffic Operations: *3TOS Snapshot Sep 08* (8-8), *CMIA ITS Project Needs List* (6-25-8), and *2006 Existing TOS Report* (updated 8-16-6)

Park-and-Ride Lots provide a place for commuters to park their cars and meet carpools, vanpools and buses. Some park and ride lots also provide bike lockers. A listing of lots is identified on Table 3.

Transportation Management Plans (TMP) are required by Caltrans Deputy Directive DD-60-R1 for *"all construction, maintenance, and encroachment permit activities on the State Highway System"*.

All projects must be TMP Certified prior to being designated as "Ready to List". TMPs detail how a construction project will be implemented so that its impact to existing travel is minimized or mitigated.

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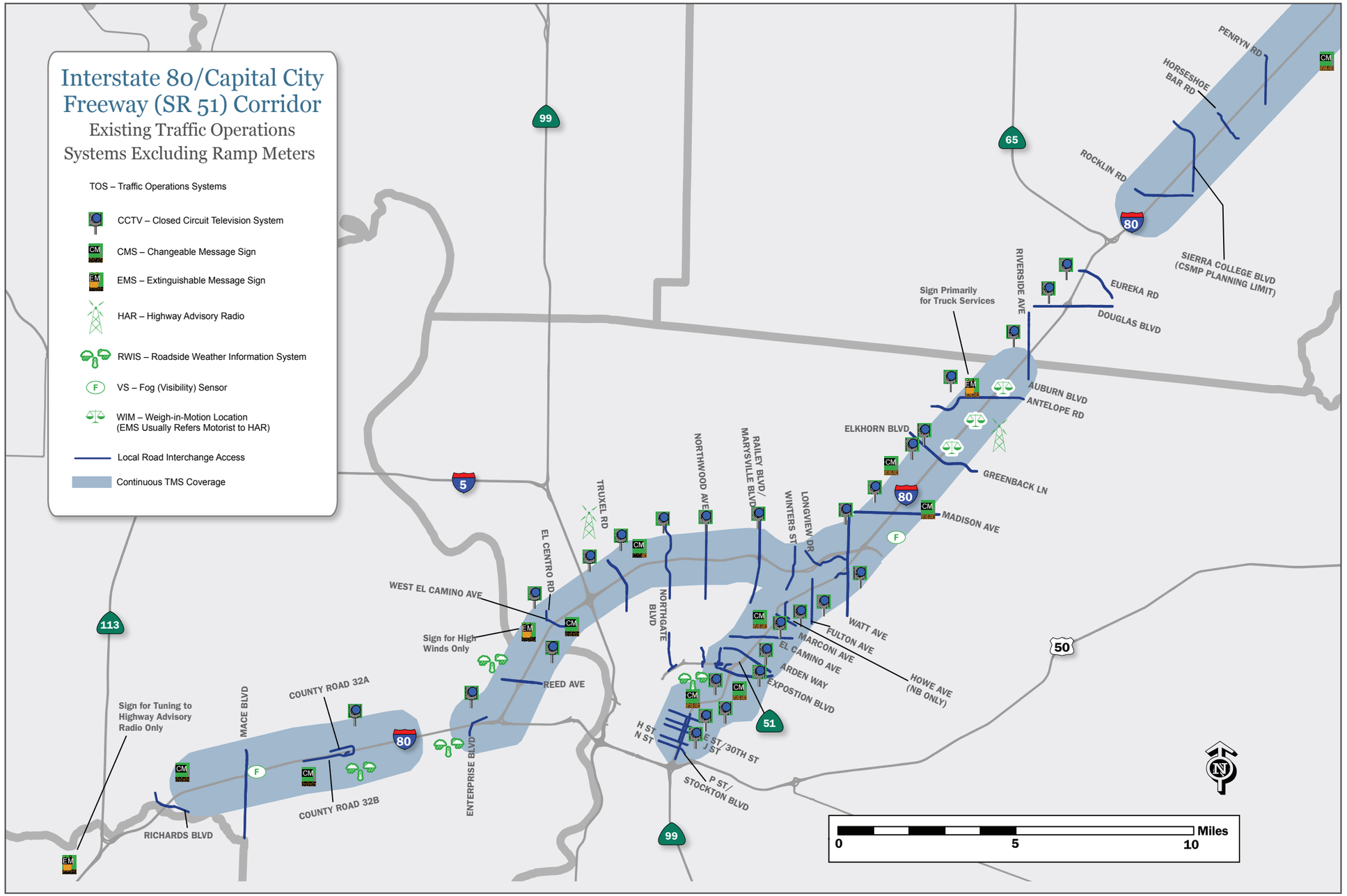
Figure 5: I-80 CSMP Existing Highway Traffic Operations Systems



Transportation Demand Management services include Transportation Management Associations (TMAs), employer subsidized transit passes and vanpools, the *511 Traveler Information Service*, carpool ride matching, the *Guaranteed Ride Home* program, and vanpool services. The overall intent is to reduce the number of vehicle trips using highways and roads. Many of these services are financially supported by or directly provided by PCTPA and SACOG. Area employers and office complex owners are also key supporters and funders of TDM programs at their work sites. A listing of TMAs is provided in the Stakeholders Acknowledgement section. Additional TMA information including a list of contacts can be found at http://www.sacregion511.org/rideshare/tma.html.

Incident Management is an essential component of highway operations. Timely response to incidents reduces the amount of time lanes are blocked and speeds emergency response. A popular aspect of this program is the *Freeway Service Patrol,* which assists motorists whose vehicles break down along the highway: flat tires, out of gas, mechanical failure.

Traveler Information services for the corridor include web sites, which are hosted by Caltrans, the California Highway Patrol, the U.S. Weather Service, and a private company. Caltrans provides real-time data feeds to commercial/media information services, such as radio and TV stations, to help inform travelers of highway and traffic conditions.

PARALLEL AND CONNECTOR ROADWAYS

An inventory of the existing TOS elements is contained in Table 4. Additional discussion of the TOS elements, and the transportation system management facilities and services used by the cities, counties, and other entities are described below.

The **City of Davis** has many traffic signals that detect and respond to vehicles, are not synchronized, but have bicycle detection capabilities.

Ramp meters on I-80 help to maximize traffic flow

The **City of West Sacramento** has many traffic signals that detect and respond to vehicles, are not synchronized, but have bicycle detection capabilities. The City is in the process of establishing a TOC.

The **City of Sacramento** has some traffic signals that have bicycle detection capabilities including new generation video detection. The City operates a TOC. Sensors in the street detect the passage of vehicles, vehicle speed, and the level of congestion. This information is received on a second-by-second (real-time) basis and is analyzed at the TOC.

The City of Sacramento also utilizes **Parking Management** techniques such as increased parking fees, preferential parking for carpools and vanpools, residential permit parking, removal of on-street parking, graduated parking fees and metered on-street parking as a demand management strategy.

The **County of Sacramento** also operates a TOC that helps improve traffic conditions as problems occur in five corridors: Watt Avenue, Arden Way (Watt to Del Paso), Sunrise Boulevard, Madison Avenue, and Greenback Lane.

TABLE 3: I-80 CSMP PARK AND RIDE LOTS

County	Facility Name & Location	Lot Use[1]			Transit Connection
		Total Spaces	Spaces Occupied	Occupancy Rate (%)	Provider & Route No.
YOL	2nd. St. & H St., Davis	146	146	100%	Amtrak Station & Unitrans A
YOL	Davis at Mace Bl.	147	57	38%	YCTD Bus Routes 42A & 42B
YOL	South West corner of Enterprise Dr. interchange near W. Sacramento	84	69	82%	YCTD Bus Route 42A
YOL	North West corner of Enterprise Dr. interchange near W. Sacramento	123	113	91%	YCTD Bus Route 42A
SAC	Sac. Valley Amtrak, 5th and I	TBD	TBD	TBD	Amtrak Station/Sac. City
SAC	Natomas Marketplace off Truxel next to "In & Out Burger"	50	26	52%	SRTD Route 11
SAC	I-80 at Roseville Rd.	1,087	TBD	TBD	SRTD Light Rail Station
SAC	I-80 at Watt Av./ Roseville Rd.	248	TBD	TBD	SRTD Light Rail Station
SAC	I-80 at Watt Av.	243	TBD	TBD	SRTD Light Rail Station
SAC	I-80 at Marconi/Arcade	416	TBD	TBD	SRTD Light Rail Station
SAC	I-80 off Arden (Swantson)	311	TBD	TBD	SRTD Light Rail Station
PLA	Roseville: Riverside exit on Cirby at Orlando at L.O.T.G.M. Church	40	31	77%	Roseville Transit Fixed Routes A, B, J, R & Commuter Routes
PLA	Roseville at Maidu Park: At Meadowlark Way & Maidu Dr. .05 mi. West of Douglas Bl. on Rocky Ridge Dr.	50	16	32%	Roseville Transit Fixed Routes, C&F & Commuter Routes
PLA	Roseville at Saugstad Park: Douglas Bl. and Buljan approx .7 mile North of I-80	91	59	64%	Roseville Transit Routes A,B,D,H,I,J,K & Commuter Routes
PLA	Church and N. Grant St.	78	78	100%	Amtrak & Roseville Transit Station
PLA	Taylor Rd. at Atlantic & Eureka next to Golfland Sunsplash	150	206	100 + %	Roseville Transit Commuter Bus; Placer Co. Transit Community Express
PLA	Roseville Parkway at West Dr.	50	34	68%	Roseville Transit Commuter Bus Routes A,B,M & Placer Co. Transit Route 30 #5 Bus
PLA	Rocklin Rd. & Railroad Av.	70	35	50%	Amtrak Station
PLA	Sierra College Blvd. North & South of I-80	23 (N), 24 (S)	13 (S)	54% (S)	Placer County Transit Auburn to SRTD light rail

1 2005 Caltrans Park and Ride Survey, Sacramento RT 2008 Route Map & 2006 Amtrak CC Park and Ride Survey

The **City Roseville** has several synchronized traffic signals on Cirby Way and Eureka Road. In addition, **Roseville received approximately one million dollars from Proposition 1B funding under the Traffic Light Synchronization Program (TLSP) to upgrade additional traffic signals** on Eureka Way from Wills Road to Sierra College Boulevard and on Sierra College Boulevard from the northern City limit to the Sacramento County line. Over 100 traffic monitoring cameras are located in the City along key arterial roadways. Some of these cameras, which are used for webcam, are located at the intersections of Eureka Road/North Sunrise and East Roseville Parkway/Taylor Road. The City's TOC controls traffic signals, CCTC, and CMS.

The **Sacramento Metropolitan Air Quality Management District** (SMAQMD) manages the *Spare-the-Air* program. This program, which is supported by the Placer County Air Pollution Control District and the Yolo-Solano Air Quality Management District, encourages and offers incentives for drivers to use transit, carpool, or avoid vehicle trips on days when air quality is predicted to be of poor quality.

All of the cities and counties within the *I-80 CSMP* corridor have ordinances in place that designate truck routes and support Goods Movement.

TRANSIT AND RIDESHARING

Yolo County Transportation District (YCTD) uses an Automatic Vehicle Location (AVL) system for locating buses in route. The AVL System allows users to see where their bus is located within the last minute. The YCTD-provides *Rider Alerts* to notify users of service changes, bus detours, and unexpected incidents or delays on any given route.

Sacramento Regional Transit District (SRTD) has installed pre-emptive traffic signals at at-grade intersections along the Light Rail routes. SRTD Bus Dispatch Center and Light Rail Metro Control Center have computerized schedule monitoring of transit vehicles.

SRTD does not yet have a GPS based AVL system for tracking vehicles, but instead utilizes a radio system used by individual operators to call announce their location. This location information is manually entered into the computerized system database and is available on the SRTD's web page. Computer-aided dispatch and Bus Rapid Transit are in the planning stages. SRTD provides *Rider Alerts* to notify users of service changes, bus detours, and unexpected incidents or delays on any given route. In addition, SRTD has an online Trip Planning application to assist transit users. During special events such as the California State Fair, the Jazz Festival, the holiday seasons, and the Mather Field Air Show, SRTD operates additional service to connect events to light rail stations and offer free service to promote transit use during select events. The SRTD is also planning Bus Rapid Transit (BRT) along several locations within the *I-80 CSMP* corridor including portions of Watt Avenue and I-80.

The **Sacramento Valley Station** in downtown Sacramento is the 5th busiest station in the national Amtrak system. There are over 1.1 million passenger trips annually. Passengers can make connections with numerous local bus services as well as the SRTD light rail system.

The expansion project of this station will enhance the connectivity of this facility for the region.

Roseville Transit (RT) is installing a fleet management system that will include GPS on each bus, and a pre and post trip vehicle inspection unit that will integrate with its fleet management software. Roseville Transit is also working together with Placer County Transit to purchase and utilize registering fare boxes that will permit functions such as automatic passenger counting systems, automatic vehicle announcement systems, and universal fare card systems.

TABLE 4: EXISTING PARALLEL AND CONNECTING ROADWAYS TOS ELEMENTS

County/City	Roadway	From	To	TOS Elements[1]			
				TMS	TS	CMS	CCTV
YOL/ Davis	Covell Bl.	SR-113	Mace Bl.	1	12	– YCTD	–
	Mace Bl.	Covell Bl.	Chiles Rd.	–	4	–	–
	Cowell Bl.	I-80/Richards Bl.	Chiles Rd.	1	2	–	–
YOL/ Unincorp.	Chiles Rd./CR 32 B	Covell Bl.	I-80 Yolo Causeway	–	8	–	–
	CR-32	Mace Bl.	CR-105	–	1	–	–
YOL/West Sacramento	W. Capitol Av.	I-80/Enterprise Bl	Capitol Mall	–	2	–	1
	Harbor Bl.	W. Capitol Av.	Reed Av.	–	3	–	1
	Reed Av.	Harbor Bl.	I-80	–	2	–	
SAC/ Sacramento & Unincorp.	Auburn Bl.	Marconi Av.	Riverside Av.	–	26	–	2
	Marconi Av.	Auburn Bl./ Marconi Cir.	I-80	–	4	–	–
	Roseville Rd.	Auburn Bl./Marconi Ci.	Cirby Way	–	9	–	–
	Watt Av.	Roseville Rd.	Auburn Bl.	–	8	–	2
	Madison Av.	Roseville Rd.	Auburn Bl.	–	10	1	3
SAC/Citrus Heights	Elkhorn Bl./ Greenback Ln.	Roseville Rd./ Underpass	Auburn Bl.	–	8	–	–
	Antelope Rd.	Roseville Rd.	Auburn Bl.	–	8	–	–
PLA/ Roseville	Riverside Av.	Auburn Bl.	Cirby Way	–	2	–	–
	Cirby Way	Roseville Rd.	Riverside Av.	–	4	–	–
	Taylor Rd.	Eureka Rd.	Plumber Way	1	2	–	1
	Roseville Pkwy.	Taylor Rd.	Washington Bl.	6	–	–	6
	Atlantic St/Eureka	Galleria Bl.	Taylor Rd.	–	3	1	–
PLA/Rocklin	Pacific St.	Plumber St.	Taylor Rd.	–	7	–	–
PLA/Loomis	Taylor Rd.	Pacific St.	Sierra College	–	1	–	–
PLA/ Rocklin/ Loomis	Sierra College Bl.	I-80	Taylor Rd.	–	3	–	–
TOTAL				**9**	**129**	**2**	**16**

1 TOS Elements include: TMS (Traffic Monitoring Detection Station), TS (Traffic Signals, also includes stop signs), CMS (Changeable Message Sign), and CCTC (Closed-circuit television camera). Inventory data provided by PDT staff from the Counties of Yolo, Sacramento and Placer, and the Cities of Davis, West Sacramento, Sacramento, Citrus Heights, Roseville and Rocklin.

Placer County Transit (PCT) and Roseville Transit are working together to purchase and utilize registering fare boxes that will permit functions such as automatic passenger counting systems, automatic vehicle announcement systems, and universal fare card systems. In addition, PCT is in the process of using *Transit Safety Security* (Proposition 1B) funds to place AVL in all of its transit vehicles, which are GPS based. PCT is also planning BRT along several locations including along I-80.

The **County of Sacramento** has installed pre-emptive traffic signals to give preferential signal timing to transit buses at selected locations that serve high priority transit corridors.

SACOG manages the 511 and rideshare programs that cost approximately $1 million per year, region-wide, to foster carpooling, transit ridership, vanpooling, and bicycling in all areas and corridors. The *Regional Rideshare* Program covers Placer, El Dorado, Sacramento, Yolo, Yuba, and Sutter counties. It is part of a statewide network of rideshare agencies, which encourage alternative transportation modes for traveling. The *Regional Rideshare* program can be accessed by telephone by dialing 511 or by internet at the web site http://www.sacregion511.org/rideshare/.

The SRTD, PCT, and RT use the existing express bus/carpool lanes on I-80 for their Commuter Express buses. All of the transit providers work closely with SACOG, PCTPA, Caltrans, cities and counties, TMAs, private employers, and others to coordinate scheduling and offer discounted, subsidized transit tickets to increase the use of transit.

All of the transit providers within this CSMP corridor sponsor web sites. Many of these sites have route planning information. The 511 Traveler Information service is also available on the web. Contact information for the various transit providers and traveler information services can be found at http://www.sacregion511.org/transit/.

The transit routes identified in the CSMP network are shown in Figure 6.

BICYCLE FACILITIES

Bicycle facilities in the corridor are not actively managed in the same manner as motor vehicle facilities. However, there are traffic operation systems that serve bicyclists such as dedicated bicycle lanes, bicycle detection loops at signalized intersections, video detection, other non-loop type detection, and bicyclist activated signal change buttons.

Three cities are using or are in the process of utilizing bicycle signal detection. Since 2005, the City of Roseville has been placing bicycle detection loops in bike lanes at all new intersections. Loop detectors communicate to the traffic signal controller that a bicyclist is stopped in the bike lane. The traffic light will then change for the bicyclist, with additional time added to the green light so bicyclists can clear the intersection. The City of Davis utilizes video detection and push buttons for bicyclists at signalized intersections. The City of Sacramento is in the process of switching to video detection.

Many transit providers also have bicycle racks on their buses and bicycle storage areas on their trains. For example, the SRTD buses and the new light rail trains are equipped with bicycle racks. There are over 170 weatherproof bicycle lockers at 23 light rail stations. YCTD has the *Bikes on Buses* program that allows bicycles to travel on any YOLOBUS.

The Sacramento Area Bicycle Advocates maintains an on-line hazard reporting system that allows bicyclists to report hazards such as potholes, inadequate signal timing, debris, insufficient shoulder, and inadequate bikeway markings. The reports are then sent to the applicable jurisdiction. SACOG is creating an on-line route planning system for bicyclists. In addition, SACOG maintains bicycle maps on their website, which are currently updating.

Numerous web sites containing bicycle facilities and trip planning information including bicycle route maps can be found at http://www.sacregion511.org/bicycling/.

The bicycle routes included in the CSMP network are shown on Figures 7.

PEDESTRIAN FACILITIES

Pedestrian facilities are not included as part of the managed network because they do not directly provide corridor mobility. However, complete and safe pedestrian access to appropriate corridor modes, such as bike routes and transit services, is an important component of corridor system management. Therefore, subsequent updates of the CSMP will seek to identify key pedestrian facilities and barriers to pedestrian mobility with regard to access and modal connectivity.

Figure 6: I-80 CSMP Transit Routes Network

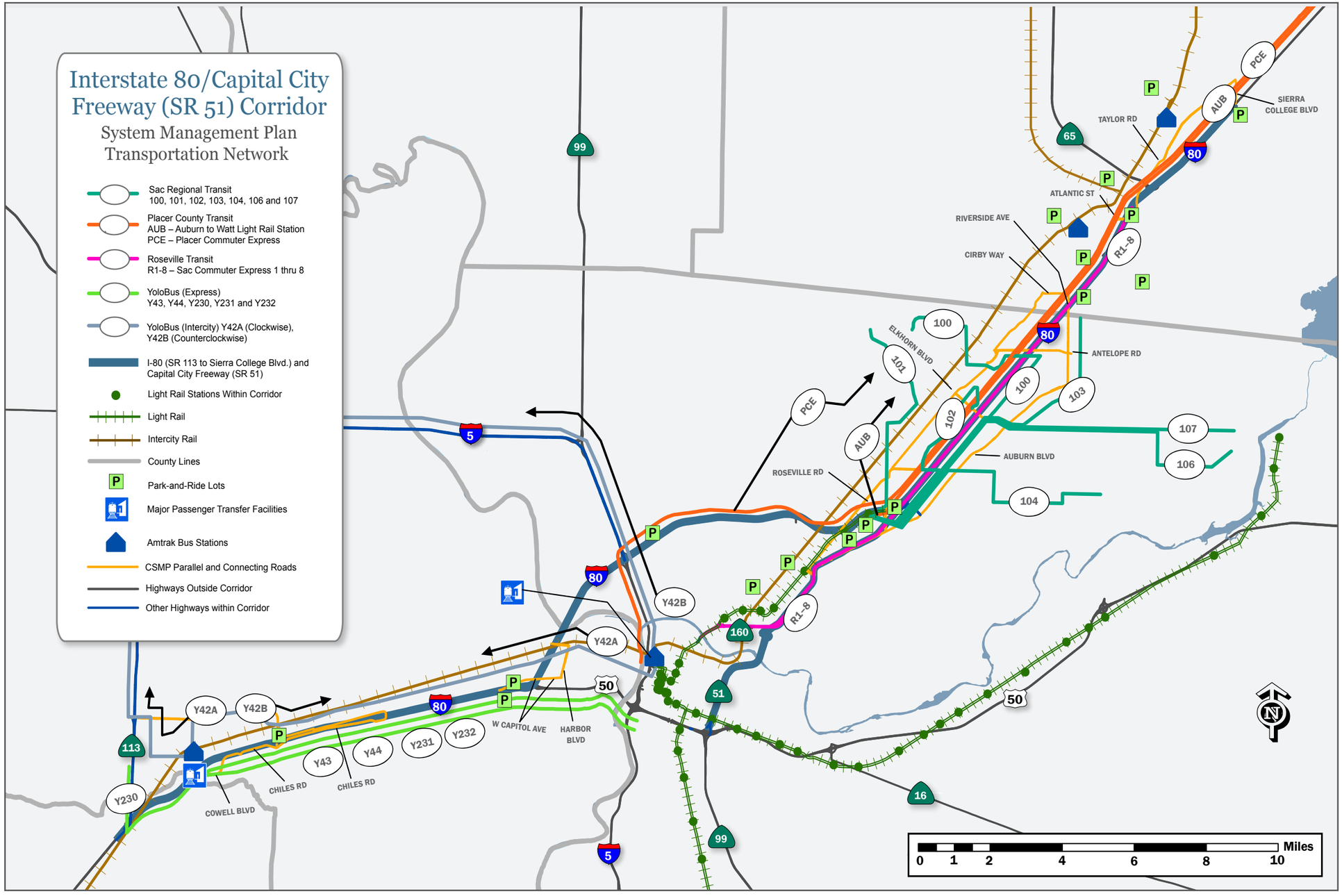
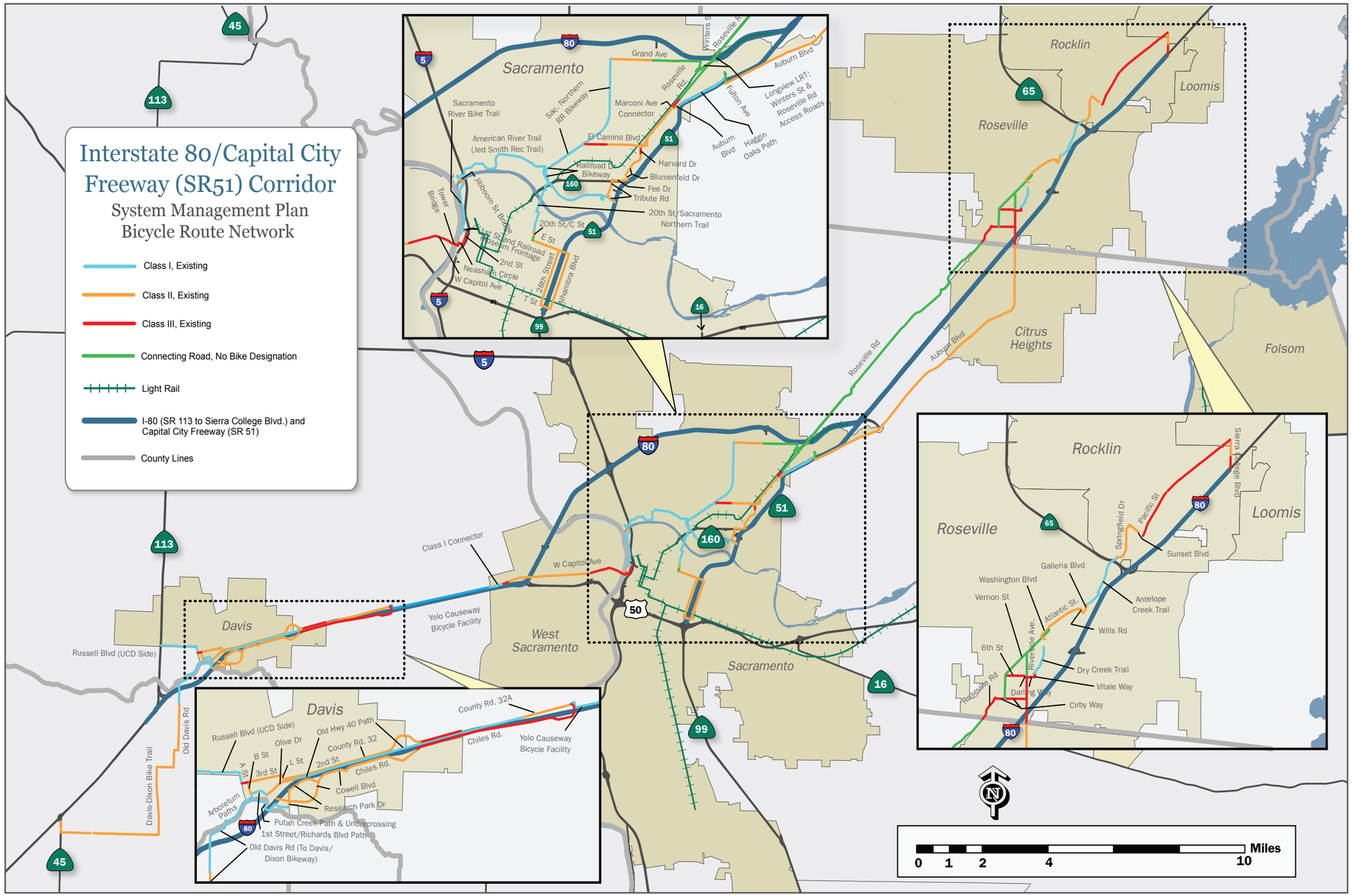


Figure 7: I-80 CSMP Bicycle Routes Network



major corridor mobility challenges

High demand for mobility services of all sorts, especially during peak commute periods, is creating significant traffic congestion in the corridor. Heavy congestion and stop and go traffic contributes to increased vehicle emissions and added travel costs. Many transit services are operating at maximum passenger carrying capacity and buses often must contend with the same congestion as autos. In many locations, bicyclists have to compete for space on these same facilities making apparent the need improvements to address bicycle route gaps and barriers.

Much of the congestion can be attributed to population growth, residential and commercial development, job/housing imbalances, work schedules that require commute trips during peak travel times, recreational trip generators, and truck traffic.

Traffic congestion per household is expected to increase 18 percent over 2005 levels by the year 2035.

The overall amount of travel in the corridor has increased dramatically over the past ten years and is expected to continue to increase as the **region adds approximately one million new residents over the next 25 years** per the SACOG *MTP 2035*. The MTP further states that **traffic congestion per household is expected to increase 18 percent over 2005 levels by 2035**. Current and forecasted data is depicted in Table 5.

The sections of I-80 with particularly severe traffic congestion including the section in Placer County commonly referred to as **"Fixing the Bottleneck"** are depicted in Figures 8 and 9. This congestion is one of the factors that led to the location being selected for Proposition 1B funding. The congestion and bottlenecks are summarized in greater detail in Tables 14 through 18 within Chapter 7.

A critical component of identifying and resolving corridor mobility challenges is the need for detailed data, analysis, and communication regarding system performance. Data collection is insufficient to fully meet these needs but still provides useful information as detailed in the following pages. Improving data gathering, analysis, and dissemination of information is a major challenge for this corridor and is a component of Intelligent Transportation Systems planning.

Challenges along the corridor include:

- Severe, recurrent highway and roadway traffic congestion,
- Limited parallel roadway capacity,
- Lack of signal coordination on key arterials and freeway ramp intersections,
- An incomplete bus/carpool lane system,
- An incomplete set of freeway auxiliary lanes,
- Loss or dropping of freeway lanes at specific locations,

- Incomplete ramp metering,
- Transit facilities approaching capacity,
- Inadequate transit capital and operations funding needed to grow transit ridership,
- Lack of double tracking of the light rail Blue Line along I-80 and SR 51,
- Park and ride lots located adjacent to transit stations approaching capacity,
- Poor pavement conditions for bicyclists and need for routine maintenance/ sweeping,
- Lack of sufficient bicycle activated signal change devices,
- Errant motorist driving behavior along bicycle routes,
- Inadequate bicycle storage facilities at travel destinations,
- Inadequate bicycle and pedestrian access to transit, and
- Gaps and barriers within the bicycle route network.

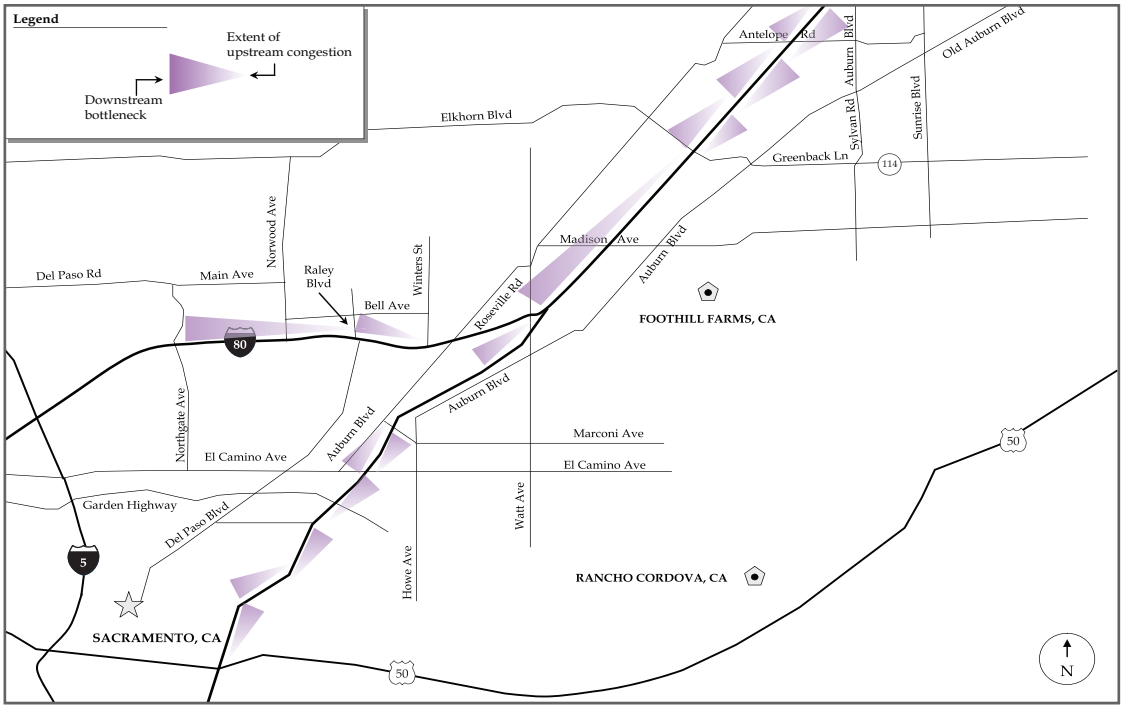


Figure 8: I-80/SR 51 AM Peak-Period Bottleneck Locations

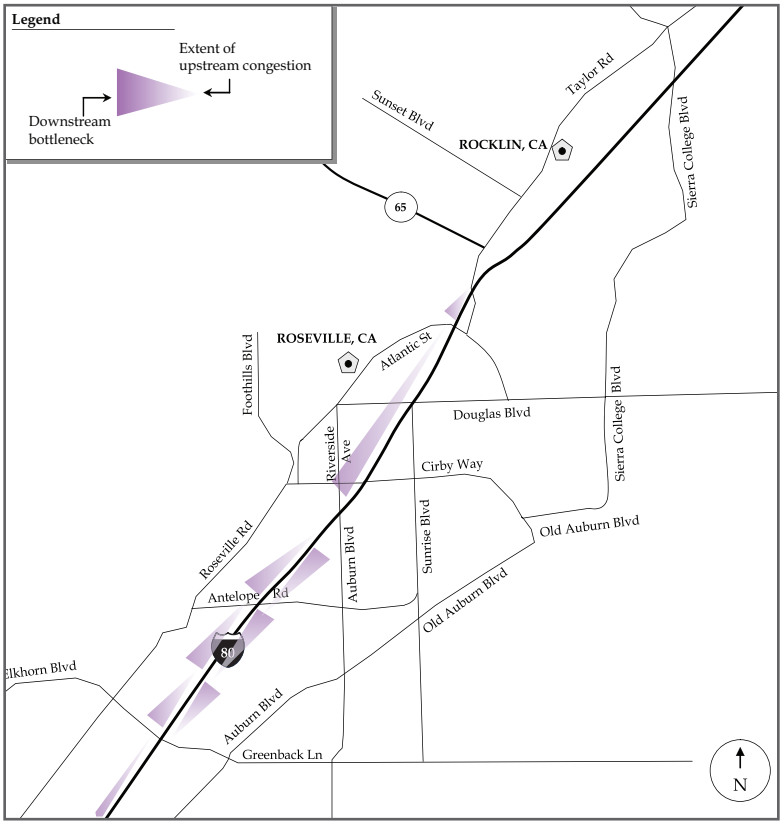


Figure 8: I-80/SR 51 AM Peak-Period Bottleneck Locations (continued)

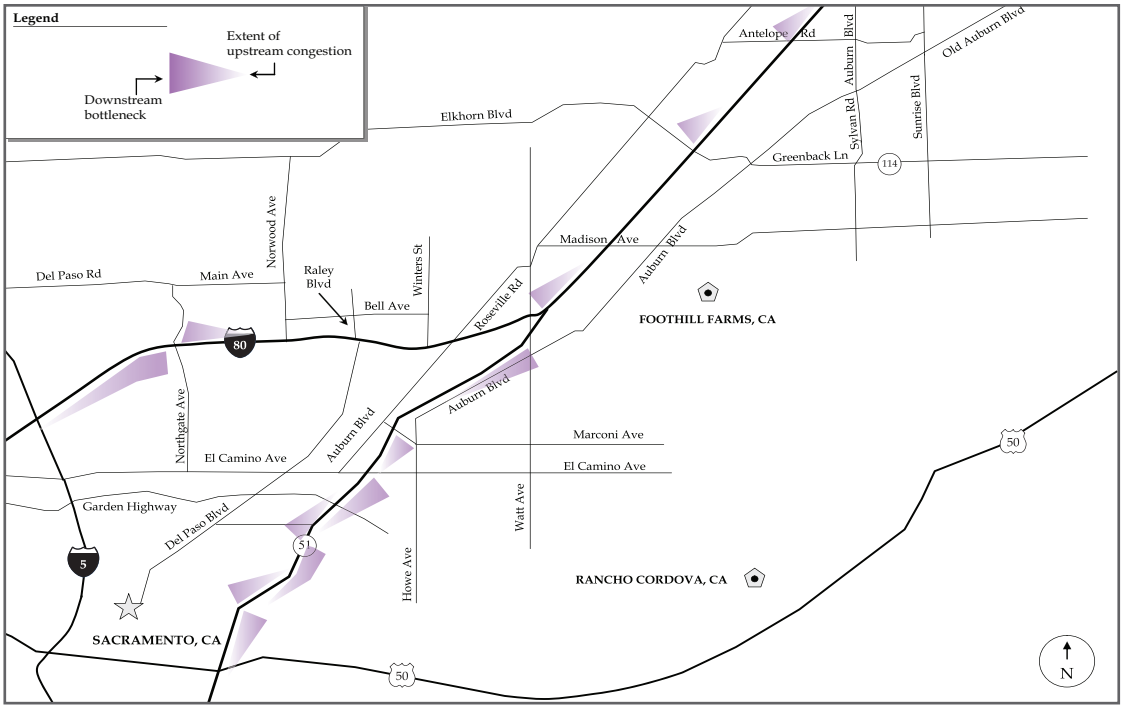


Figure 9: I-80/SR 51 PM Peak-Period Bottleneck Locations

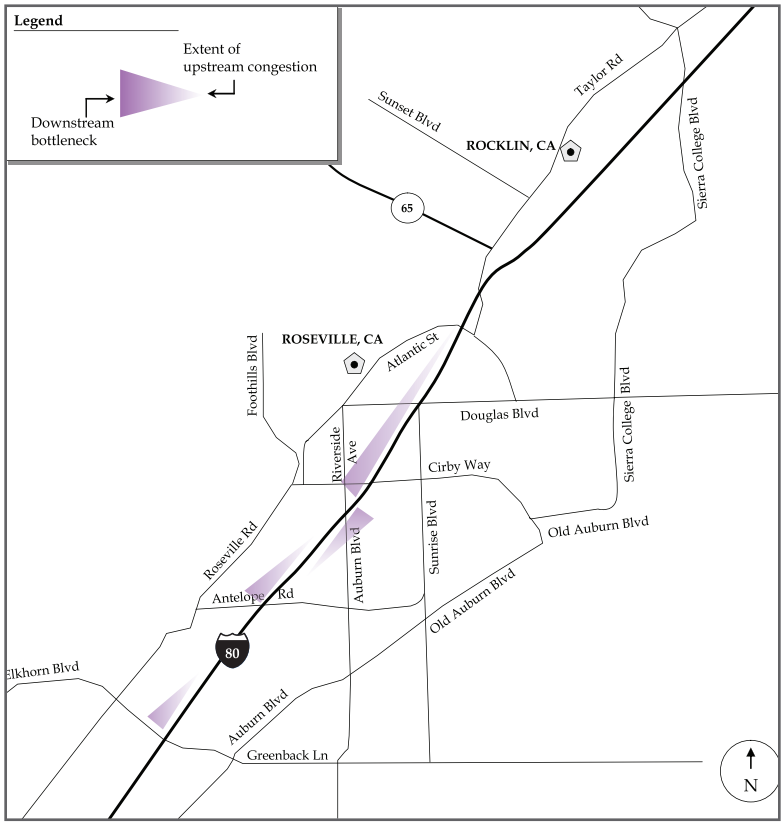


Figure 9: I-80/SR 51 PM Peak-Period Bottleneck Locations (continued)

TABLE 5: I-80 CSMP CURRENT AND FORECASTED TRAFFIC DATA

County	Location	Current Traffic Data – 2007					Future Traffic Data – 2027 (No Build)[4]			Future Traffic Data – 2027 (Build)[4]		
		% of Trucks	Peak Directional Split[1]	Peak Hour Traffic	Average Annual Daily Traffic[2]	Volume Over Capacity[3]	Peak Hour Traffic	Average Annual Daily Traffic[2]	Volume Over Capacity[3]	Peak Hour Traffic	Average Annual Daily Traffic[2]	Volume Over Capacity[3]
I-80												
SOL	SR 113N to SOL/YOL County line	6.7%	53%	9,100	118,000	0.57	14,100	182,900	0.88	14,100	182,900	0.88
YOL	SOL/YOL County line to Mace Bl.	8.8%	52%	11,100	126,000	0.96	16,810	190,800	1.45	17,510	198,800	1.13
	Mace Bl. to U.S. 50	7.4%	52%	11,500	149,000	1.00	17,770	230,300	1.55	18,140	235,000	1.18
	U.S. 50 to YOL/SAC County line	10%	60%	7,700	92,000	0.72	14,580	174,200	1.36	14,980	178,900	1.39
SAC	YOL/SAC County line to Interstate 5	9.5%	60%	7,700	92,000	0.72	13,270	158,600	1.24	13,760	164,500	0.96
	Interstate 5 to Capital City Freeway (State Route 51)	6.4%	60%	15,200	148,000	1.43	18,830	209,200	1.83	19,610	217,900	1.14
	State Route 51 to SAC/PLA County line	4.0%	60%	21,900	232,000	1.20	26,790	334,900	1.29	27,330	341,600	1.31
PLA	SAC/PLA County line to State Route 65	6.2%	56%	13,700	170,000	1.22	20,110	249,500	1.86	20,890	259,300	1.20
	State Route 65 to Horseshoe	5.6%	60%	10,800	122,000	1.06	16,180	182,800	1.59	16,470	186,100	1.21
Capital City Freeway (SR51)												
SAC	US 50/SR 99 Junction to Arden Way/SR 51/SR 160 Interchange	4.0%	59%	13,000	166,000	1.02	18,200	232,400	1.29	18,200	232,400	1.29
	Arden Way/ SR 51/SR 160 Interchange to I-80	4.0%	59%	11,800	151,000	1.08	16,520	211,400	1.54	16,520	211,400	1.54

1 Peak Directional Split: The percentage of total traffic in the heaviest traveled direction during the peak hour.
2 Average Annual Daily Traffic (AADT): The average number of vehicles per day in both directions.
3 Volume over Capacity (V/C): The volume of traffic compared to the capacity of the roadway.
4 Data derived from *SACMET Travel Demand* modal.

performance measures

Continuing corridor monitoring and performance measures are an integral part of corridor management and investment decision making and help identify immediate, efficient, and effective system operational strategies and capital improvements. Performance measures provide **the important dynamic daily information needed to rapidly address operational problems caused by recurrent and non-recurrent traffic congestion**. Measures are also used to identify the best improvement actions to generate the desired results.

Table 6 identifies the performance measures to be used as part of the corridor system management process.

BASELINE DATA FOR PERFORMANCE MEASURES

Tables 7, 8, and 9 display performance baseline data for the CSMP transportation network.

The baseline data for the performance measures applicable to the SHS was primarily compiled from the SACMET demand based traffic model, and from Caltrans' *2007 Traffic Volumes Manual, 2000 Highway Capacity Manual, Traffic Accident Surveillance and Analysis System (TASAS)*, and Division of Maintenance *2007 Pavement Summary Report*.

Additional performance data was derived from the Performance Measurement System (PeMS) tool, an Internet based tool used to host, process, retrieve, and analyze road traffic conditions information from real-time and historical data. PeMS obtains 30-second loop detector data in real-time from detectors installed along the highway corridor.

The baseline data for the performance measures applicable to the parallel and connecting roadways, and transit facilities and services was secured from staff at each applicable county and city jurisdiction, and transit service provider, as well as from the 2008 *I-80/SR 51 Corridor System Management Plan Existing Conditions Technical Report* prepared by Cambridge Systematics.

It should be noted that Average Daily Traffic (ADT) and LOS data for some Parallel and Connecting Roadways segment locations in Table 8 was not available. These are noted, "No Data."

Performance measures provide a sound technical basis for describing corridor performance, and comparing different investments and anticipated return on the investments.

Data collection for non-auto modes is not as robust as what is needed for active system management. Subsequent updates of this CSMP will seek to expand the availability of transit and bicycle performance data.

TABLE 6: PERFORMANCE MEASURES — DEFINITIONS AND APPLICABILITY

Performance Measure	Definition of Performance Measure	Applicability to Corridor
STATE HIGHWAY SYSTEM		
Level of Service (LOS)	A "report card" measurement with "A" being the least amount of congestion and "F" the most congested.	LOS is a relatively simple and widely used measure, which offers comparison opportunities.
Total Vehicle Hours of Delay	The additional travel time in hours experienced by **all** vehicles on the highway segment per day or at peak hour due to congestion.	This measurement is used to determine the cost, in time, which congestion can add to the regular travel time that it takes to traverse a segment of road, and is useful in quantifying the performance of a particular roadway in an understandable format.
Total Person Minutes of Delay	The additional travel time in minutes experienced by **all** persons in vehicles on the highway segment per day or at peak hour due to congestion.	This measurement is used to determine the cost, in time, which congestion can add to the regular travel time that it takes to traverse a given segment of road, and is useful in quantifying the performance of a particular roadway in an understandable format and for comparison of improvement options.
Minutes of Delay per Vehicle	The additional travel time in minutes experienced by **each** vehicle on the highway segment at peak hour due to congestion.	This measurement is used to determine the cost, in time, which congestion can add to the regular travel time that it takes to traverse a given segment of road.
Minutes of Delay per Person	The additional travel time in minutes experienced by **each** person in vehicles on the highway segment at peak hour due to congestion.	This measurement is used to determine the cost, in time, which congestion can add to the regular travel time that it takes to traverse a given segment of road.
Vehicle Travel Time (Minutes)	The average time spent by vehicles traversing between two points on a road or highway.	Travel time is a measure used to quantify travel time deficiencies and provide a personal indicator of congestion impacts.
Distressed Pavement	Pavement that rides rougher than established maximums and/or exhibits substantial structural problems as determined by the Pavement Condition Survey (PCS).	This measurement provides a ride quality indicator and an indicator for structural roadway problems.
Reported Collision Rate	Comparison of the actual total collision rate (%) along a highway segment above, or below, the statewide average for fatal, injury, and property damage-only collisions on comparable facilities.	Comparing the total collision and rate with statewide average rate provides an opportunity to assess safety conditions through the corridor.
Reliability	Identifies day-to-day variation in travel time for the same trip at the same time of day. Focuses on the predictability of travel time, particularly for repetitive trips.	Estimates reliability by defining the extra time travelers must add to their average travel time when planning trips to ensure on-time arrival (0 percent: no day-to-day variations, 100 percent: double allotted travel time).
Productivity	Measures the capacity of the corridor to accommodate vehicle or person throughput and is calculated as actual volume divided by the capacity of the highway.	As traffic volumes increase to roadway capacity, speeds decline rapidly and vehicle throughput drops dramatically, which increases traffic congestion and delay, and results in lost productivity.

TABLE 6: PERFORMANCE MEASURES — DEFINITIONS AND APPLICABILITY *(CONTINUED)*		
Performance Measure	**Definition of Performance Measure**	**Applicability to Corridor**
PARALLEL AND CONNECTING ROADWAYS		
Level of Service (LOS)	A "report card" measurement with "A" being the least amount of congestion and "F" being the most congestion.	LOS is a relatively simple and often used measure, which offers comparison opportunities.
TRANSIT		
Available Capacity	Ratio (%) of available transit capacity alternatives within the corridor.	This measure indicates the available capacity to accommodate diverted travelers from single occupant vehicles.
BICYCLE FACILITIES		
Placeholder	Placeholder	Placeholder

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TABLE 7: I-80 CSMP HIGHWAYS PERFORMANCE MEASURES

County	Location	Post Miles	Distance (Miles)	Average Annual Daily Traffic[1]	PERFORMANCE MEASURES												
					LOS[1]	Total Vehicle Hours of Delay[2]		Total Person Minutes of Delay[2]		Minutes of Delay per Vehicle[2]	Minutes of Delay per Person[2]	Vehicle Travel Time (Minutes)[2]	Distressed Pavement (Lane Miles)[4]	Reported Collision Rate Comparison (%)[5]	Reliability(%)[6]		Lost Productivity[7]	
						Daily	Peak Hour[3]	Daily	Peak Hour[3]	Peak Hour[3]	Peak Hour[3]	Peak Hour[3]			East/ Northbound	West/ Southbound	Lost Lane Miles AM Peak Period	Lost Lane Miles PM Peak Period
STATE HIGHWAY SYSTEM																		
I-80																		
SOL	SR 113 N to SOL/YOL County line	42.67/44.72	2.05	118,000	C	29	7	2,381	481	0.05	0.04	2.10	9	-31	PeMS Data Unavailable		PeMS Data Unavailable	PeMS Data Unavailable
YOL	SOL/YOL County line to Mace Bl. Interchange	0.00/ 2.68	2.68	126,000	E	222	44	18,145	2,935	0.24	0.22	2.92	4	-35	375%	110%	0	0
	Mace Bl. Interchange to U.S. 50 Jct.	2.68/ 9.55	6.88	149,000	F	1,903	381	155,290	25,120	1.90	1.73	8.78	6	-45	288%	393%	0	PeMS Data Unavailable
	U.S. 50 Jct. to YOL/SAC County line	9.55/ 11.72	2.17	92,000	D	22	6	1,830	370	0.04	0.04	2.21	3	15	232%	393%	PeMS Data Unavailable	PeMS Data Unavailable
SAC	YOL/SAC County line to I-5 Jct.	0.00/ 2.55	2.55	92,000	D	248	62	20,198	4,084	0.48	0.44	3.03	9	-17	103%	601%	0	0
	I-5 Jct. to SR 51 Jct.	2.55/ 10.99	8.44	148,000	F	3,817	825	311,475	54,467	3.26	2.96	11.70	20	-31	149%	126%	0	0
	SR 51 Jct. to SAC/PLA County line	10.99/18.00	7.01	232,000	F	4,935	740	402,734	53,747	2.03	1.68	9.04	17	-22	141%	158%	116	124
PLA	SAC/PLA County line to SR 65 Jct.	0.00/ 4.16	4.16	170,000	F	4,849	727	395,652	48,002	3.19	2.90	7.35	11	-24	300%	107%	PeMS Data Unavailable	0
	SR 65 Junction to Sierra College Bl. Interchange	4.16/ 7.42	3.26	122,000	F	393	79	32,046	5,184	0.44	0.40	3.70	4	-57	287%	109%	PeMS Data Unavailable	PeMS Data Unavailable
TOTAL		–	**39.19**	–	–	**16,418**	**2,871**	**1,339,751**	**194,390**	**11.63**	**10.41**	**50.83**	**83**	–	–	–	–	–
CAPITAL CITY FREEWAY (SR 51)																		
SAC	US 50/SR 99 Jct. to SR 160/Arden Way	0.00/4.35	4.35	166,000	F	3,636	953	296,715	64,899	4.00	3.53	8.35	6	50	475%	182%	6.7	22.5
	SR 160/Arden Way to I-80	4.35/8.86	4.61	151,000	F	2,702	593	220,485	39,162	3.21	2.92	7.72	10	9	198%	186%	0.4	0.9
TOTAL		–	**8.86**	–	–	**6,338**	**1,546**	**517,200**	**104,061**	**7.21**	**6.45**	**16.07**	**16**	–	–	–	–	–

1 Source: **State Highways**-Average Annual Daily Traffic and Level of Service (LOS) calculated based on 2007 Caltrans' Traffic Volumes on California State Highways and Highway Capacity Manual, and Cambridge Systematics 2008 Existing Conditions Report. Reported LOS is for the typical most congested daily peak travel period.

2 Source: Delay is the average additional travel time by vehicles/persons traveling under 60 mph. Data derived from SACMET Travel Demand Model, PeMSs traffic data, and Caltrans' District 3 2007 HICOMP report and Traffic Operations Probe vehicle Tach. runs.

3 Peak Hour is during PM

4 Source: 2007 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.

5 Source: 2004 through 2007 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.

6 Reliability: The Planning Time Index, is a measure of the reliability of the travel time on a particular route. It is the ratio of the 95th percentile of travel time on a route to the median free-flow travel time. This means it's the amount of time a traveler needs to allocate for a route if they want to show up on time 19 out of 20 trips. Reliability and Planning Time data was retrieved from PeMS April 1 through 27, 2007. The data covered a 24-hour period of time on each Tuesday, Wednesday, and Thursday of that month. That data was then aggregated into a single average 24-hour day. It was then analyzed to determine the highest average AM and PM travel time. That time was then compared to the best possible average travel time to determine the additional time that was spent traveling the same segment. **Note: The percentages listed are the "worse-case" scenario for the time range**. Changes in travel times (best vs. highest) within segments with a short travel distance can show a dramatic increase in travel time when listed as a percentage—i.e. 2:21 minutes (best) vs. 14:09 minutes (highest) is a 601% increase in travel time.

7 Lost Productivity: Data retrieved from PeMS April 1 through 27, 2007. As traffic increases to the capacity of the highway, speeds decline, throughput drops dramatically, and the efficiency of the highway to provide mobility decreases. This decline in the potential carrying-capacity of the freeway is expressed in terms of how many equivalent lane miles of roadway are lost. **Note: PeMS data not available at all locations; some count stations may not have been functioning.**

TABLE 8: I-80 CSMP PARALLEL AND CONNECTING ROADWAYS PERFORMANCE MEASURES

County	Location	Average Daily Traffic[1]	PERFORMANCE MEASURES								
			LOS[1]	Total Vehicle Hours of Delay		Total Person Minutes of Delay[2]		Minutes of Delay per Vehicle	Minutes of Delay per Person	Vehicle Travel Time (Minutes)	Distressed Pavement (Lane Miles)
				Daily	Peak Hour[3]	Daily	Peak Hour	Peak Hour	Peak Hour	Peak Hour	
PARALLEL AND CONNECTING ROADWAYS											
SOL	**SR 113:** I-80 Interchange to YOL County line/Russell	41,000	B								
YOL	**SR 113:** YOL County line/Russell Bl. to I-5, Woodland	39,000	B								
	I-5: SR 113, Woodland to SAC County line	54,000	C								
	COVELL BL.: SR 113 to F. St.	18,080	D[2]								
	COVELL BL: F. St. to Mace Bl.	13,338	A-C								
	MACE BL.: Covell Bl. to Chiles Rd.	21,625	B-C								
	COWELL BL.: I-80/Richards Bl to Chiles Rd.	5,702	A								
	CHILES RD./CR 32B: Cowell Bl. to Mace Bl.	6,752	A								
	CHILES RD./CR 32B: Mace Bl. to I-80 Yolo Causeway	4,403	A								
	CR 32A: Mace Bl. to CR 105	1,683	A-B								
	CR 32A: CR 105 to I-80 Yolo Causeway	No Data	A-B								
	W. CAPITOL AV.: I-80/Enterprise/W. Capitol Av. to Harbor Bl.	No Data	No Data								
	HARBOR BL.: W. Capitol Av. to Reed Av.	14,533	No Data								
	REED AV.: Harbor Bl. to I-80	No Data	No Data								
SAC	**I-5:** YOL County line to I-80 Interchange	152,000	E								
	SR 160: American River Bridge to SR 51	53,500	E								
	SR 244: SR 51 to Auburn Bl.	32,000	B								
	AUBURN BL: Marconi Av. to Winding Way	23,943	A-C								
	AUBURN BL: Winding Way to SR 244 to Myrtle Av.	38,900	F								
	AUBURN BL: Myrtle Av. to Manzanita Av.	27,700	C								
	AUBURN BL: Manzanita Av. to Riverside Av.	No Data	No Data								
	ROSEVILLE RD.: Auburn Bl./Marconi Ci. to Longview Dr.	No Data	B								
	ROSEVILLE RD.: Longview Dr. to Winona Way	No Data	F								
	ROSEVILLE RD.: Winona Way to Madison Av.	23,700	A								

Data is unavailable for these performance measures at this time, however will be pursued in the next phase of the CSMP.

TABLE 8: I-80 CSMP PARALLEL AND CONNECTING ROADWAYS PERFORMANCE MEASURES *(CONTINUED)*

County	Location	Average Daily Traffic[1]	PERFORMANCE MEASURES								
			LOS[1]	Total Vehicle Hours of Delay		Total Person Minutes of Delay[2]		Minutes of Delay per Vehicle	Minutes of Delay per Person	Vehicle Travel Time (Minutes)	Distressed Pavement (Lane Miles)
				Daily	Peak Hour[3]	Daily	Peak Hour	Peak Hour	Peak Hour	Peak Hour	
PARALLEL AND CONNECTING ROADWAYS											
SAC	**ROSEVILLE RD.:** Walerga Rd. to Diablo Dr.	13,600	C	Data is unavailable for these performance measures at this time, however will be pursued in the next phase of the CSMP.							
	ROSEVILLE RD.: Diablo Dr. to Cirby Way	19,000	E-F[2]								
	WATT AV.: Roseville Rd. to Auburn Bl.	69,000	F								
	MARCONI AV.: Auburn Bl. @ Roseville Rd. to I-80	No Data	A-C								
	MADISON AV.: Roseville Rd. to Auburn Bl.	59,000	E-F[2]								
	ELKHORN BL./GREENBACK LN.: Roseville Rd. Underpass to Auburn Bl.	No Data	D-F								
	ANTELOPE RD.: Roseville Rd. to Auburn Bl.	45,700+	D[2]								
PLA	**RIVERSIDE AV.:** Auburn Bl. to Cirby Way	42,285	F								
	CIRBY WY.: Roseville Rd. to Riverside Av.	40,203	D[2]								
	ATLANTIC ST.: Wills Rd./Galleria Bl. to Taylor Rd.	No Data	C								
	TAYLOR RD.: Eureka Rd. To Plumber St.	17,872	D								
	PACIFIC ST.: Plumber St. to Taylor Rd.	13,251	No Data								
	TAYLOR RD.: Pacific St. to Sierra College Bl.	13,251	No Data								
	SIERRA COLLEGE BL.: I-80 to Taylor Rd.	No Data	No Data								

1 Source: **Parallel Roads**-Average Daily Traffic and Level of Service (LOS) calculated based on data supplied by cities and counties between 01/08 through 08/08, from City of Davis *5-Year ADT Counts* dated 1-13-8, from City of Sacramento 2005 General Plan Update-Figure 3.1-3 (Level of Service and Peak Hour Volumes), or from 24-Average Daily Traffic Counts conducted by Cambridge Systematics on 2-13-8/2-14-8 and on 3-5-8/3-6-8. Roadway segments within known congested parallel and connector roadways where LOS was not available were identified as "No Data". The missing data will be sought during subsequent updates of the CSMP.
2 Portions of the roadway have an identified LOS at D, E, or F.

TABLE 9: I-80 CSMP TRANSIT PERFORMANCE MEASURE			
County	**Transit Provider**	**Route**	**Performance Measure**
			Available Daily/Peak Capacity(%)[1]
TRANSIT			
Heavy Rail: Amtrak			
YOL, SAC, PLA	Capitol Corridor	518, 520-538, 540-549, 551, 553	72/23
Light Rail: Blue Line			
SAC, PLA	SRTD	Watt/I-80	65/7
Bus			
SOL, YOL, SAC	FSTS	Routes 20, 30	50/ No Data
YOL, SAC	YCTD	Route 42	6/ No Data
		Route 43	13/ No Data
		Route 44	37/ No Data
		Route 230	32/ No Data
		Route 231	78/ No Data
		Route 232	49/ No Data
SAC, PLA	SRTD	Route 100	73/62
		Route 101	65/67
		Route 102	85/79
		Route 103	69/66
		Route 104	77/66
		Route 106	74/71
		Route 107	84/75
YOL, SAC	UCD-Taps	Various: UCD/UCDMC	No Data
SAC, PLA	PCT	Various: Colfax – Downtown Sacramento	39/ No Data
SAC, PLA	Roseville Transit	Routes 1 - 8	44/ No Data
YOL, SAC, PLA	Amtrak	Various: 3524 through 3814	29/ No Data
Bike			

1 Available capacity calculated from each transit provider's route ridership data for daily and peak hours.
2 Bicycle performance measure(s) will be identified, applied, and included in subsequent CSMPs.

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planned corridor system management strategies

CONCEPT LOS AND CONCEPT FACILITY

"Concept LOS" and *"Concept Facility"* have traditionally been used in Caltrans TCCRs to reflect the minimum level or quality of operations acceptable for each route segment within the 20-year planning period and the highway facility needed in the next 20-years to maintain the Concept LOS.

Typical Concept LOS standards in Caltrans District 3 are LOS "D" in rural areas and LOS "E" in urban areas. However, some heavily congested route segments now have a Concept LOS "F", because the improvements required to bring the LOS to "E" are not feasible due to environmental, right of way, financial, and other constraints. The application of multi-modal corridor management strategies should reduce the severity and duration of congestion and provide viable travel options and information that will enable a traveler to avoid severe freeway congestion.

The Concept LOS and Concept Facility for I-80 and SR 51 are shown in Table 10. Almost all I-80 and all of SR 51 segments are forecasted to operate under LOS "F" conditions in 20 years under the *"No-Build"* and *"Concept"* (Build) scenarios.

CORRIDOR MANAGEMENT STRATEGIES

The *I-80 CSMP* also proposes specific strategies to enhance corridor mobility (see Table 11), based on the following principles:

- Manage all modes and facilities in the corridor as a single system, beginning with the transportation network defined in this CSMP.
- Implement comprehensive and dynamic multimodal monitoring and reporting for the system and for all modes.
- Develop and use micro-simulation modeling to identify mobility challenges and to evaluate proposed solutions.
- Complete the projects included in the regional transportation plans, with an emphasis on the completion of the key mobility improvement projects identified in this CSMP (see Table 12).
- Implement the specific strategies outlined in this CSMP.

The I-80 CSMP proposes specific strategies to enhance corridor mobility.

The implementation strategies have not been prioritized.

KEY CAPITAL PROJECTS

Tables 12 and 13 list key capital projects that have been identified as the most critical to corridor mobility. These projects have been placed in one of three categories: *"Programmed"*, *"Planned"*, or *"Visionary"*. The *Programmed* and *Planned* projects in Table 12 are already identified in the SACOG *MTP 2035* (MTP) and are either planned without any funding yet programmed, partially programmed, or entirely programmed. SACOG conducted significant public attitude research for the *MTP 2035* to complement comprehensive outreach efforts

through community workshops, the *TALL Order: Moving the Region Forward event, the televised town hall Road Map* for the future, and associated public polling. The results of the SACOG analyses and public outreach for the MTP were used when selecting the key projects for identification in the CSMP and to ensure consistency. Not all corridor projects in the MTP are included in the CSMP since the CSMP focuses on the managed network and the SACOG MTP considers all streets and roads, bike routes, and transit services in the corridor.

The Visionary projects in Table 13 are not yet included in the MTP, but appear to offer considerable mobility benefits, and merit further analysis and consideration for inclusion in the next MTP. One of the Visionary projects, HOV lanes on I-80 from Mace to the Yolo/Solano County line, will require continuous coordination with Caltrans District 4 so that connectivity is seamless.

The *"Plus 10% List"* in the SACOG MTP identifies projects that are attractive from a performance standpoint, but could not be included in the Final Project Lists because of financial constraint. The *"Plus 10% List"* element offers the opportunity to include projects that would not be affordable without additional funding. Some projects identified in the *Visionary* projects list were analyzed by SACOG during development of the current MTP. Some of these are included in the *"Plus 10% List."*

TABLE 10: I-80 CSMP CONCEPT LOS AND FACILITY TYPE

Location				Forecasted Level of Service[1] (LOS) and Facility Type					
County	Description and Location	From Post Mile	To Post Mile	Current LOS[1]	20-Year No Build LOS[1,2]	20-Year Concept LOS[1,3]	Existing Facility[4]	Concept Facility[4,5,6]	Ultimate Facility[4,5,7]
I-80									
SOL	SR 113N to SOL/YOL County line	42.67	44.72	C	D	D	8F	8F	8F
YOL	SOL/YOL County line to Mace Boulevard	0.00	2.68	E	F	F	8F to Richards, 6F to Mace	8F to Richards, 6F to Mace	8F+2HOV to Richards, 6F+2HOV to Mace
	Mace Boulevard TO U.S. 50	2.68	9.55	F	F	F	6F	6F + 2 HOV to Enterprise	6F + 2 HOV to Enterprise
	U.S. 50 to YOL/SAC County line	9.55	11.72	D	F	F	6F	6F	6F + 2HOV
SAC	YOL/SAC County line to I-5	0.00	2.55	D	F	F	6F	6F + 2HOV	6F + 2HOV
	I-5 to Capital City Freeway (SR 51)	2.55	10.99	F	F	F	6F to Longview + 2AUX to Northgate, 6F + 2HOV + 2AUX to Watt, 6F + 2HOV to SR 51	6F + 2HOV + 2AUX[8]	6F + 2HOV + 2AUX[8]
	SR 51 to SAC/PLA County line	10.99	18.00	F	F	F	6F + 2HOV + 6AUX to Madison, 6F + 2HOV + 3AUX to Greenback, 6F + 2HOV + 2AUX to SAC/PLA line	6F + 2HOV + 6AUX to Madison, 6F + 2HOV + 3AUX to Greenback, 6F + 2HOV + 2AUX to SAC/PLA line	6F + 2HOV + 6AUX to Madison, 6F + 2HOV + 3AUX to Greenback, 6F + 2HOV + 2AUX to SAC/PLA line
PLA	SAC/PLA County line to SR 65	0.00	4.16	F	F	F	6F + 2HOV + 2AUX to Riverside/Auburn, 6F + 1AUX to Douglas, 6F + 2AUX to SR 65	6F+2HOV+ 2AUX to Douglas, 6F+2 HOV+4AUX to SR 65	6F+2HOV+ 2AUX to Douglas, 6F+2 HOV+4AUX to SR 65
	SR 65 to Sierra College Boulevard	4.16	7.42	F	F	F	6F	6F	6F+2HOV
CAPITAL CITY FREEWAY (SR51)									
SAC	US 50/SR 99 Junction to Arden Way/SR 160 Interchange	0.00	4.35	F	F	F	6F + 2HOV to N + 2AUX to J, 6F to Arden	6F + 2HOV to N + 2AUX to J, 6F to Arden	6F + 2HOV to N + 2AUX to J, 6F to Arden
SAC	Arden Way/SR 160 Interchange to I-80	4.35	8.86	F	F	F	6F + 2AUX to Marconi, 6F to I-80	6F + 2AUX to Marconi, 6F to I-80	6F + 2AUX to Marconi, 6F to I-80

1 Level of Service (LOS): A "report card" for evaluating traffic flow with "A" being the least congested and "F" being the most congested.
2 20-Year LOS (No Build): The LOS that would be expected at 20 years with no improvements.
3 20-Year Concept LOS: The minimum acceptable LOS over the next 20 years.
4 Facility Type Codes: C=Conventional Highway; E=Expressway; F=Freeway; HOV=High Occupancy Vehicle Lanes; Aux=Auxiliary Lanes.
5 Operational Improvements are included in future facilities for all segments. Examples of operational improvements include TOS improvements and Auxiliary lanes.
6 Concept Facility: the future roadway with improvements needed in the next 20 years. If LOS "F," no further degradation of service from existing "F" is acceptable, as indicated by delay performance measurement.
7 Ultimate Facility: The future roadway with improvements needed beyond a 20 year timeframe.
8 Auxiliary lanes are/will be located between major interchanges from I-5 to Northgate, W. El Camino to I-5, and Norwood to Northgate.

TABLE 11: I-80 CSMP IMPLEMENTATION STRATEGIES

Strategy	Description	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.	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.	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 Regional Transportation Plan for all transportation modes within the scope, schedule, and cost specified.	Funding availability, funding competition within the region.
Comprehensive daily monitoring of the status of all modes providing service on the CSMP transportation network.	Full deployment of multimodal transportation service status detection systems for all CSMP network components.	Funding availability, funding competition within region.
Provide traveler information to the public.	Provide the public with real-time easily accessible information regarding the status of all CSMP transportation system components so as to allow travelers to make informed decisions about trip mode, time, and routing options.	Funding availability, funding competition within 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.	Staff resources and data availability.
Decrease the occurrence and duration of non-recurrent traffic congestion.	Expand and enhance the Freeway Service Patrol to respond to automobile accidents and vehicle break-downs.	Funding availability, funding competition within the region.
Enhance transit and rail service.	Increase transit service frequency, provide express transit services, implement bus rapid transit routes, reduce headways for light rail and buses, and construct planned light rail line extensions.	Funding availability, funding competition within the region.
Timely implementation of STARNET.	Expedite the implementation of the Sacramento Transportation Area Network (STARNET) operators of transportation facilities and emergency responders in the Sacramento region through real-time sharing of data and live video, and refinement of joint procedures pertaining to the operation of roadways and public transit, and public safety activities as well as enhance the region's 511 web site and interactive telephone service to provide more traveler information.	Developmental time, acceptance by agencies, and integration into daily use, and identification of maintenance and operations funding.
Complete express Bus/Carpool lane network.	Complete the regional express bus/carpool lane network, including freeway-to-freeway HOV lane connectors.	Funding availability, funding competition within the region. Public agency and public acceptance of network.

TABLE 11: I-80 CSMP IMPLEMENTATION STRATEGIES *(CONTINUED)*

Strategy	Description	Implementation Challenges
Enhance Transportation Demand Management strategies.	Encourage employers to provide telecommuting and flexible work hour options to employees.	Acceptance by employers and resources to participate.
Optimize the timing and synchronization of traffic signals.	Coordinate the optimization and timing of traffic signals on freeway ramps, and along parallel and connecting roadways within and between jurisdictions to improve traffic flow and reduce congestion. Provide signal priority systems for transit vehicles.	Funding availability and coordination among cities, counties, and Caltrans.
Improve access management practices for freeways and parallel/connecting roadways.	Develop and implement access management strategies to maintain the operational efficiency of freeways and parallel/connecting roadways.	Agreement between responsible jurisdictions as to where increased access control is needed. Increased access control on some parallel/connecting roadways may increase traffic volumes on non-corridor roads.
Develop innovative use of Changeable Message Signs (e.g.; travel times).	Potential uses of CMSs to improve system efficiency include the use of CMSs along portions of all corridors near transit station to indicate travel times based on real-time existing traffic conditions on the freeway, parallel roadways and express bus and light rail services, as well as information regarding the next available transit option to use as an option to continuing the trip by private vehicle.	Funding availability, funding competition within the region.
Implement & expand Transit Automatic Vehicle Locator (AVL)/ Transit status information enhancements for system users.	Expand the use of AVL systems utilizing GPS technology to track in real-time the location of transit vehicles, monitor transit schedules, dispatch transit vehicles, and provide real-time passenger information such as “next bus” or “next train” arrival times.	Funding availability, funding competition within the region.
Expand Park-and-Ride lots at key locations	Add additional capacity to existing park-and-ride lots at or approaching capacity near transit stations and other locations.	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, park and ride lots, and destination points.	Funding availability and funding competition within the region.
Provide “Bike-Sharing”/”Car-Sharing” to/from transit (“Carlink”), and from neighborhoods.	Expand the *Regional Rideshare* and *Spare-the-Air* programs to include bicycle and car sharing opportunities.	Funding availability and coordination between SACOG, TMA, Air Districts, employers, developers, property managers, and local government officials.
Provide parking management strategies in interested jurisdictions, where applicable, to discourage use of single-occupant vehicles.	In higher-density areas, provide preferential parking for carpools and vanpools, require residential parking permits, remove on-street parking, and/or provide graduated parking fees for metered on-street parking based on vehicle type and time of day for SOV spaces to encourage transit use.	Acceptance by businesses local officials, and the general public
Expand bicycle commute & transit fare strategies/ subsidies	Increase participation by large employers in programs that subsidize transit fares for employees during peak-hour commute times and provide bicycling to work incentives.	Voluntary participation by large employers to pay subsidy to transit providers.
Study use of HOT lanes and possible establishment of HOT lane pilot program.	Study potential for use of high-occupancy toll lanes along I-80 on existing and future Bus/carpool lanes from SR 65 in Placer County to the I-5 interchange in Sacramento County, including the applicability to other corridors.	Funding availability and acceptance of use of tolls as a congestion management strategy. Also, costs for lane conversions.

TABLE 12: I-80 CSMP KEY PROGRAMMED AND PLANNED CAPITAL PROJECTS

PROGRAMMED PROJECTS[1]

County/Lead Agency	Route/ Roadway	From	To	Project Description	Programmed Funds	Additional Funding Needed	Total Cost Estimate (x $1,000)	Comp Year (FFY)
HIGHWAYS								
SAC/CT	I-80	East of Sacramento River Bridge	Watt Avenue/ SRT LR Station	Across the Top: Construct HOV (bus/ carpool) lanes in both directions, install TOS elements	$160 M. - Sac. County Meas. A: $100 M., SHOPP: $10 M., GARVEE: $50 M.	$100 M.	$260,000	2015
SAC/CT		West El Camino Av. IC	I-5/I-80 Separation	Across the Top: Construct auxiliary lanes in both directions	"	"	"	2015
SAC/CT		Northgate Bl. IC	Norwood Av. IC	Across the Top: Construct auxi. lanes in both directions, 2009 SACOG Project Delivery Plan	" & SHOPP 310	"	$2,000-3,000 portion of above	2011
SAC/CT		I-5/I-80 Separation	I-5/I-80 Separation	Reconstruct IC, construct HOV lane connector and HOV lanes on I-5 to downtown Sacramento	Sac. County Meas. A: $100.0 M., Other: $1.5 M.	$198.5 M.	$300,000	2020
PLA/CT		West of Sacramento /Placer County line	Between Lead Hill Bl. O-Xing and Eureka Road (Miners Ravine)	Fixing the Bottleneck: Construct HOV and auxiliary lanes in both directions, widen bridge and modify ramp, install TOS elements, Ph. 2	CMIA: $17.7 M., Nat. Corr. Infrastr. Imprvmt. Progm., PCTPA-TIMF, IIP, Fed. HPP Demo: $29.9M.	$0.0	$47,577	2011
PLA/CT		Miners Ravine	SR 65	Fixing the Bottleneck: Construct HOV and Auxiliary lanes in the west- and east-bound directions, Ph. 3	CMIA: $35.6 M., Demo: $13.9 M.	$0.0	$49,460	2012

TABLE 12: I-80 CSMP KEY PROGRAMMED AND PLANNED CAPITAL PROJECTS *(CONTINUED)*

PROGRAMMED PROJECTS[1]								
County/Lead Agency	**Route/ Roadway**	**From**	**To**	**Project Description**	**Programmed Funds**	**Additional Funding Needed**	**Total Cost Estimate (x $1,000)**	**Comp Year (FFY)**
PARALLEL AND CONNECTOR ROADWAYS								
SAC/SACOG	Various	Covers greater Sacramento Area	Covers greater Sacramento Area	Develop & install an information exchange system-the Sacramento Transportation Area Network, connect 18 traffic & emergy. centers	$4.90 M. – Local Funds, RST, CMAQ	$0.0	$4,895	2011
SAC/Sac. County	TBD	Various	Various	Construct traffic operations system center, Stage 2	$16.0 M. – Local Funds	$4.6 M.	$20,585	2015
SAC/Sac. County	Roseville Rd.	Watt Av.	Antelope Rd.	Widen to 4-lanes	$38,422	$19.4 M.	$57,865	2020
RAIL								
SAC/Sac. City	TBD	Sacramento Valley Station		Develop intermodal transportation terminal for heavy rail, light rail, and bus service (Ph. 1)	$77.8 M.	$0.0	$77,799	2010
SAC/Sac. City	TBD	Sacramento Valley Station		Develop intermodal transportation terminal (Ph. 2)	$24.1 M.	$1.0 M.	$25,101	2014
SAC/SRTD	Various	I-80/ Watt Av. LR Station	Downtown Sacramento	Double track existing single track sections, improve alignment of the Northeast Corridor LRT, upgrade traction power system & signaling, installation of communications	$34.5 M. - Local Funds., STA, TCRP, Sac. County Meas. A	$3.4 M.	$37,919	2010
SOL, YOL, SAC, PLA	Various	Dixon	Auburn	Start-up commuter rail for peak periods on UPRR ROW, 3-yr. leased rolling stock, 2-3 new stations, procure 2 train sets	$22.73 M. – CMAQ, Local Funds	$0.0	$22,700	2019
YOL & SAC-YCTD	TBD	Harbor Bl., W. Sacramento	Downtown Sacramento	Streetcar starter line service	$17.4 M.	$54.7 M.	$72,100	2014
BICYCLE AND PEDESTRIAN								
SAC/Citrus Heights	Antelope Rd.	Auburn Bl.	I-80	Construct sidewalks, Class II bicycle lanes, sound walls, landscaping, and traffic signals	$8.8 M. - City of Citrus Heights	$1.0 M.	$9,760	2010

TABLE 12: I-80 CSMP KEY PROGRAMMED AND PLANNED CAPITAL PROJECTS *(CONTINUED)*

PLANNED PROJECTS[1]

County/Lead Agency	Route/ Roadway	From	To	Project Description	Total Cost Estimate (x $1,000)	Comp Year (FFY)
HIGHWAYS						
YOL/CT	I-80	Mace Bl.	Enterprise Bl.	Add HOV lane and replace bicycle bridge	$301,955	2035
SAC/CT		Sacramento River Bridge	East of Del Paso Overhead	Replace # 3 lane	$130,000	2035
PLA/Roseville		SR 65 IC	SR 65 IC	Reconstruct IC and upgrade traffic monitoring system	$102,600	2027
PARALLEL AND CONNECTOR ROADWAYS						
SAC/Sac		SR 160	SR 51	Construct 4-lane Sutters Landing Parkway	$206,364	2030
SAC/SAC County	Roseville Rd.	Antelope Rd.	Placer County line	Widen to 4-lanes	$16,306	2035
TRANSIT						
SAC, PLA/ SRTD & PCT	Various	Sacramento County	Placer County	Add Bus Rapid Transit along I-80 (BRT-1): Watt-I-80 LRT, SR 65, Rsvl. Galleria, Blue Oaks, Foothills, Sunset, proposed CSU, Placer. Additional routes proposed along Watt Av. (BRT-2), and Sierra College Bl. (BRT-3)	BRT-1, Ph.1: to $4,800. All Rtes/ Phases: to $270,544	2035
SAC, PLA/ SRTD & PCT	Various	Sacramento County	Placer County	Add Bus Rapid Transit along I-80 (BRT-1): Watt-I-80 LRT, SR 65, Rsvl. Galleria, Blue Oaks, Foothills, Sunset, proposed CSU, Placer. Additional routes proposed along Watt Av. (BRT-2), and Sierra College Bl. (BRT-3)	BRT-1, Ph.1: to $4,800. All Rtes/ Phases: to $270,544	2035
RAIL						
SAC/SRTD	Various	Greater Sacramento Area	Greater Sacramento Area	Major rehab. And enhancement of LR stations, including parking lot/sidewalk repairs, mini high shelters, slurry seal, restriping, curb replacement, landscape replanting, drainage improvements, fencing repairs	$33,426	2035
SAC/SRTD	Various	Greater Sacramento Area	Greater Sacramento Area	Install Smart Transit System ITS applications	$72,482	2013
SAC/SRTD	Various	Watt Av.	Antelope Rd./U St.	Extend light rail from Watt Av. To Antelope Rd.	$290,000	2025
SAC, PLA/CT	Various	PLA & SAC Counties	PLA & SAC Counties	Add third track to existing UP rail line for improvement to rail freight and possible future passenger service (partially programmed)	$249,338	2014
SOL/PLA	Various	Greater Sacramento Area	Greater Sacramento Area	Purchase 3 modern train sets with a locomotive to the Capital Corridor passenger rail service	$48,000	2010
SOL, thru PLA	Various	Davis	Colfax	Capital Corridor, rail replacement and expansion	$204,125	2035

TABLE 12: I-80 CSMP KEY PROGRAMMED AND PLANNED CAPITAL PROJECTS *(CONTINUED)*						
PLANNED PROJECTS[1]						
County/Lead Agency	**Route/ Roadway**	**From**	**To**	**Project Description**	**Total Cost Estimate (x $1,000)**	**Comp Year (FFY)**
BICYCLE AND PEDESTRIAN						
SAC/Sac.	TBD	American River Bikeway	Sutter's Landing Park	Sutter's Landing: Construct bicycle and pedestrian bridge	$7,530	2020
SAC/Citrus Hgts.	Old Auburn Rd	Fair Oaks Bl.	N. Citrus Heights city limit	Widen to 3-lanes, include Class I Bike lane	$9,500	2008

1 "Programmed" projects are included in the SACOG MTIP 2009/12 or in the State Highways Operation and Protection Program (SHOPP), "Planned" projects are included in the SACOG MTP 2035 or Ten-Year SHOPP Plan.

TABLE 13: I-80 CSMP KEY VISIONARY CAPITAL PROJECTS				
VISIONARY PROJECTS[1]				
County/Lead Agency	**Route/ Roadway**	**From**	**To**	**Project Description**
HIGHWAYS				
YOL/CT	I-80	Solano/Yolo County line	Mace Bl.	Construct HOV lanes
YOL/SAC/CT		Enterprise Bl.	East side of Sac. River Bridge	Construct HOV lanes
PLA/CT		SR 65	SR 49	Construct HOV lanes
PARALLEL AND CONNECTOR ROADWAYS				
SAC/Sac.	TBD	City of Sacramento	City of Sacramento	Define location for and construct bridge for multimodal use over the American River near SR 51
YOL, SAC/ TBD	TBD	City of W. Sacramento	City of Sacramento	Define location for and construct bridge for multimodal use over the Sacramento River near I-80
YOL, SAC, PLA	Various	Various	Various	Construct additional lanes or operational improvements to the parallel and connector roadways that have a LOS of "D", "E", and "F".

TABLE 13: I-80 CSMP KEY VISIONARY CAPITAL PROJECTS *(CONTINUED)*

VISIONARY PROJECTS[1]				
County/Lead Agency	**Route/ Roadway**	**From**	**To**	**Project Description**
TRANSIT				
SAC, PLA/ SRTD, Rsvl. Transit	TBD	Various	Various	Implement and expand Automatic Vehicle Locater systems
YOL, PLA/ Various	Various	Various	Various	Construct new or expand existing park-and-ride lots in the vicinity of the Davis Amtrak, West Sacramento Enterprise , Roseville Amtrak, and Roseville Taylor Road lots.
RAIL				
SOL, PLA/ TBD	TBD	Dixon	Auburn	Purchase 8 commuter rail trains, Dixon/Sacramento/Auburn service
SAC, PLA/ SRTD	TBD	SAC County	PLA County	Extend light rail North Watt/ Pleasant Grove to Roseville Galleria
BICYCLE AND PEDESTRIAN				
YOL	TBD	West Yolo Causeway	East Yolo Causeway	Construct bicycle bridge
SAC	I-80	UPPR/ Roseville Road		Construct I-80, pedestrian and bicycle crossing
SAC		Greenback Ln.	Antelope Bl.	Construct pedestrian and bicycle crossing between Greenback/Antelope
SAC		Foothill Golf Center		Construct I-80, bicycle and pedestrian crossing, Citrus Heights

1 "Visionary" projects are not yet included in the MTP, but merit further analysis given their potential to maintain and enhance corridor mobility. The Visionary projects have been defined from a variety of sources including, but not limited to, Caltrans' draft District 3 System Management Plan, and City, County, Transit, Capitol Corridor, and Bicycle Master Plans.

congestion and bottleneck analysis

Traffic congestion can be categorized as either recurrent or non-recurrent.

Recurrent congestion occurs repeatedly at the same place and time of day in a predictable pattern. Recurrent congestion is often associated with facility capacity limitations, changes in capacity, conflicting vehicle movements such as lane merges, inadequate number of transit vehicles to handle passenger loads, or other persistent physical conditions of the transportation facility.

Non-recurrent congestion is usually attributed to collisions, equipment malfunction, community events, weather, construction projects and other occasional occurrences. When transportation systems are close to their maximum carrying capacity, non-recurrent congestion is more likely to occur as there is little excess capacity in the system.

The Caltrans District 3 *2007 HICOMP* report identified congestion along the various freeways in the Sacramento area and compared the amount of vehicle hours of delay per year between 2006 and 2007. This report revealed that the Capital City Freeway was the most congested and I-80 was the second most congested freeway in the Sacramento region in 2007. Table 14 summarizes the amount of delay per year and rank by freeway route.

The Caltrans 2000 *Highway Capacity Manual* defines a bottleneck as "a road element on which demand exceeds capacity." The bottleneck locations were determined based on a combination of the use of 2006 PeMS data, HICOMP report, probe vehicle tach runs, and field observations. Causality for the bottlenecks include demand exceeding the capacity of the facility, weaving/merging areas, physical constraints such as lane drops, incomplete bus/carpool lane network, and

Freeway bottleneck locations that create mobility constraints are identified and documented, and their relative contribution to corridor-wide congestion is reported.

TABLE 14: 2007 TOP CONGESTED ROUTES

Route	Amount of Delay Per Year (Vehicle Hours)	Rank
SR-51	771,350	1
I-80	766,900	2
SR-99	704,300	3
I-5	691,650	4
SR-50	501,900	5
SR-65	20,000	6

Source: Caltrans District 3, 2007 HICOMP report

incomplete auxiliary lane network.

Tables 15 through 18 identify the location of bottlenecks along I-80 and SR 51, and also identify potential causality of existing recurrent traffic congestion in the corridor.

These depictions should be considered a snapshot view and not a comprehensive analysis of all bottlenecks in the corridor. Further work is being conducted to refine the identification and causality of bottlenecks within the corridor.

Both Minor and Major bottlenecks have been identified. Major bottlenecks on I-80 are located at Enterprise Boulevard, Mace Boulevard, Northgate Boulevard, Raley Boulevard, SR 51, Elkhorn Boulevard, the weigh station, Antelope Road, Auburn Boulevard, Riverside Avenue, and Atlantic Street. The major Bottlenecks on the Capitol City Freeway are located at E Street, Exposition Boulevard, El Camino Avenue, Marconi Avenue, and Watt Avenue.

Minor or hidden bottlenecks, are those that are not as defined as the major bottlenecks, but with the removal of an upstream bottleneck, and the resulting increase in downstream traffic may develop into a major bottleneck.

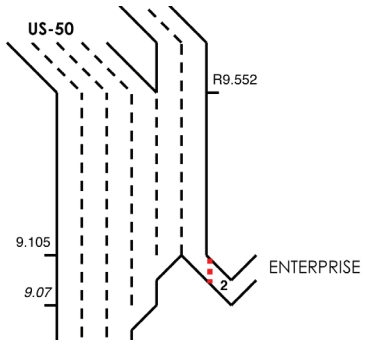
It should be noted that Tables 15 and 16 only include Placer and Sacramento Counties and a portion of Yolo County, and that additional bottleneck locations exist in Yolo County at the Richards, Mace, Webster, Enterprise, and Reed Interchanges.

TABLE 15: I-80 EASTBOUND BOTTLENECK SUMMARY

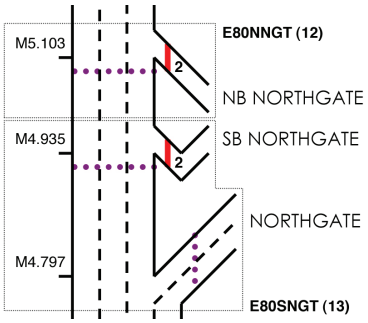
Bottleneck Location	PeMS Speed Contours		Caltrans Probe Vehicle Runs		Cause
	AM	PM	AM	PM	
A. Between Enterprise Blvd and Mace Blvd. PM 78					Enterprise on-ramp across I-80 to get to US 50; weaving at U.S. 50, heavy-truck volumes likely; westbound at Enterprise more congested than eastbound; curve at Mace; elevated interchange at Yolo Causeway
B. Northgate Blvd. PM 89		Major		Major	Lane drop, grades, and merging traffic
C. Weigh Station PM 99	Minor		Minor		Merging traffic
D. Antelope Road PM 100	Minor				Weaving Traffic
E. Auburn Boulevard PM 102	Minor	Minor	Major	Major	Lane Drop

Source: PeMS, Caltrans tach runs, and CS field observations.

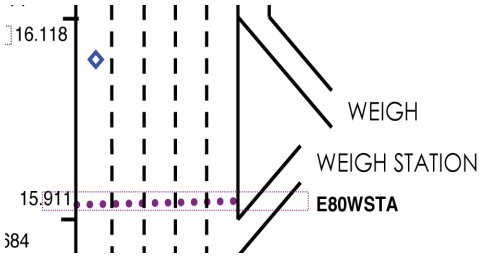
A. Between Enterprise Blvd and Mace Blvd
Heavy-truck volumes and weaving occurring between traffic entering from the Enterprise on-ramp and vehicles moving across 2+ lanes to reach US 50 are contributors to the congestion. The PeMS contour analysis suggests a bottleneck developing in the area without PeMS coverage.



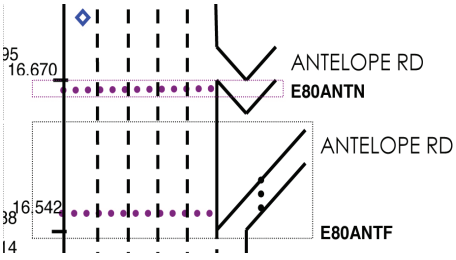
B. Northgate Blvd Bottleneck
Northgate Blvd bottleneck is caused by the lane drop at the off ramp, as well as the merging traffic from the Northgate Blvd on-ramps. Additionally, the slight mainline uphill grade, as well as the short distance and short acceleration lanes between the consecutive on-ramps, contribute to the congestion as well.



C. Weigh Station Bottleneck
The Weigh Station bottleneck actually occurs after the Greenback on-ramp, as this traffic tries to cross lanes and get into the HOV lane, while trucks are moving into the right lane to enter the weigh station.



D. Antelope Rd Bottleneck
The Antelope Rd bottleneck is caused by a combination of the HOV lane drop located one-mile downstream and truck traffic re-entering the mainline from the weigh station.



E. Auburn Blvd Bottleneck
The combination of the lane drop (end of HOV) and the Auburn off-ramps creates an area with a large amount of weaving and reduced through-lane capacity. This is the likely cause of the bottleneck.

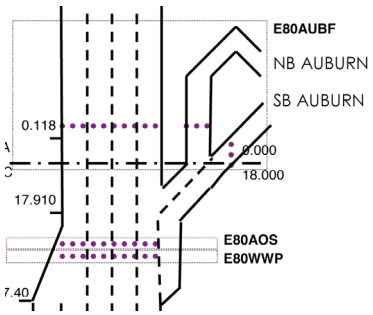
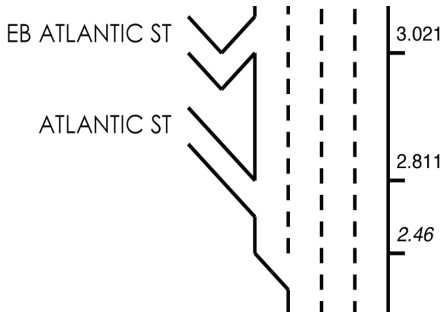


TABLE 16: I-80 WESTBOUND BOTTLENECK SUMMARY

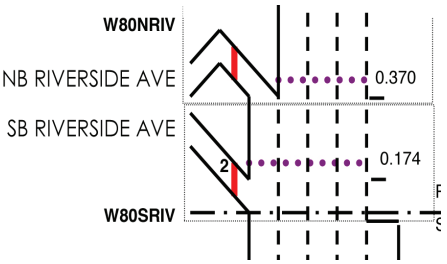
Bottleneck Location	PeMS Speed Contours		Caltrans Probe Vehicle Runs		Cause
	AM	PM	AM	PM	
A. Atlantic St PM 105			Major		Lane Drop Merging Traffic
B. Riverside Ave PM 102	Minor	Minor	Minor	Major	Traffic Demand Weaving Traffic
C. Antelope Rd PM 100	Minor	Minor			Traffic Demand
D. Weigh Station PM 99	Minor				Weaving Traffic
E. Elkhorn Blvd PM 97	Major	Major	Minor		Traffic Demand
F. SR 51 PM 95	Major	Major	Major		Lane Drop and Weaving Traffic
G. Raley Blvd PM 92			Major		Traffic Demand
H. Northgate Blvd PM 87	Minor	Minor	Major		Traffic Demand

Source: PeMS, Caltrans tach runs, and CS field observations.

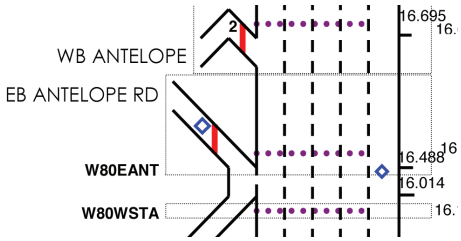
A. Atlantic St Bottleneck
The bottleneck at Atlantic St is due to the lane drop downstream.



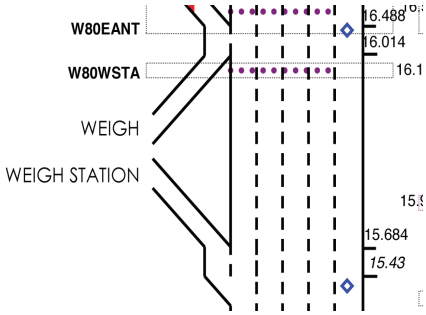
B. Riverside Ave Bottleneck
The probe vehicle runs suggest that I-80 is congested from Atlantic St where a lane is dropped until Riverside Ave where the HOV lane begins and a lane is also added on the right as a continuation from the Riverside Ave on-ramp to accommodate the Riverside St traffic. Vehicles weaving towards the HOV facility from Riverside St also contribute to the bottleneck.



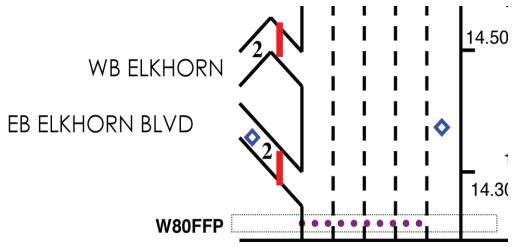
C. Antelope Rd Bottleneck
The Antelope Rd bottleneck may be caused by the heavy-truck traffic on the rightmost lane, which makes merging difficult for traffic coming from the two on-ramps.



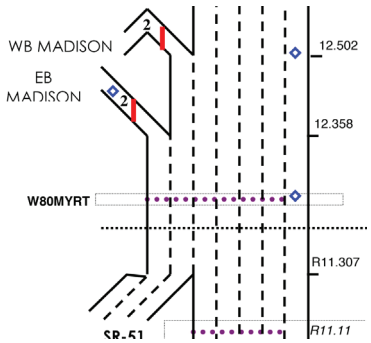
D. Weigh Station Bottleneck
The weigh station bottleneck is caused by trucks crossing into the right lane to enter the weigh station.



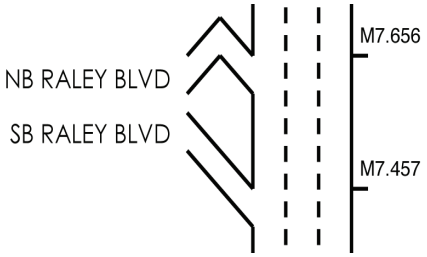
E. Elkhorn Blvd Bottleneck
The bottleneck at Elkhorn Blvd is due to the increase in traffic coming from Elkhorn Blvd. Also, vehicles using SR 51 will begin merging just west of Elkhorn, resulting in weaving near the Elkhorn slip on-ramp.



F. SR 51 Bottleneck
The bottleneck at SR 51 is caused by the heavy demand to use SR 51, the downstream lane drop, as well as the weaving traffic between Madison Ave and SR 51. The Madison Ave traffic must make three lane changes to remain on I 80.



G. Raley Blvd Bottleneck
The Raley Blvd bottleneck is caused by the increase in traffic entering from Raley Blvd, as well as the short merging distance between the two consecutive on-ramps. Past this interchange, there is an uphill grade that also contributes to the formation of a bottleneck.



H. Northgate Blvd Bottleneck
The Northgate Blvd Bottleneck is caused by the uphill grade upstream near Norwood. At this point, vehicles can start accelerating again, but many have not reached full speed.

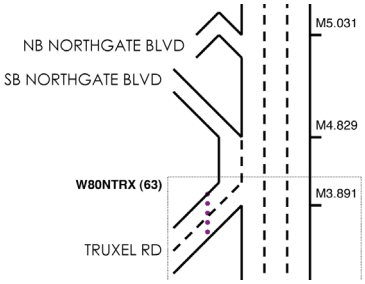
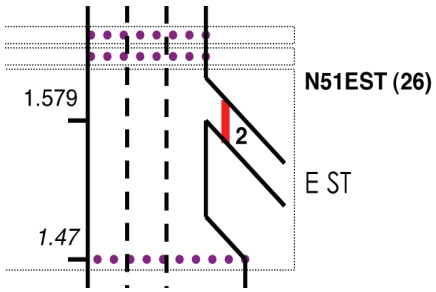


TABLE 17: SR 51 NORTHBOUND BOTTLENECK SUMMARY

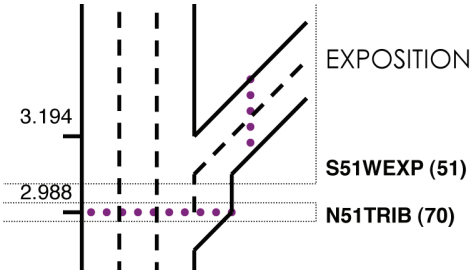
Bottleneck Location	PeMS Speed Contours		Caltrans Probe Vehicle Runs		Cause
	AM	PM	AM	PM	
A. E Street PM 2	Minor	Major		Major	Lane drop and traffic demand
B. Exposition Blvd PM 2.5	Minor	Minor		Minor	Off-ramp volume
C. El Camino Ave PM 4.5	Minor	Major			Weaving traffic
D. Marconi Ave PM 5.5	Minor	Minor			Lane drop
E. Watt Ave PM 8				Major	Weaving traffic

Source: PeMS, Caltrans tach runs, and CS field observations.

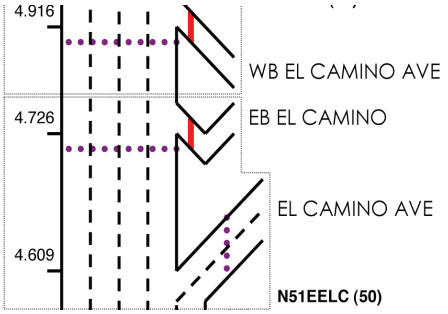
A. E St Bottleneck
The upstream lane drop combined with the increase in traffic from E St and the short merge at the E St. on-ramp causes the bottleneck at E St.



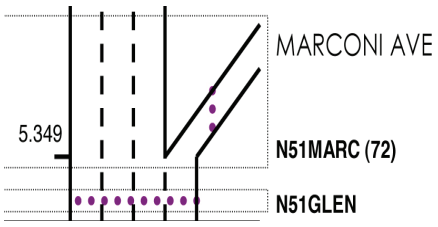
B. Exposition Blvd Bottleneck
Exiting vehicles at Exposition Blvd, as well as the lane drop at the Arden off-ramp, cause the bottleneck at this location.



C. El Camino Ave Bottleneck
The increase in traffic demand from El Camino Ave causes the bottleneck at El Camino Ave. Also, the lane drop and horizontal curve at the Marconi Bridge cause a reduction in capacity, resulting in a bottleneck and a queue that extends back to El Camino, and sometimes to the SR 51/SR 160 merge point.



D. Marconi Ave Bottleneck
The Marconi Ave bottleneck is caused by the termination of the auxiliary lane at Marconi Ave and a horizontal curve on SR 51 just past the Marconi Ave interchange.



E. Watt Ave Bottleneck
Vehicles exiting and entering at Watt Ave create a merging and weaving bottleneck.

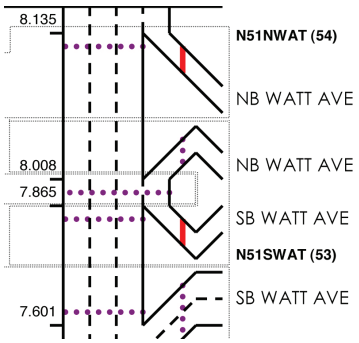
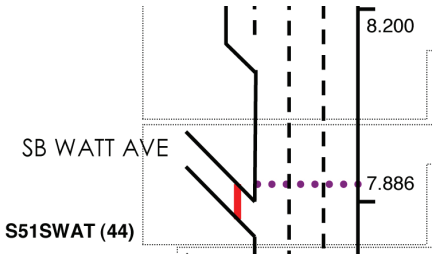


TABLE 18: SR 51 SOUTHBOUND BOTTLENECK SUMMARY

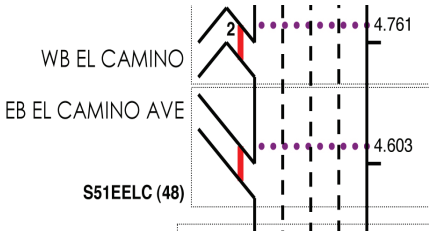
Bottleneck Location	PeMS Speed Contours		Caltrans Probe Vehicle Runs		Cause
	AM	PM	AM	PM	
A. Watt Ave PM 7	Minor		Major		Traffic demand
B. El Camino Ave PM 4.5	Major		Major		Weaving; traffic demand
C. Exposition Bl. PM 3		Major		Major	Weaving traffic lane drop
D. E St PM 2	Minor	Major		Minor	Road narrowing and reduced line of sight

Source: PeMS, Caltrans tach runs, and CS field observations.

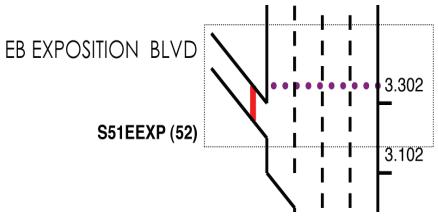
A. Watt Ave Bottleneck
The Watt Ave bottleneck is caused by the increase in traffic entering from Watt Ave and is perpetuated by the upstream lane drop and heavy volumes from I 80.



B. El Camino Ave Bottleneck
Weaving vehicles headed to Arden or SR 160, along with vehicles entering from El Camino and the lane drop at SR 160, cause the bottleneck at this location.



C. Exposition Blvd Bottleneck
The bottleneck at Exposition Bl. is caused by the increase in traffic entering from Exposition Bl., the heavy volume exiting at Exposition, heavy demand from Arden, and the downstream lane drop.



D. E St Bottleneck
The bottleneck upstream of E St is caused by the narrowing of the freeway right-of-way as it crosses under the railway and service bridges while rounding a corner and by merging of auxiliary lanes into the mainline.