

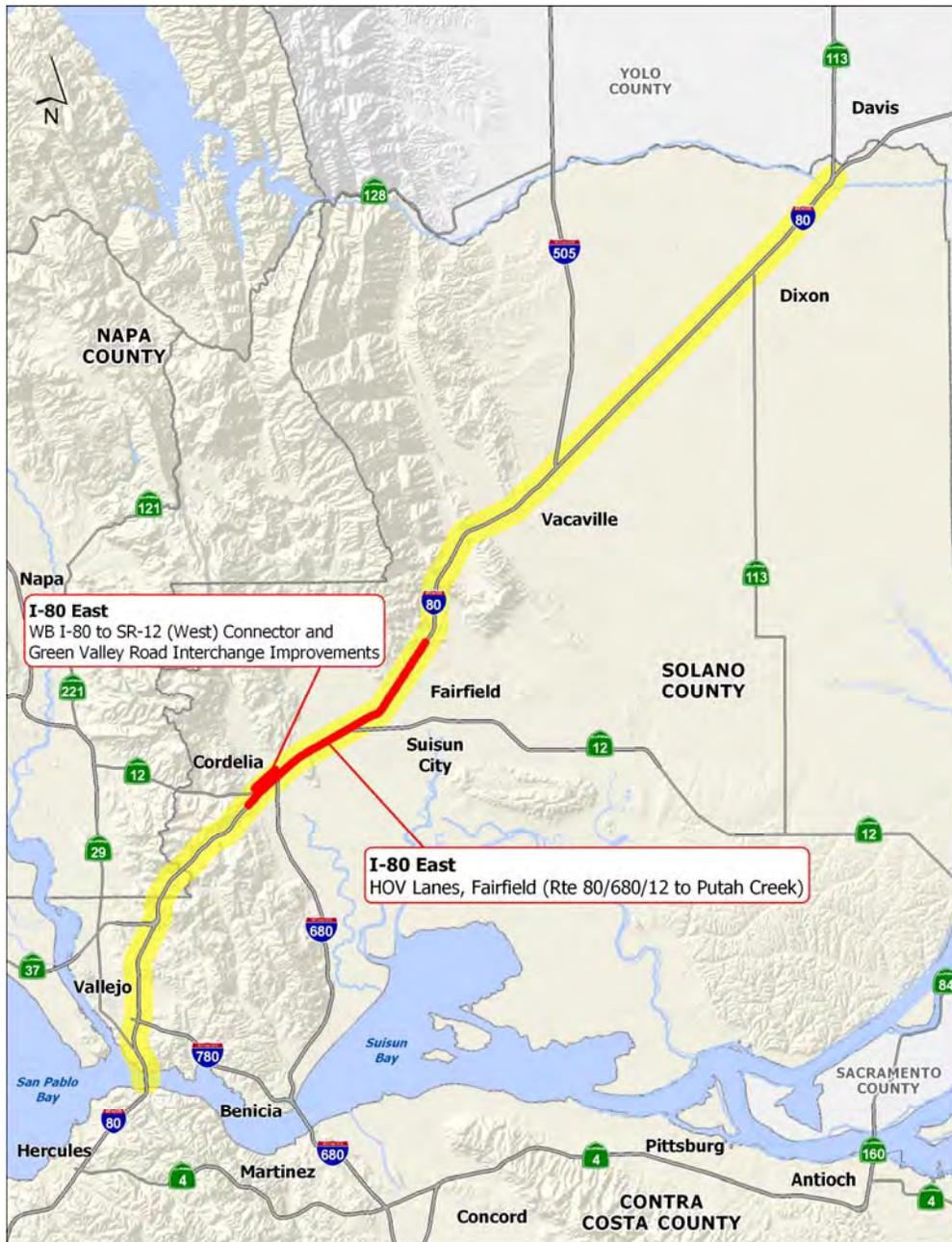
CORRIDOR SYSTEM
MANAGEMENT PLAN

FINAL
10/11/10

I-80 EAST CSMP SUMMARY

CSMP Corridor Limits

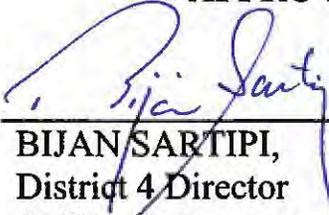
The I-80 East Corridor limits extend from the Carquinez Bridge (Solano/Contra Costa County line) to the junction with SR 113 North. It is approximately 43 miles in length and intersects Interstates 780, 680, 505, and State Routes 29, 37, 12, and 113.



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I-80 East Corridor System Management Plan

APPROVED BY:

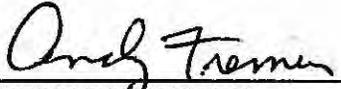


BIJAN SARTIPI,
District 4 Director
California Department of Transportation

10-11-10
Date

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

ACCEPTED BY:



STEVE HEMINGER,
Executive Director
Metropolitan Transportation Commission

10/06/10
Date

ACCEPTED BY:

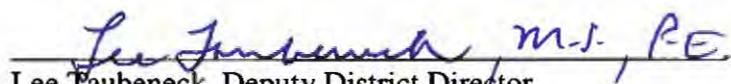


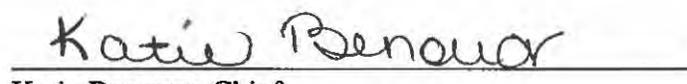
DARYL HALLS,
Executive Director
Solano Transportation Authority

9/13/10
Date

I-80 East Corridor System Management Plan

Approval Recommended by:

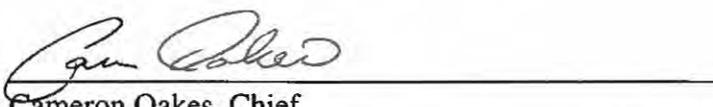

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Stakeholder Acknowledgement

District 4 wishes to acknowledge the time and contributions of stakeholder groups and partner agencies. Current and continuing Corridor System Management Plan (CSMP) development is dependent upon the close participation and cooperation of all major stakeholders. This CSMP represents a cooperative commitment to develop a corridor management vision for the I-80 East Corridor. The strategies evaluated have the potential to impact the local arterial system and the regional and local planning agencies that have the corridor within their jurisdiction. These representatives participated in the Solano Highways Partnership (SoHIP) and provided essential information, advice and feedback for the preparation of this CSMP. The stakeholders/partners include:

- Metropolitan Transportation Commission (MTC)
- Solano Transportation Authority (STA)
- City of Vallejo
- City of Fairfield
- City of Vacaville
- City of Dixon
- Solano County
- Sacramento Area Council of Governments (SACOG)
- Caltrans (Headquarters, Districts 3 and 4)

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 4 and do not necessarily represent the information, opinions, commitments, policies and strategies of partner agencies or other organizations identified in this document.

Dedication

To Patricia “Pat” Weston
(1951 - 2009)

Caltrans District 4 Planners dedicate this Corridor System Management Plan (CSMP) to the memory of Pat Weston, Chief, Caltrans Office of Advance System Planning, whose seemingly limitless energy and passion for transportation system planning in California has been an inspiration to countless transportation planners and engineers within Caltrans and its partner agencies. Pat's efforts elevated the importance of corridor-based system planning, performance measurement for system monitoring, and the blending of long-range planning with near-term operational strategies. This has resulted in stronger planning partnerships with Traffic Operations in Caltrans and led directly to the requirement to conduct comprehensive corridor planning through CSMP documents. This is but one of a long list of major achievements in Pat's lengthy Caltrans career. She generously shared her knowledge, wisdom and guidance with us over the years. She will be sorely missed as a planner, mentor and friend.

I-80 EAST CSMP INTRODUCTION

This Corridor System Management Plan (CSMP) represents a cooperative commitment to develop a corridor management vision for the I-80 East Corridor. The CSMP development process was a joint effort of the Department of Transportation (Caltrans), the Metropolitan Transportation Commission (MTC), and the Solano Transportation Authority (STA). This Core Stakeholder Group worked with local planning agencies, through the Solano Highways Partnership (SoHIP) to develop this plan. The goal is to propose strategies to achieve the highest mobility benefits to travelers across all jurisdictions and modes along the I-80 East CSMP Corridor.

Planning and Policy Framework

Since passage of the Highway Safety, Traffic Reduction, Air Quality and Port Security Bond Act, known as Proposition 1B, in November 2006, Caltrans has implemented the CSMP process statewide for all corridors with projects funded by the Corridor Mobility Improvement Act (CMIA) Program. The California Transportation Commission (CTC) requires that all corridors with a CMIA-funded project have a CSMP that is developed with regional and local partners. The CSMP recommends how the congestion-reduction gains from the CMIA projects will be maintained with supporting system management strategies. The CTC has also provided guidance in the 2008 RTP Guidelines that the CSMPs are an important input to the development of Regional Transportation Plans (RTP).

In the San Francisco Bay Area, as of June 2010 Caltrans is completing ten CSMPs. This I-80 East CSMP reflects data and projects from MTC's current RTP, *Change in Motion, Transportation 2035 Plan*, adopted April 2009. The CSMP recommends strategies that could potentially become projects through the regional transportation project development and prioritization process. In the San Francisco Bay Area, the CSMP process has taken place in coordination with the MTC's Freeway Performance Initiative (FPI), which provided the performance assessment and technical analyses for the CSMPs.

This CSMP focuses on highway mobility within the context of the State's most congested urban corridors. While the CSMP describes the arterials and other modes in the corridor, the focus of the recommended strategies is on maximizing the existing infrastructure through coordinated application of system management technologies such as ramp metering, coordinated traffic signals, changeable message signs for traveler information and incident management. It describes the current land use, transit, bicycle/pedestrian facilities, and the FOCUS regional blueprint Priority Development and Conservation Areas. These are provided as a backdrop for understanding how the highway corridor works.

The I-80 East CSMP

The objectives of the I-80 East CSMP are to reduce delay within the corridor (mobility), reduce variation of travel time (reliability) and reduce accident and injury rates (safety).

The limits of the I-80 East CSMP were determined, in collaboration with MTC and STA, by identifying the key travel corridor in which CMIA-funded projects are located. The CMIA-funded projects in the I-80 East CSMP Corridor are:

- HOV Lanes, Fairfield (Rte 80/680/12 to Putah Creek)
- WB I-80 to SR 12 (West) Connector and Green Valley Road Interchange Improvements

The I-80 East CSMP addresses State Highways, local parallel roadways, the bicycle and pedestrian network, and regional transit services pertinent to corridor mobility. The CSMP also identifies gaps in the bicycle and pedestrian network and regional transit services and discusses opportunities for the future. The CSMP makes some recommendations for increasing other modal services that can make the highway operate more efficiently, but the main thrust of the strategies is to enable better system management of the highway. By focusing on more efficient operation of the highway network, the CSMP moves toward optimizing current infrastructure, improving our ability to analyze and identify what leads to congestion in a corridor, and strengthening interagency partnerships to ensure that all parts of the transportation system work together well.

Methodology

A corridor performance assessment and technical analysis of the I-80 East CSMP Corridor was conducted through the Freeway Performance Initiative (FPI), a partnership between MTC and Caltrans. The performance assessment evaluated the current highway performance along the corridor and determined causes of performance problems.

Simulation modeling was used to forecast future travel conditions along the corridor. Traffic analysis methods were used to identify bottlenecks and to predict the impacts of a variety of operational strategies and investment scenarios. The microsimulation model was limited to four intersections at each freeway interchange and could not feasibly model the diversion effects outside of their impacts on the surface streets in the immediate vicinity of each interchange.

The comprehensive corridor analysis results consisting of existing and future traffic conditions were first discussed at the SoHIP in June 2008. The SoHIP met at regular intervals to provide further input on conclusions and recommendations for short and long-term corridor management improvement strategies.

The proposed short-term and long-term improvement strategies include:

- Intelligent Transportation System (ITS) improvements
- Corridor-wide ramp metering
- Construct HOV lanes
- Extend and Construct Auxiliary Lanes
- Additional transit and TDM improvements
- Address projected capacity and operational deficiencies

First Generation CSMP

This CSMP represents the “*first generation*” of corridor system management plans informing the Transportation Planning process. This CSMP identifies corridor management strategies applied on a network wide basis. The selected strategies address existing and forecasted mobility, lost productivity, bottlenecks, and reliability problems. The CSMP recognizes that transit services and goods movement are also adversely affected by the same problems. To implement some of these strategies, key capital projects are identified. This list is not meant to be inclusive of all potential projects in the corridor. The CSMP builds upon the project recommendations of the 2009 MTC Regional Transportation Plan (*T2035*); these recommendations add system management and other strategies from the 2010 Solano Highways Operations Plan to provide additional benefit and efficiencies.

Since Caltrans and the regions launched this first cycle of corridor system management planning in 2007 (called *first generation CSMPs*), the statewide planning policy context has evolved significantly. AB 32 policy on reducing greenhouse gas emissions has moved into implementation with passage of SB 375, landmark legislation requiring the regions to meet state-designated greenhouse gas emissions reduction targets. The CTC has developed guidance on how the regions will develop Sustainable Community Strategies (SCS) in their next RTP cycle; MTC’s next RTP is slated for completion in 2013. The SCS will

promote strategies to reduce green house gas emissions through more efficient land use patterns, reduce vehicle travel, support transit, bicycle and pedestrian mode choices, and improve supply and affordability of housing within the Bay Area to reduce commuting into the region.

The *second generation CSMPs* will reflect the SCS and the 2013 RTP, and will grapple with the issue of providing mobility and reducing highway congestion within the context of a new regional planning framework. The *second generation CSMP* scope will expand to include integrated land-use and transportation, in the context of Sustainable Community Strategy required by SB 375, and a more comprehensive look at transit and non-motorized travel strategies and options.

Stakeholder Issues and Concerns

Stakeholder concerns during the CSMP development process focused on implementation of ramp metering, interchange consolidation, High Occupancy Vehicle (HOV) lane requirements and High Occupancy Toll (HOT) lane conversion. Local jurisdictions pointed out potential impacts of ramp metering on local arterials and how implementation may affect local circulation patterns. Issues related to these stakeholder concerns will all require additional analysis before they could be implemented. The early delivery of some long-term recommended projects was noted by the project team as well as the need for additional coordination with District 3 and SACOG regarding I-80 corridor planning at the Solano/Yolo County line. This represents a brief summary of the issues and concerns shared by stakeholders during the CSMP development process. A more detailed listing of Stakeholder issues and concerns are located in Section 1.7 of the CSMP Overview.

CSMP Document

The I-80 East CSMP document is organized into three key volumes. The CSMP Summary serves as a stand-alone document and provides corridor facts and description summaries, key findings and recommended improvements from the technical analysis. The main CSMP document provides the CSMP Overview, Corridor Description, technical analysis and recommendations. The Appendix contains information about corridor segments, freeway agreements, CMIA projects, maintenance plans, and corridor concept. Within the main CSMP document, the CSMP Overview describes the CSMP purpose and need, consistency and relationship to other plans, the CSMP stakeholder engagement process and the CSMP performance measures and objectives. The CSMP Corridor Description contains a more detailed description of the corridor and its significance within the highway system and other modal systems. The CSMP technical analysis reports present existing and future conditions and trends, corridor management issues and strategies, and a prioritized list of short and long term recommendations based on these analysis.

The I-80 East Corridor system will be regularly monitored using identified performance measures and Traffic Operations Systems (TOS) data, and will be reported in subsequent CSMP updates. This information will be used to continually improve system performance. As discussed above, new strategies may emerge as the SCS is implemented to reflect new development and travel patterns that impact the operations of the highway corridor.

I-80 EAST CSMP SUMMARY

1. I-80 East CSMP Corridor Facts
2. CSMP Overview
3. Corridor Description
4. Comprehensive Corridor Performance Assessment
5. Recommended Corridor Management Improvement Strategies

1. I-80 East CSMP Corridor Facts

Corridor Limits: I-80 from the Carquinez Bridge (Solano/Contra Costa County line) to the junction with SR 113 North.

Corridor Description: The I-80 East CSMP Corridor operates as an east/west route starting at the Contra Costa/Solano County line (Carquinez Strait) and ends at SR-113 North. The corridor is approximately 43 miles in length and crosses SR-29, SR-37, SR-12, SR-113, I-505, I-680, and I-780. The High Occupancy Vehicle (HOV) lanes on this segment of I-80 exist on the westbound approach to the Carquinez Bridge and in both directions between Red Top Road and Air Base Parkway which opened in late 2009.

Corridor Concept (2035): 8 to 10 lanes including HOV/HOT lanes

Route Designation & Regional Setting:

Functional Classification	Urban Principal Arterial
Trucking Designations	National Highway System STAA National Network – Yes Terminal Access Route – Yes SHELL Route –Yes
Other Designations	Interstate Freeway
IRRS	Yes–Urban High Emphasis Route
Lifeline	Yes
MPO	MTC
Air Quality District	BAAQMD / YSAQMD
Mode Split (%)	SOV (76.47) / HOV (14.33) / Transit (3.03) / Walk (1.57) / Other (4.6)

Multi-modal Service: Primary providers of bus and rail: Amtrak Capitols, Fairfield/Suisun Transit, Vallejo Baylink Ferry (to transition to the Water Emergency Transportation Authority or WETA), Solano Express Bus (provided by FAST and Vallejo Transit), Yolobus and Greyhound Bus.

Interregional Significance: I-80 East is part of the Interregional Route System (IRRS) and is classified as an Urban High Emphasis Route connecting the Bay Area with the Central Valley. The Carquinez Strait is considered a regional gateway contributing to the national significance of the I-80 Corridor.

Corridor Specific Issues:

- I-80 provides access to major regional and interregional freight corridors including I-5, SR-99, US-101 and I-880.
- Major commuter link between SF/ East Bay employment centers and Solano County housing.
- Operational difficulties created by high volumes of commuter, recreational and major regional and interregional freight traffic.

Corridor Objectives:

- Improve travel time and speeds
- Reduce recurring and non-recurring delay
- Reduce variation of travel time
- Improve predictability and buffer index
- Reduce accident and injury rates

GOALS	PERFORMANCE MEASURES
Mobility	Travel time, speeds and delay
Reliability	Travel Time Variation and Predictability / Buffer Index
Safety	Incident rates, accident types

Current Performance:

Top 3 Congested Locations (State of System 2008)

Location	VHD
PM EB I-80: I-680 to SR-12 East	730 VHD
PM EB I-80: West of SR 29	430 VHD
AM WB I-80: West Texas Street to I-680	420 VHD

Key Bottlenecks (2007):

Route / Location / Direction	AM/PM
I-80/Exit to SR 12 West/Westbound	AM
I-80/I-680 on ramp/Eastbound	PM
I-80/Between Travis Blvd on ramp and Air Base Parkway off ramp/Eastbound	PM
I-80/Yolo Causeway and CR 32A/32B Interchange/Eastbound	PM

Recommended Corridor Management Strategies:

Short-Term (2015)

- Deploy ITS technologies on I-80 throughout Solano County
- Address existing and projected capacity / operational deficiencies between Travis Boulevard and Alamo Drive (HOV, ramp metering, aux lanes)
- Implement transportation management strategies in the I-680 / I-80 / SR 12 Interchange area

Long-Term (2030)

- Address projected capacity / operational deficiencies between SR 29 and SR 37
- Implement major improvements at the I-680 / I-80 / SR12 Interchange area
- Provide additional capacity and address operations to the east of the I-680 / I-80 / SR12 Interchange area
- Address eastbound capacity and operational improvement needs between Alamo Drive and I-505
- Address westbound capacity and operational improvement needs between Air Base Parkway and I-505
- Address westbound capacity and operational needs east of I-505
- Address gaps in HOV and general use lanes on I-80 in Solano County

I-80 East Corridor System Management Plan Segmentation Data Summary

CSMP Segment	CO/RTE/PM Start	VHD (AM/PM)	Peak Period Demands				AADT (2007)	Truck %	Accident Rate (Actual / Statewide Average)	Distressed Lane Miles	HOV	Aux	Bottleneck Locations (2007)	
			Westbound Volume 2007 AM (PM)	Eastbound Volume 2007 AM (PM)	Westbound Volumes 2030 AM (PM)	Eastbound Volume 2030 AM (PM)							WB	EB
A	SOL/80/0.0	370 (AM) 430 (PM)	5,025 (3,175)	2,675 (5,415)	9,932 (8,128)	7,329 (9,140)	123,000	5.0%	1.33 / 0.93	None	X			
B	SOL/80/2.22		4,685 (4,830)	4,160 (5,920)	7,816 (6,760)	6,090 (7,061)	134,000	5.17%	1.03 / 1.12	14.511		X		
C	SOL/80/5.63		3,910 (3,485)	3,680 (5,280)	8,205 (5,565)	3,790 (9,072)	155,000	5.6%	0.55 / 0.69	32.924		X		
D	SOL/80/11.98	420 (AM) 730 (PM)	8,465 (6,785)	5,940 (8,480)	13,786 (8,292)	6,853 (16,206)	212,000	6.56%	1.11 / 1.02	18.842	X		X	X
E	SOL/80/15.82	220 (PM)	7,395 (5,855)	4,830 (8,190)	11,225 (7,011)	5,931 (12,278)	212,000	6.4%	0.71 / 0.92	30.665	X	X		X
F	SOL/80/30.2		3,850 (4,585)	4,675 (5,470)	4,723 (5,089)	5,292 (6,469)	124,000	6.72%	0.47 / 0.86	85.731				
G	SOL/80/38.21		3,680 (4,900)	4,985 (5,840)	4,265 (5,323)	5,444 (5,984)	117,000	6.72%	0.43 / 0.75	43.068		X		X

Table 1. I-80 East CSMP Segmentation Data Summary.

Sources:

CO/RTE/PM Start: From CSMP segmentation modified from 2002 TCCR segments. Start of segment only.

VHD: State of the System 2008

Volumes, AADT, Truck %: <http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/>

Accident Rate: Traffic Accident Surveillance and Analysis System (TASAS) Table B (09-01-03 to 08-31-2006)

Distressed Lane Miles: Pavement Condition Index (PCI)

HOV, Auxiliary lane: X in the box if present in the corridor. HOV in segments D & E added in late 2009.

Bottleneck Location: X in the box per FPI technical analysis report

2. CSMP Overview

A Corridor System Management Plan (CSMP) is a transportation planning document that provides for the safe, efficient and effective mobility of people and goods within the most congested transportation corridors. Each CSMP presents an analysis of existing and future traffic conditions and proposes traffic management strategies and capital improvements to maintain and enhance mobility within each corridor. This CSMP focuses on highway mobility within the context of the State's most congested urban corridors. While the CSMP describes the arterials and other modes in the corridor, the focus of the recommended strategies is on maximizing the existing infrastructure through coordinated application of system management technologies such as ramp metering, coordinated traffic signals, changeable message signs for traveler information and incident management. It describes the current land use, transit, bicycle/pedestrian facilities, and the FOCUS regional blueprint Priority Development and Conservation Areas. These are provided as a backdrop for understanding how the highway corridor works.

CSMPs are being developed throughout the State for corridors within which funding is being used from the Corridor Mobility Improvement Account (CMIA) and Highway 99 Bond Programs created by the passage of the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006, approved by the voters as Proposition 1B in November 2006. The intent is to eventually develop CSMPs for all urban freeway corridors. The Metropolitan Transportation Commission (MTC) and the California Department of Transportation (Caltrans) have committed to assist each other in the development of CSMPs and MTC's related Freeway Performance Initiative (FPI) corridor studies. This cooperation is documented in MTC Resolutions 3792 and 3794.

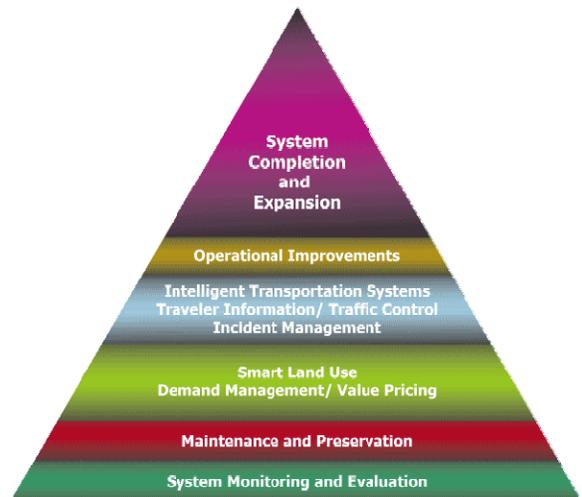
The CSMP transportation network includes, State Highways, major arterials, intercity and regional rail service, regional transit services, and regional bicycle facilities. A team of corridor stakeholder agency staff, named the Solano Highways Partnership (SoHIP), was assembled to provide oversight for ongoing tasks.

Purpose and Need Statement

The immediate purpose of preparing CSMPs is to satisfy the requirements to qualify for funding highway improvements under the CMIA and Highway 99 Bond programs. The California Transportation Commission (CTC) adopted guidelines and a program of projects for funding. CSMPs are prepared based on the need to efficiently and effectively use all transportation modes and facilities in congested corridors so as to maximize mobility, improve safety and reduce delay costs.

Consistency with Strategic Growth Plan

CSMPs support the Governor's Strategic Growth Plan (SGP), which calls for an infrastructure improvement program that includes a major transportation component (GoCalifornia). The CMIA and other elements of the November 2006 transportation infrastructure bond are a down payment toward funding the most important of these infrastructure needs. The objectives of these investments are to decrease congestion, improve travel times and safety, and accommodate expected growth in the



population and economy. The SGP is based on the premise that investments in mobility throughout the system will yield significant improvements in congestion relief.

The philosophy of system management is to make the most effective use of the transportation system. The system management pyramid represents a comprehensive range of strategies to improve mobility within a transportation corridor. It includes system monitoring at its base, followed by maintenance, smart land use, technology and operational strategies, and traditional system expansion. Simply put, the value of any investment decision made higher up in the pyramid is limited without a good foundation from the strategies below.

Performance Measures

Caltrans worked with stakeholders to develop performance measures that together serve to focus directed action on desired corridor strategies and improvements. Performance Measures are listed in Table 1 below and were used in discussions with stakeholders.

Performance Measure	Performance Measure Description	Objective Desired Outcome
Mobility	Vehicle Hour of Delay (PeMS, Probe Vehicles)	Reduce delay within the corridor
Reliability	Travel Time (PeMS, Buffer Index)	Reduce variation of travel time
Safety	TASAS Data	Reduce accident and injury rate

Table 2. CSMP Performance Measures.

Relationship to Other Plans

A number of Caltrans system planning documents were used as the foundation for the preparation of the CSMP. These included the 2005 *California Transportation Plan (CTP)* and the 1998 *Interregional Transportation Strategic Plan (ITSP)*. Also, a number of related Caltrans system management documents were used including the 2006 *Strategic Growth Plan*, 2004 *Transportation Management System Master Plan (TMSMP)*, and the 2004 *California ITS Architecture and System Plan (SWITSA)*.

System and regional planning documents prepared by other agencies that influence CSMP development included the 2009 *Regional Transportation Plan (T2035)* and the 2004 *Bay Area Regional ITS Plan*.

Most notably, MTC’s FPI program has influenced corridor-level performance-based decision making for the 2009 Regional Transportation Plan. Important documents in this effort are the 2007 *FPI Performance & Analysis Framework*, the 2007 *FPI Prioritization Framework*. The FPI corridor-specific documents are noted below:

- US-101 North (MRN/SON)
- US-101 Peninsula/South (SM/SCL)
- I-580 East (ALA)
- SR-4 (CC)
- I-880 (ALA/SCL)
- I-80 East (SOL)
- I-680 North (ALA/CC)
- I-680 South (ALA/SCL)

Stakeholder Engagement

Current and continuing CSMP development is dependent upon the close participation and cooperation of all major stakeholders. The strategies evaluated have the potential to impact the local arterial system, the transit services along the corridor, and the regional and local planning agencies that have the corridor within their jurisdiction. The goal of the stakeholder engagement process is consensus among key stakeholder groups to develop the CSMP. The CSMP follows a work plan unique to the needs of the CSMP Corridor and identified stakeholders. Each

stakeholder category group has a role during the CSMP development process. The Core Stakeholder Group provides policy and technical guidance throughout the process. Additional planning agency partners are brought in to review and comment at key junctures, and help evaluate corridor improvement strategies.

The stakeholder engagement process framework for the current CSMP considered stakeholders in two categories:

- I. Core Stakeholder Group: Agencies primarily responsible for conducting planning efforts on behalf of the corridor.
- II. Planning Agency Partners: Additional agencies responsible for implementing and monitoring CSMP strategies.

District 4 CSMP Overview

Caltrans and MTC are committed to assist each other in the development of CSMPs and MTC's related FPI corridor studies. This cooperation is documented in MTC Resolutions 3792 and 3794. For the San Francisco Bay Area, Caltrans District 4, nine CSMPs were being developed as of May 2010. Figure 1 on the following page illustrates the nine CSMPs being developed:

US-101 North (MRN/SON)	I-580 East (ALA)
US-101 Peninsula/South (SM/SCL)	SR-4 (CC)
I-880 (ALA/SCL)	SR-24 (ALA/CC)
I-80 West (ALA/CC)	SR-12 (NAP/SOL)
I-80 East (SOL)	SR-84 (SM/ALA) <i>added June 2010</i>

The I-80 East CSMP

This CSMP represents a cooperative commitment to develop a corridor management vision for the I-80 East Corridor. The CSMP development process is a joint effort of Caltrans, MTC, and the Solano Transportation Authority (STA). This Core Stakeholder Group is working with local planning agencies through a Solano Highways Partnership (SoHIP). The goal has been to achieve the highest mobility benefits to travelers across all jurisdictions and modes along the I-80 East CSMP Corridor.

The I-80 East CSMP addresses State Highways, local parallel roadways/major arterials, the bicycle and pedestrian network, and regional transit services pertinent to corridor mobility. The CSMP also identifies gaps in the bicycle and pedestrian network and regional transit services and discusses opportunities for the future.

The limits of the I-80 East CSMP were determined, in collaboration with MTC, by identifying the key travel corridor in which CMIA-funded projects are located. Figure 2 (Page S-8) illustrates the two CMIA-funded projects on the I-80 East CSMP Corridor. The CMIA-funded projects in the I-80 East CSMP Corridor are:

- I-80 HOV Lanes, Fairfield (Rte 80/680/12 to Putah Creek)
- WB I-80 to SR 12 (West) Connector and Green Valley Road Interchange Improvements



District 4 CSMP Corridors



Figure 1. District 4 CSMP Corridors (May 2010).

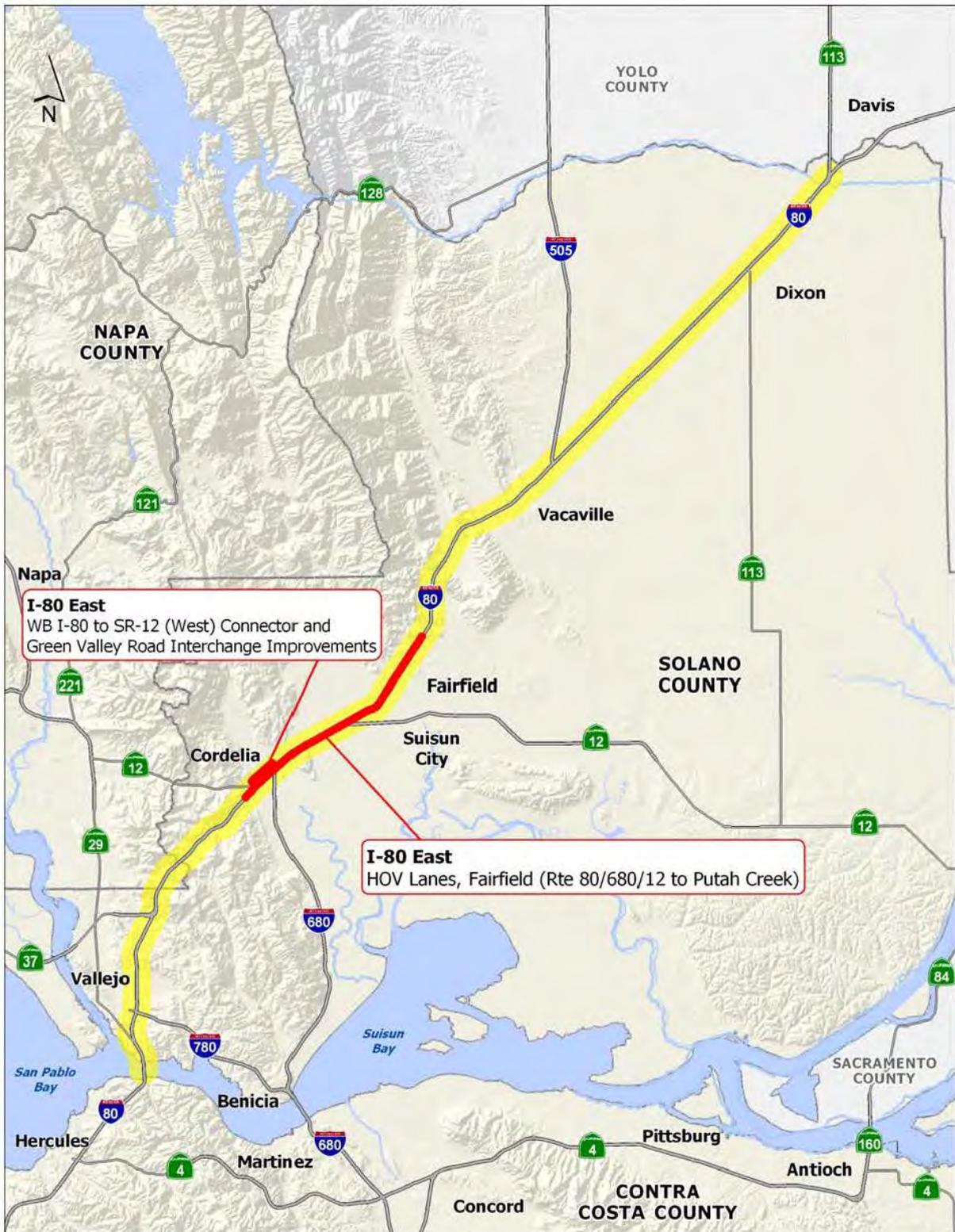


Figure 2. CMIA funded projects on I-80 East CSMP Corridor.

I-80 East CSMP Corridor Team

The Core Stakeholder Group for the Interstate 80 East CSMP Corridor is identified as MTC, Solano Transportation Authority (STA) and Caltrans. Representatives met early in the development process to discuss the goals, objectives and schedule of the CSMP in coordination with the FPI analysis and the SoHIP study. The Core Stakeholder Group met regularly to review and approve operational and micro-simulation data collection and analysis methodology, technical reports, and identified additional planning agency partners for further CSMP development. Stakeholder groups provided valuable input on the recommended improvement strategies for the I-80 East CSMP Corridor. Those key stakeholders are listed below:

Key Stakeholders

Core Stakeholder Group

- Caltrans
- Metropolitan Transportation Commission (MTC)
- Solano Transportation Authority (STA)

Additional Planning Agency Partners

- Cities along the corridor, including:
 - City of Dixon
 - City of Fairfield
 - City of Vacaville
 - City of Vallejo
- Solano County
- The Sacramento Area Council of Governments (SACOG)
- Caltrans (Headquarters, Districts 3 and 4)

3. Corridor Description

I-80 is a transcontinental Interstate facility that is critical to regional and interregional traffic in the San Francisco region. I-80 has been identified by the State as an Interregional Road System (IRRS) route and is vital to commuting, freight and recreational traffic. I-80 serves as the only freeway connection between the San Francisco Bay Area and the Sacramento metropolitan region. The route also links the Bay Area with recreational destinations in the Sierra Nevada Mountains and points north via I-505 to I-5. As a result, I-80 is one of the most congested freeway facilities in the Bay Area region.

The I-80 East CSMP corridor extends from the Carquinez Bridge (Solano/Contra Costa County line) to SR-113 North near the Solano/Yolo County line. It is approximately 43 miles in length and intersects with SR 29, I-780, SR 37, SR 12, I-680, I-505 and SR 113. Growth in Solano County has had a significant effect on the transportation demand on I-80, due not only to I-80's connection to destinations outside the county but also because of a lack of local facilities paralleling the Interstate. This Interstate, as one of the two such facilities that extend east of the region, is vital to interregional and regional commuting, freight movement and recreational travel. Historically, daily traffic volumes on the I-80 Solano Corridor have been greater Friday through Sunday compared with Monday through Thursday.

Major Arterials

The I-80 East CSMP Corridor intersects with SR-29, I-780 and SR-37 in Vallejo, SR-12W, I-680 and SR-12E in Fairfield, I-505 in Vacaville and SR-113 in Dixon. The I-80 East CSMP Corridor contains 10 major interchanges and 42 local interchanges. There are no distinct main alternative

parallel routes within the corridor. Figure 3 below depicts the I-80 East CSMP Highway System and Arterial Road Network.

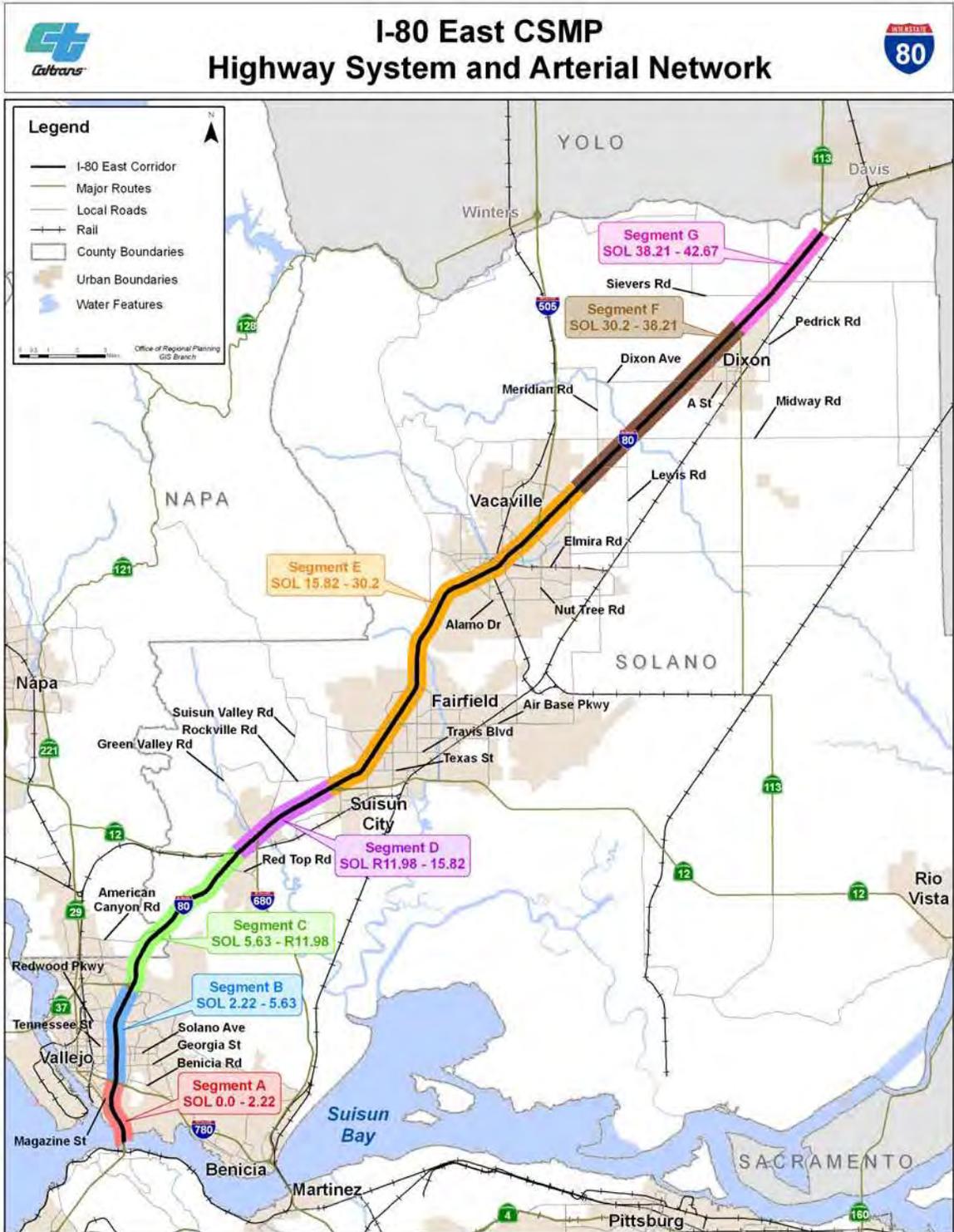


Figure 3. I-80 East CSMP Highway System and Arterial Road Network.

Goods Movement

According to the Bay Area Regional Goods Movement Study (2004) more than eighty percent of the goods movement in the Bay Area (by volume) involves trucking in several major corridors: Interstates 80, 580 and 880, and U.S. Highway 101. I-80 carries the third highest truck volume in the Bay Area region, serving primarily as a connector to the transcontinental truck network. The route is designated as a Surface Transportation Assistance Act (STAA) National Network route and is part of the State Highway Extra Legal Road (SHELL) network. In addition to trucking, rail carries a significant amount of goods into and out of the Bay Area region. Within the I-80 East CSMP Corridor, the Union Pacific (UP) Railroad serves as the owner/operator of the rail line which parallels the I-80 Corridor between Fairfield, Dixon and points beyond. The railroad currently accommodates both freight and passenger (Amtrak/Capitol Corridor) rail operations. Aeronautical resources within the corridor include Travis Air Force Base "Gateway to the Pacific" near Fairfield which is home to the 60th Air Mobility Wing, the largest air mobility organization in the Air Force who handles more cargo and passengers than any other military air terminal in the United States. Other aviation resources include the Nut Tree Airport in Vacaville which serves as a general aviation facility owned by Solano County and operated by their General Services Department. The airport accommodates light aircraft, corporate jets as well as retail, service, and repair businesses relating to aviation.

Transit

Local transit agencies operating in the I-80 East CSMP Corridor provide express bus services which transport passengers from local stops and Park and Ride lots in Solano County to the El Cerrito Del Norte and Pleasant Hill BART stations or directly to San Francisco. Riders travel along the I-680 and I-780 corridors or utilize the HOV system on I-80 through Fairfield and just east of the Carquinez Bridge (westbound direction only) which continues to the San Francisco-Oakland Bay Bridge. Solano Express Route 30 also takes passengers to Dixon, Davis and Sacramento. In addition, STA provides ride matching through its Solano Napa Commuter Information (SNCI) service. There are also a number of park and ride lots constructed and operated by local jurisdictions along the I-80 East Corridor. Vallejo Baylink Ferry serves this corridor by providing ferry services between Vallejo and San Francisco. Baylink Express supplements ferry operations by providing intercity bus services between Vallejo and San Francisco. The Amtrak Capitol Corridor provides frequent intercity rail services in both peak and off-peak periods. While many trains continue on to San Jose, San Francisco bound passengers need to transfer to BART or a connecting bus in Emeryville. Amtrak trains also provide a fast service to Davis and Sacramento and there are plans for additional stations at Fairfield/Vacaville, Dixon and Benicia. The Amtrak station in Sacramento is conveniently located providing a seamless connection to the Sacramento Regional Transit bus and light rail system.

Bicycle and Pedestrian

The bicycle and pedestrian network along the I-80 East CSMP Corridor begins with the Carquinez Bridge bicycle and pedestrian path which provides a seamless connection between Contra Costa and Solano Counties. North of the bridge path the network connects to a series of mixed use roadways in Vallejo including Maritime Academy Drive, Magazine Street, Laurel Street, Steffan Street, Miller Avenue, Humboldt Street and Admiral Callaghan Lane. At the intersection of Admiral Callaghan Lane and Columbus Parkway, close to the I-80/SR-37 Interchange, the Solano Bikeway multi-use path begins and parallels I-80 until it merges with McGary Road which serves as a parallel mixed use frontage road adjacent to I-80. McGary Road is closed between Lynch Road and Red Top Road due to reconstruction and repair work and will be reopened with Class II bike lanes. McGary Road is expected to be reopened to vehicle and bicycle traffic in the fall of 2010. This closure represents a gap in the bicycle/pedestrian network.

At Red Top Road in west Fairfield the network begins again as a mixed-use roadway that crosses under I-80 and connects to the bicycle and pedestrian dedicated Green Valley Path at the intersection of Red Top Road and Jamison Canyon Road/SR-12. The path continues on the north side of SR-12 and I-80 and terminates near Green Valley Road. Network access is then provided through a series of mixed use roadways including Green Valley Road, Mangles Boulevard, Suisun Valley Road and Solano College Road which connects directly to the Fairfield Linear Park Trail. This extensive bicycle and pedestrian path parallels the north side of I-80 through Fairfield eventually crossing under I-80 near the Rockville Road/West Texas Street Interchange and continuing on the south side of I-80 until its terminus at Dover Avenue. Class II (bicycle lane present) access is generally provided along Dover Avenue until it reaches an unnamed pathway connection to Nelson Road and Rivera Road just outside the City of Vacaville.

Through Vacaville bicycle and pedestrian network access along the I-80 East CSMP Corridor is broken up between a series of mixed-use roadways and dedicated bicycle and pedestrian paths including Butcher Road, Alamo Drive, the Alamo Creek Bikeway, the Southside Bikeway, Nut Tree Road, and Orange Drive. After Vacaville the network generally parallels the I-80 East CSMP Corridor in a series of east-west and north-south oriented county roads into the City of Dixon.

Within Dixon mixed-use roadway network access is provided on Pitt School Road and West A Street. Starting at the intersection of West A Street and North Adams Street and continuing on to North First Street/SR-113, Vaughn Street, and Runge Road, the Davis-Dixon Bikeway provides mixed-use access through Dixon and on into Yolo County and the City of Davis.

Intelligent Transportation System (ITS) and Detection

The California Statewide ITS Architecture (November 2004), along with its companion Regional ITS Architectures, are frameworks created to aid the deployment and integration of regional ITS systems and programs. These frameworks are intended to assist future larger scale integrations of transportation information systems. They are modeled after the National ITS Architecture (NITSA) and developed according to the Federal Highway Administration's (FHWA) "Final Rule on the National ITS Architecture" (23 CFR 940) and the Federal Transit Administration's (FTA) "Policy on the National ITS Architecture" (23 CFR 655). These frameworks identify project stakeholders and their roles in ITS deployments, functional requirements for ITS, standards to coordinate with other ITS deployments, and project sequencing. At the state level, the California Statewide ITS Architecture is used to guide the planning of transportation communications systems, equipment, and related facilities with a focus on interregional deployments and integration. The regional and statewide ITS architectures are required by federal regulations, and all major ITS projects must conform to the architecture as a condition of federal funding.

The Metropolitan Transportation Commission (MTC) completed the *Regional ITS Architecture and Strategic Plan* in October 2004, and the Commission subsequently adopted it through the *Transportation 2030 Plan* in February 2005. The Regional ITS Architecture is an integrated part of the San Francisco Bay Area Regional Intelligent Transportation Systems (ITS) Plan, a roadmap for transportation systems integration in the Bay Area over the next 10 years. The architecture is an important tool used by MTC and partner agencies to better reflect integration opportunities and operational needs into the transportation planning process.

This regional ITS architecture has a time horizon with a particular focus on those systems and interfaces that are likely to be implemented in the next ten years. The architecture covers the

broad spectrum of Intelligent Transportation Systems, including Traffic Management, Transit Management, Traveler Information, Emergency Management, and Emergency/Incident Management over this time horizon. The Bay Area Regional ITS Architecture is a living document with changes made based on recommendations of the Regional ITS Architecture Maintenance Committee members.

Excellent traffic detections facilities now exist along the I-80 East CSMP Corridor. Figure 4 illustrates the existing detection available. In most locations traffic detection is located within 1/3 to 1/2 mile with data available on the Freeway Performance Measurement System (PeMS).

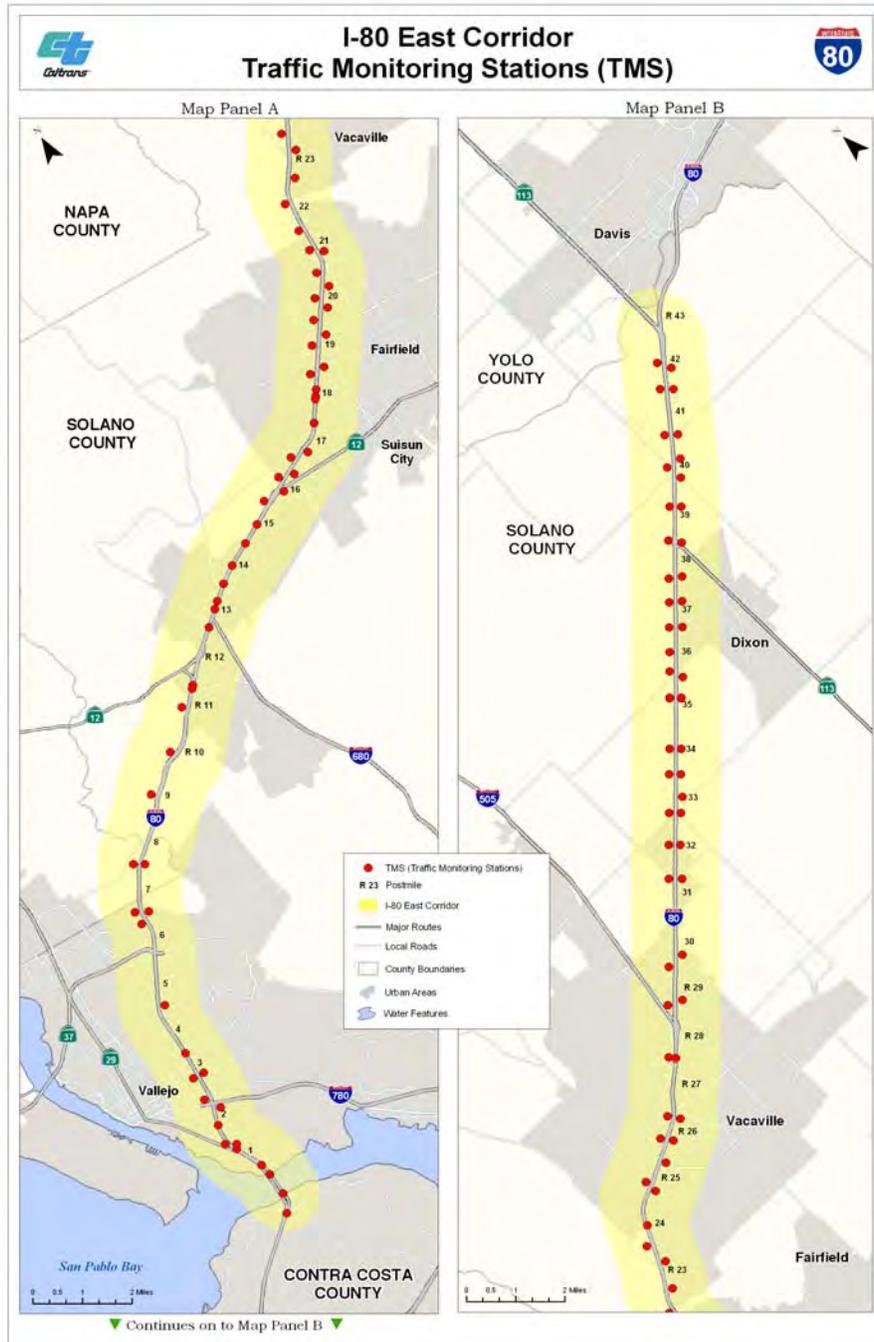


Figure 4. Existing traffic detection on I-80 East CSMP Corridor.

Land Use – Major Traffic Generators

Major land uses within the county and corridor include agriculture, civic, military, single and multi-family residential, industrial and commercial. In general, urbanized development is concentrated within the incorporated boundaries of the cities while natural resources, agricultural resources, and other non-urban lands are predominately located in the unincorporated portions of the County. Approximately 96% of the population currently resides in urban areas and the remaining 4% reside in rural areas. Within the I-80 East Corridor major auto and truck traffic generators include the Six Flags Marine World Theme Park, the Westfield/Solano Mall, the Vacaville Premium Outlets, the Nut Tree retail area, and the Travis Air Force Base. Smaller areas of highway commercial and industrial land use are located on the north and south sides of the Interstate and can potentially generate significant amounts of traffic demand.

Environmental Constraints/Factors

It is important to note that the CSMP is general in concept; potential environmental and cultural resource issues would need more detailed scoping and coordination when project development activities occur. The natural environment along the I-80 East CSMP Corridor is highly diversified in terms of its resources and related sensitivities. Solano County, despite its modest size, lies at the intersection of numerous geographical and geological provinces that, in conjunction with variations in hydrology and climate, has resulted in the formation of unique and rare biological and ecological conditions. The I-80 East Corridor is situated just north of the Suisun Marsh, the largest contiguous brackish water marsh remaining on the west coast of North America. Suisun Marsh is located in southern Solano County and is bordered on the east by the Sacramento-San Joaquin Delta, on the south by Suisun Bay, on the west by Interstate 680, and on the north by State Route 12 and the cities of Suisun and Fairfield. The Suisun Marsh is a critical part of the San Francisco Bay-Delta estuary ecosystem. In addition to the Suisun Marsh, there are numerous freshwater creeks, streams, permanent and seasonal wetlands and ponds throughout the corridor that serve to support wildlife habitat. Along the Interstate 80 East Corridor, there are approximately 14 historical bridges that cross the facility. Sensitive archeological sites are also known to exist along the entire length of the corridor.

4. Comprehensive Corridor Performance Assessment

The Solano County I-80 Freeway Performance Initiative (FPI) study served as the primary source for the assessment presented in this report and was also utilized as part of the Solano Highways Operations Plan. The FPI program was funded by the Metropolitan Transportation Commission (MTC) and examined a number of freeway corridors within the Bay Area. The objective of the FPI was to develop freeway strategic plans for each corridor by performing a technical assessment that included identification of major bottlenecks, determination of the causes of traffic congestion, development of potential mitigation strategies, and an assessment of their effectiveness.

The Solano I-80 FPI study encompassed the 44-mile section of I-80 throughout Solano County from the Carquinez Bridge to the Solano/Yolo County line. This study included an assessment of existing (2006/2007), 2015 and 2030 conditions. The existing conditions assessment relied on observed data from numerous sources including the Caltrans HICOMP reports, archived travel speed data from the MTC 511 Predict-a-Trip system, PeMS, and a limited number of floating vehicle travel time runs. For the 2015 and 2030 analysis, the Solano Transportation Authority (STA) countywide travel demand model was used to develop forecasts, and the FREQ12 macroscopic simulation model was used to assess operating conditions. Accident data derived from the TASAS database for the period September 1, 2003 to August 31, 2006, was used to assess safety concerns within the study corridor. This study was completed in 2008.

Beginning in January 2008, STA launched the Solano Highways Operations Plan by creating the Solano Highway Partnership (SoHIP) with the cities of Benicia, Dixon, Fairfield, Vacaville and Vallejo, MTC and Caltrans Districts 3 & 4. In addition to the partnership, the primary study goals were to develop operational improvements and policy recommendations relating to a long range Intelligent Transportation System (ITS), ramp metering, High Occupancy Vehicle (HOV) network/lane extensions, and visual features such as landscaping, hardscaping and soundwall aesthetic improvements that visually link corridor segments to areas of Solano County. In close partnership with Caltrans, the SoHIP team reviewed previous study analyses, conducted additional in-depth operational analysis of the freeway system in Solano County and convened a subcommittee to draft high-level landscape/hardscape concepts. By the end of 2009, the result was prioritized improvements and strategies that are recommended by STA, Caltrans, MTC and the rest of the SoHIP agencies. The STA Board adopted the Solano Highway Operations Study at their regular meeting on Feb 10, 2010 with concurrence from Caltrans District 4.

Existing Conditions

From the FPI report prepared for MTC, using 2007 traffic data, segments operating under traffic congestion were defined as operating at or under 35 mph for a period of 15 minutes or more. Four segments of I-80 were identified as operating under these conditions as described below and illustrated on the following map, "Figure 5. Existing Conditions (2007)," located on Page S-17.

AM Peak

- Location 1: Westbound from SR 12 West exit ramp to west of the westbound I-80/southbound I-680 connector. This congestion occurs only in the right lane.

PM Peak

- Location 2: Eastbound from I-680 on ramp to just west of the SR 12 West on ramp
- Location 3: Eastbound from the Travis Boulevard on ramp to near the Cordelia truck scale
- Location 4: Eastbound from the Yolo Causeway and CR 32-A/32-B interchange to just west of the Mace interchange

During the AM peak, congestion occurs at the SR 12 exit as a result of the high exiting volumes, high percentage of truck traffic (the westbound Cordelia truck scale is located just in advance of the exit ramp) and steep grades on westbound SR 12 after the exit. The queue at this location extends approximately 1 mile. It should be noted that the WB truck climbing lane on SR 12 West which was completed in 2008 eliminated the congestion on I-80.

In the PM peak, congestion at the I-680 on ramp is due to merging traffic from I-680 joining a heavily traveled section of I-80 eastbound. The eastbound queue extends approximately 1.5 miles to just west of the SR 12 West on weekdays, but on Friday afternoons the queue extends 2.5 miles to west of Red Top Road Interchange.

A bottleneck also occurs between the Travis Boulevard on ramp and the Airbase Parkway off ramp due to high demand and ramp merge and diverge movements between these ramps. The queue in this area extends for approximately 4 miles to near the Cordelia truck scale during weekdays.

Finally, PM peak congestion occurs for 4.5 miles from the Yolo Causeway and CR 32-A/32-B interchange to just west of the Mace interchange as well. The congestion occurs when high traffic demand approaching the causeway is combined with traffic entering I-80 from the CR 32-A/32-B interchanges and to a lesser extent at the Mace interchange.

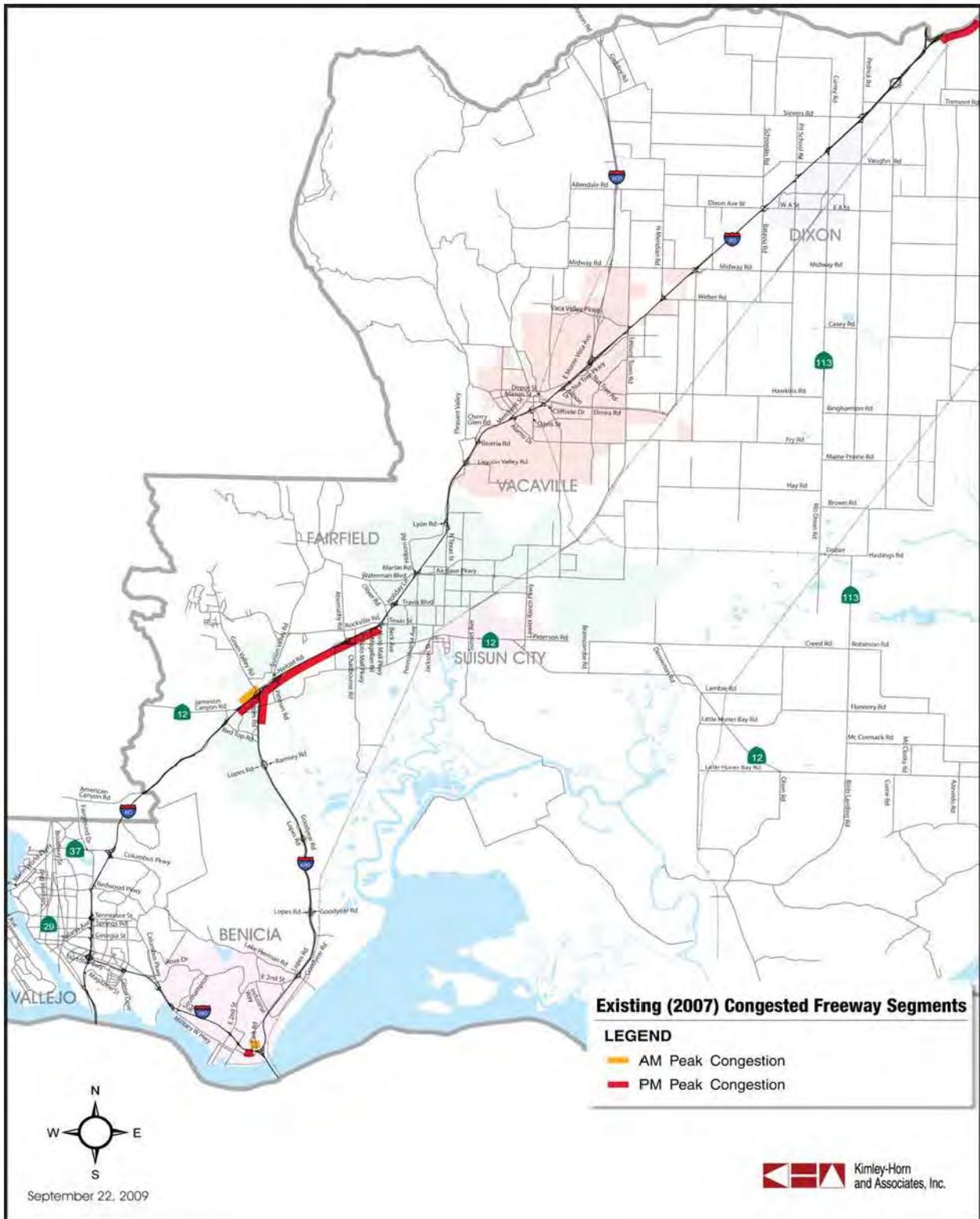


Figure 5. Existing Conditions (2007).

Future Year Conditions

For this future year assessment, it is expected that roadway geometries, capacities, and other interstate characteristics will change as projects are completed. As part of the I-80 FPI future conditions, four fully funded projects were assumed for both the 2015 and 2030 analyses:

- I-80 HOV Lanes Project (Red Top Road to Air Base Parkway)
- State Route 12 West Truck Climbing Lane Project
- Jameson Canyon Widening Project
- Westbound I-80 Auxiliary lane from Reconfigured Monte Vista Avenue on/off-ramps to I-505

Year 2015 Conditions

Freeway segments where recurring AM or PM peak period congestion is forecast for the Year 2015 are described below and shown in the following map illustration.

With the funded improvements operational by 2015, the FPI identified two congestion locations along I-80 in 2015. The Performance Degradation Report from the Solano Highways Operations Plan and the I-80 FPI state that no congested segments occur during the AM peak hour while two congested segments occur during the PM peak hour in the year 2015. Both are projected to occur during the PM peak period in the eastbound direction of travel approaching Vacaville and are illustrated on the map, “Figure 6. Year 2015 Congestion,” located on the following page.

PM Peak Hour

- Location 1: Eastbound between North Texas Street and Truck Scales off ramp.
- Location 2: Eastbound between Pleasant Valley Road on ramp and Cherry Glen Road

Eastbound congestion would extend 6.8 miles between North Texas Street and the Truck Scales off ramp is due to a bottleneck in the segment between the North Texas Street on ramp and the Cherry Glen Road off ramp. The second eastbound queue between the Pleasant Valley Road on ramp and Cherry Glenn Road would extend 0.7 miles and would be a result of a bottleneck between the Pleasant Valley Road to I-80 on ramp and the Alamo Drive off ramp.

2015 I-80 Bottleneck Locations		
No	Location	Cause
1	Eastbound between North Texas St and Cherry Glenn Rd	This bottleneck occurs when high eastbound volumes in the three general purpose lanes combine with the North Texas onramp traffic at this location.
2	Eastbound between Pleasant Valley Rd and Alamo Drive	This bottleneck occurs where the Pleasant Valley Road onramp traffic joins with the three eastbound general purpose lanes at this location.

Flow rates and demand volumes, measured in vehicles per hour (vph) were examined in the I-80 FPI for the bottlenecks described above and within the projected queues resulting from these bottlenecks. The evaluation revealed that both of these locations would need to be addressed simultaneously since mitigating the bottleneck at North Texas Street simply moves the controlling bottleneck downstream to Pleasant Valley Road. The analysis also revealed two upstream embedded bottlenecks: eastbound between Air Base Pkwy and North Texas Street and eastbound between the truck scales on-ramp and SR 12. Finally, the analysis in the I-80 FPI also shows constrained flows at the interchange ramp terminal where I-680 joins I-80, while field observations at the SR 12 east off-ramp reveal back-ups that result from queues at the signalized downstream intersections – most notably Beck Avenue.

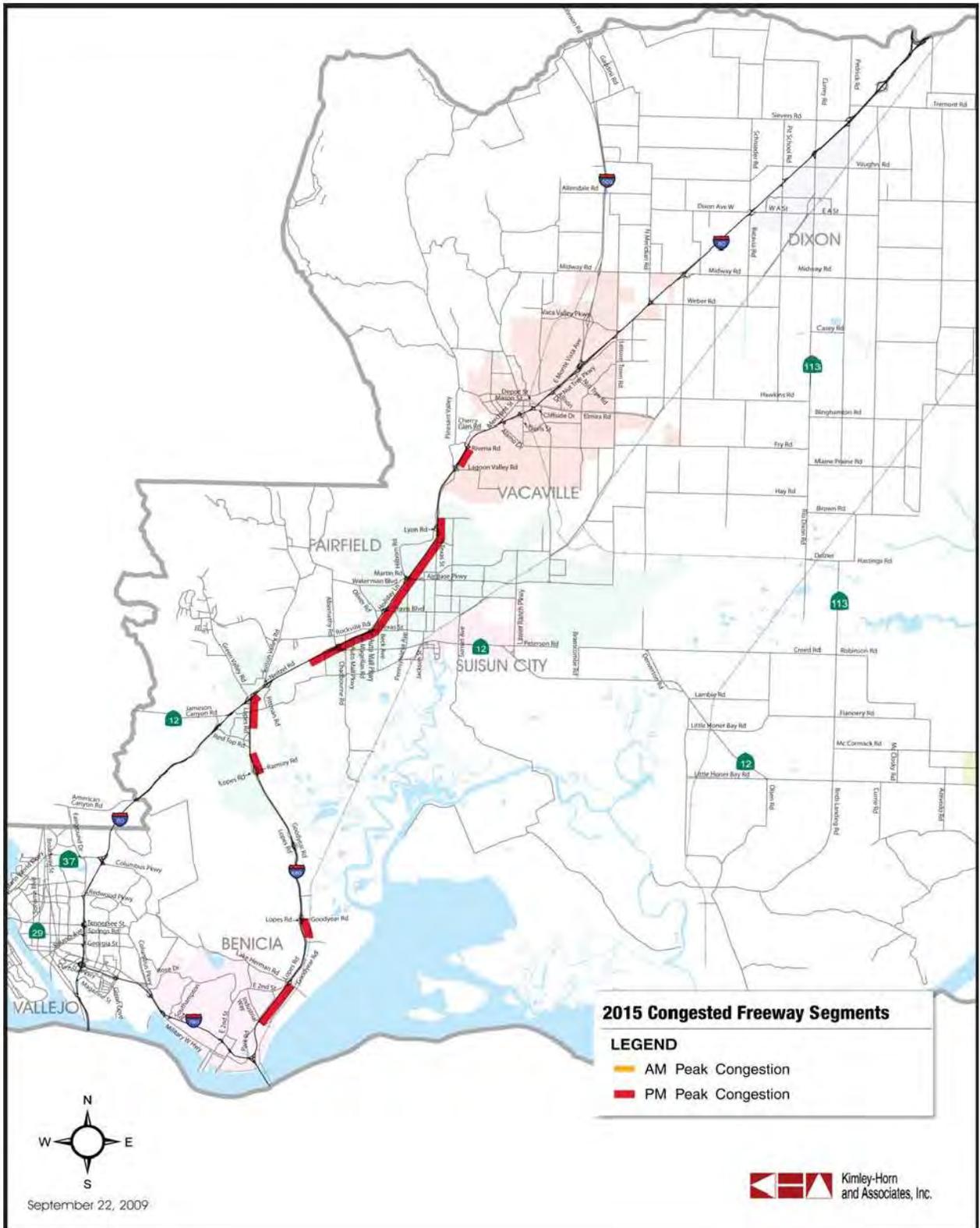


Figure 6. Year 2015 Congestion.

Year 2030 Conditions

Freeway segments where recurring AM or PM peak period congestion is forecast for the Year 2030 are described and shown below. The four congested locations along I-80 are also illustrated on the map, “Figure 7. Year 2030 Congestion,” located on Page S-22.

AM Peak Hour

- Location 1: Westbound from SR 29 on-ramp to the rest stop east of Columbus Parkway
- Location 2: Westbound from west of Suisun Valley Road to west of Leisure Town Road

PM Peak Hour

- Location 3: Eastbound from Pleasant Valley Road on ramp to the south side of the Carquinez Bridge.
- Location 4: Eastbound from the Yolo Causeway east of the Webster Street on ramp to west of Richards Boulevard.

During the AM peak period, two congested segments were identified in the westbound direction of I-80. The first of these segments extends 5.6 miles between SR 29 on ramp and the rest stop east of Columbus Parkway, and is due to a bottleneck in the three lane section of I-80 west of the SR 29 on ramp. Reaching 14.8 miles, the second congested segment between west of Suisun Valley Road and west of Leisure Town Road is due to a bottleneck between the SR 12 on ramp and the Suisun Valley Road off ramp.

In the PM peak period, the FPI report identified two congested segments in the eastbound direction of I-80. The worst of these is the segment between Pleasant Valley Road on ramp and the south side of Carquinez Bridge. This congested segment extends 25 miles and is due to a bottleneck between the Pleasant Valley Road on ramp and the Alamo Drive off ramp. The second congested segment is the 6.1-mile section between the causeway east of the Webster Street on ramp and west of Richards Boulevard. This congestion occurs due to a bottleneck on the Yolo Causeway east of where the Webster Street on ramp joins eastbound I-80.

2030 I-80 Bottleneck Locations		
No	Location	Cause
1	Westbound at SR 29	This bottleneck location is where the westbound SR 29 onramp joins I-80.
2	Westbound between the SR 12 East onramp and the truck scales off-ramp	This bottleneck is in the I-80/I-680/SR 12 interchange area. While the specific location is identified as between the truck scales and SR 12 East, it is effectively between Suisun Valley Road and SR 12 East because of the characteristics of the traffic entering and exiting at the truck scales.
3	Eastbound between Pleasant Valley Rd and Alamo Drive	This bottleneck location is the same as in 2015 analysis and occurs when high eastbound volumes in the four general purpose lanes combine with the Pleasant Valley road on-ramp traffic at this location.
4	Eastbound at the County Road 32A / 32B (Webster Rd) interchange	This bottleneck is where the 32A/32B location joins the heavily traveled segment of I-80 approaching the Yolo Causeway. By 2030, this bottleneck is expected to occur regularly on typical weekdays due to traffic growth on the I-80 corridor and due to the addition of capacity on I-80 upstream that will allow demand to reach this location.

In the westbound direction, in addition to the two controlling bottlenecks, there is also an upstream bottleneck between Abernathy Road and West Texas Street and a downstream bottleneck at the Carquinez Bridge and slightly west of the bridge.

It should be noted that for Location 4, operational improvement measures for this bottleneck location would need to include additional capacity (either an HOV or a general purpose lane) on the Yolo Causeway. However, specific recommendations were not provided in the I-80 FPI since this bottleneck and associated queue are located outside of Solano County.

The controlling bottleneck in the eastbound direction of travel is located between Pleasant Valley Road and Alamo Drive (Location 3). At this location, the 2030 mainline demand volume is 10,800 vph compared to the current capacity of this mixed-use four-lane section which is about 8,000 vph. The queue that results from this bottleneck is projected to extend 25 miles to the western limits of the study area at the Carquinez Bridge. There are also bottlenecks that occur downstream of this location and upstream embedded bottlenecks within the resulting queue. These bottlenecks are from Alamo Drive to Allison Drive, from Air Base Parkway to North Texas Street, and the I-80/I-680/SR 12 interchange area. Additionally, bottlenecks occur from the Tennessee Street on-ramp to Redwood Parkway, SR 29 to Sequoia Ave, and Midway Road to Dixon Avenue.

5. Recommended Corridor Management Improvement Strategies

Corridor Management Strategies

This section identifies operational improvement strategies intended to address both existing and future performance deficiencies on the I-80 East CSMP Corridor. This analysis is based largely on information from prior studies, notably the Solano I-80 Corridor Freeway Performance Initiative (FPI) study.

Operating Conditions

As identified in the I-80 FPI future conditions, four fully funded projects are assumed for the 2015 and 2030 analysis:

- I-80 HOV Lanes Project (Red Top Road to Air Base Parkway)
- State Route 12 West Truck Climbing Lane Project
- Jameson Canyon Widening Project
- Westbound I-80 Auxiliary lane from Reconfigured Monte Vista Avenue on/off-ramps to I-505

With these four fully funded projects, the Performance Degradation Report and the I-80 FPI state that no congested segments occur during the AM peak hour while two congested segments occur during the PM peak hour in the year 2015.

PM Peak Hour

- Eastbound between North Texas Street and Truck Scales off ramp
- Eastbound between Pleasant Valley Road and Cherry Glen Road

The I-80 FPI study suggested a combination of strategies to address the congestion and bottlenecks described above. These operational improvement strategies for Year 2015 are detailed in the following table below.

2015 I-80 Operational Improvement Strategies	
Strategy	Location and Details
HOV Lane	Extend the programmed eastbound HOV-2 lane from between Air Base Pkwy and North Texas St to Alamo Dr
Ramp Metering	Install on local service interchanges (eastbound and westbound) between Air Base Pkwy and Alamo Drive
	Install at the I-80 eastbound Green Valley Rd and Suisun Valley Rd interchanges
Auxiliary Lane	Provide in the eastbound direction between Travis Blvd and Air Base Pkwy
	Provide in the eastbound direction between Pleasant Valley Rd and Alamo Drive with a two-lane off ramp at Alamo Drive
	Provide additional capacity equivalent of one, eastbound through lane at the intersection of SR 12 East and Beck Avenue
ITS	Assess gaps in the current and programmed ITS installations and supplement as needed. (Areas include between SR 29 and SR 37 in Vallejo and from Red Top Road to Air Base Parkway)
	Extend coverage to fill the gap between SR 37 and Red Top Road
	Extend coverage eastward from Air Base Parkway to the Solano/Yolo County line.

For 2030, the I-80 FPI and Performance Degradation Report state that four congested segments occur during the AM and PM peak hours in the year 2030.

AM Peak Hour

- Westbound from SR 29 on-ramp to the rest stop east of Columbus Parkway
- Westbound from west of Suisun Valley Road to west of Leisure Town Road

PM Peak Hour

- Eastbound from Pleasant Valley Road on ramp to the south side of the Carquinez Bridge.
- Eastbound from the causeway east of the Webster Street on ramp to west of Richards Boulevard.

Operational improvement strategies for Year 2030, by direction, are detailed in the following tables below.

2030 I-80 Westbound Operational Improvement Strategies	
Strategy	Location and Details
General Purpose Lane	Between I-680 and SR 12 West the section should include five westbound general use lanes
	Between SR 12 East and I-680, the section should include five westbound general use lanes
	From SR 12 East to West Texas Street, a fifth westbound general purpose lane should be included
Auxiliary Lane	Provide a westbound auxiliary lane between Air Base Parkway and Travis Boulevard
	Provide a westbound auxiliary lane between North Texas Street and Air Base Parkway
	Provide a westbound auxiliary lane between Alamo Drive and Pleasant Valley Road
HOV Lane	Extend the westbound HOV-2 lane from Air Base Parkway to I-505
	Extend the HOV-3 lane from the Carquinez Bridge to east of the SR 29 westbound on-ramp
	Extend the HOV-3 lane from east of the SR 29 westbound on-ramp to SR 37
Ramp Metering	Install ramp metering at all westbound local access interchanges between Alamo Drive and I-505
	Install ramp metering at westbound local access interchanges from I-505 eastward to the Solano / Yolo County Line
	Install in the westbound direction at local access interchanges in Vallejo between SR 29 and SR 37
Interchange Modifications	Identify and improve geometry and access between SR 29 and SR 37 in the westbound direction by consolidating or removing access points and improving merge and diverge areas

2030 I-80 Eastbound Operational Improvement Strategies	
Strategy	Location and Details
General Purpose Lane	Provide a fifth eastbound general purpose lane extending from SR 12 East to Air Base Parkway
	Provide a fourth eastbound general purpose lane extending from Leisure Town Rd to west of SR 113 (the existing four-lane section is between Pedrick Rd and Kidwell Rd)
	The segment between SR 12 West and I-680 should include five eastbound general use lanes
	The segment between SR 12 East and I-680 should include six eastbound general purpose lanes
	Extend the fourth eastbound general purpose lane from the SR 29 off-ramp to the Sequoia Ave off-ramp
Auxiliary Lane	Maintain the eastbound auxiliary lane between Abernathy Rd and West Texas Street
	Provide an eastbound auxiliary lane between Cliffside Drive and Allison Drive with a two-lane off-ramp at Allison Drive
	Provide eastbound auxiliary lane between Cherry Glenn Rd and Pleasant Valley Rd
	Provide as necessary between SR 12 West and I-680 and I-680 and SR 12 East and adjust truck scales location within the same general area to improve weave and merge maneuvers
	Provide an eastbound auxiliary lane between the Tennessee Street on-ramp and the Redwood Street off-ramp
	Provide an eastbound auxiliary lane between the I-780 on-ramp and the Georgia Street off-ramp
HOV Lane	Extend the HOV-2 lane from Alamo Drive to I-505.
	Provide EB HOV-2 lane from SR 29 to SR 37
	Provide EB HOV-2 lane from SR 37 to Red Top Rd
Ramp Metering	Install ramp metering at all eastbound local access interchanges between Alamo Drive and I-505
	Install in the eastbound direction at local access interchanges in Vallejo between SR 29 and SR 37
Interchange Modifications	Improve the I-680/I-80 interchange connections to address the capacity deficiencies of these ramps by either modifying the current interchange geometry or implementing an alternative configuration
	Provide braided ramp configurations as necessary between I-680 and SR 12 East and adjust truck scales location within the same general area to improve weave and merge maneuvers
	Provide braided ramp configurations as necessary between SR 12 West and I-680 to improve weave and merge maneuvers
	Identify and improve geometry and access between SR 29 and SR 37 in the eastbound direction by consolidating or removing access points and improving merge and diverge areas

The following exhibits (Figures 8 through 13) summarize the existing (2007), 2015, and 2030 conditions and the suggested operational improvements for congested segments and bottleneck locations. As shown in the exhibits, the proposed operational improvements would relieve all of the eastbound 2015 congestion (there is no 2015 westbound congestion). These 2015 strategies include HOV lanes, ramp metering, and auxiliary lanes. Similarly, longer-term strategies would eliminate all 2030 congestion. Operational improvements for 2030 would add general purpose lanes, auxiliary lanes, HOV lanes, ramp metering, and interchange modifications. It should be noted that while these exhibits do not show the deployment of ITS elements along the I-80 corridor, installation of ITS elements, including the necessary communication system, to fill gaps and cover the entire corridor is recommended as an operational improvement strategy for 2015.

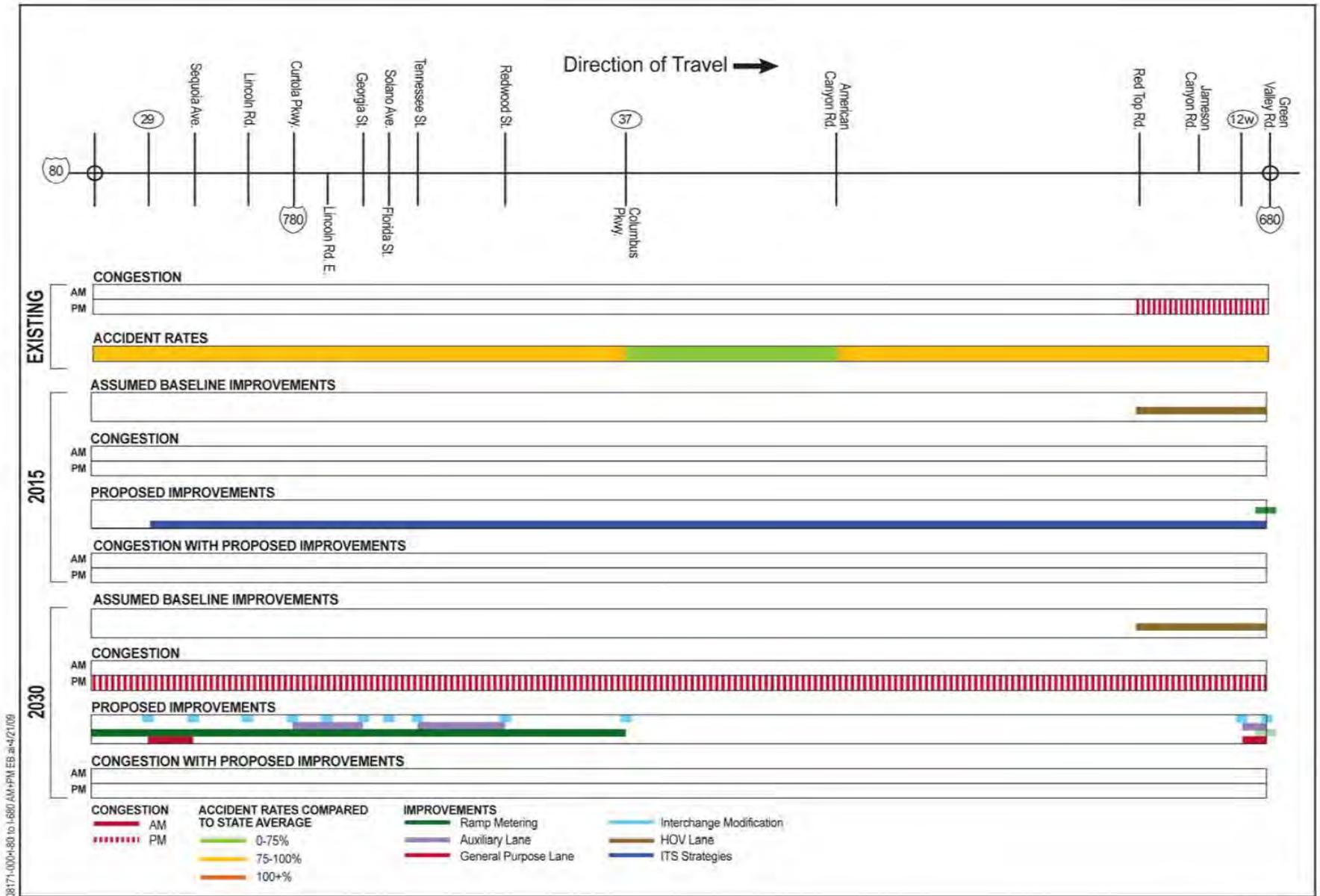


Figure 8. I-80 Eastbound between Carquinez Bridge and I-680.

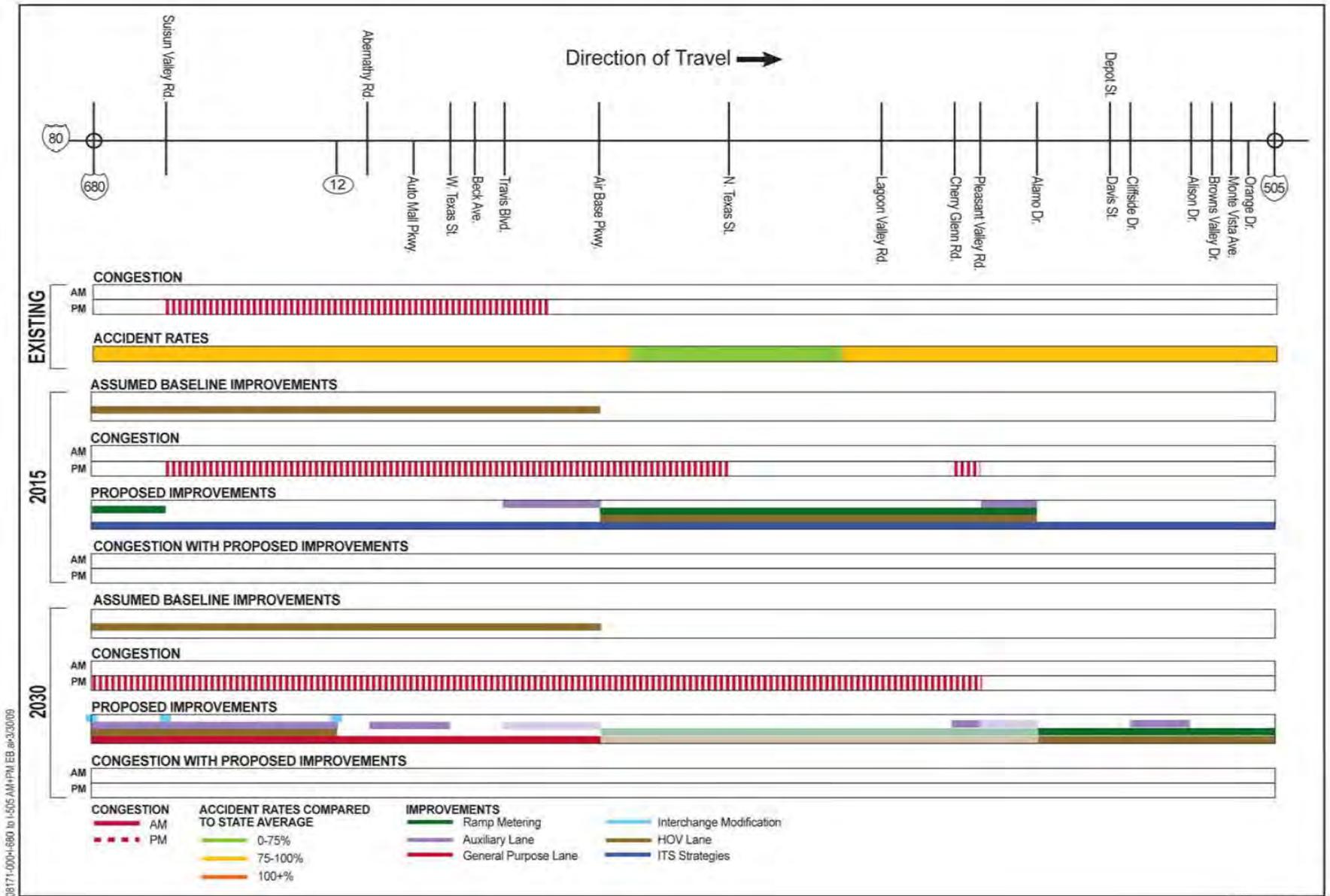


Figure 9. I-80 Eastbound between I-680 and I-505.

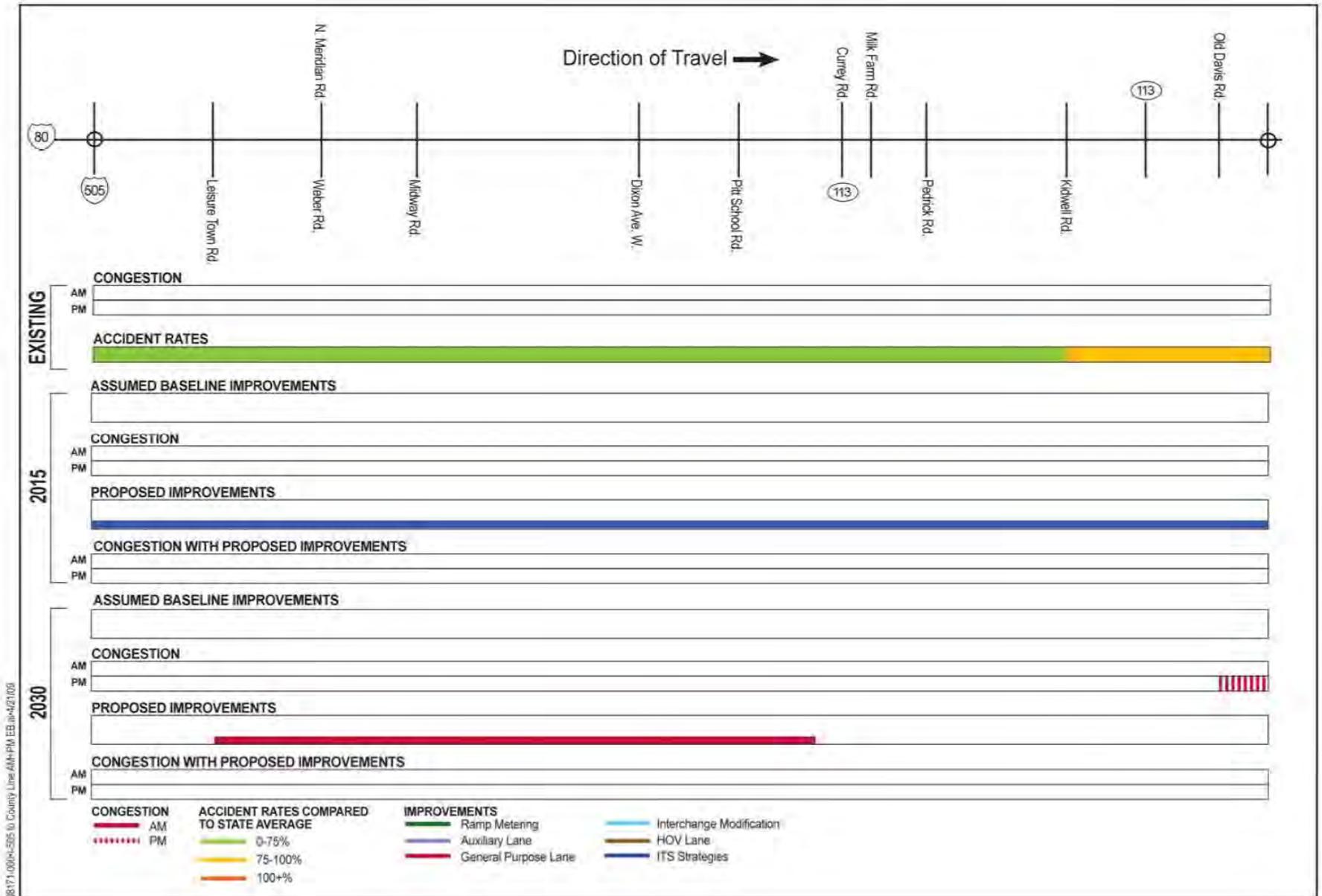


Figure 10. I-80 Eastbound between I-505 and Solano/Yolo County Line.

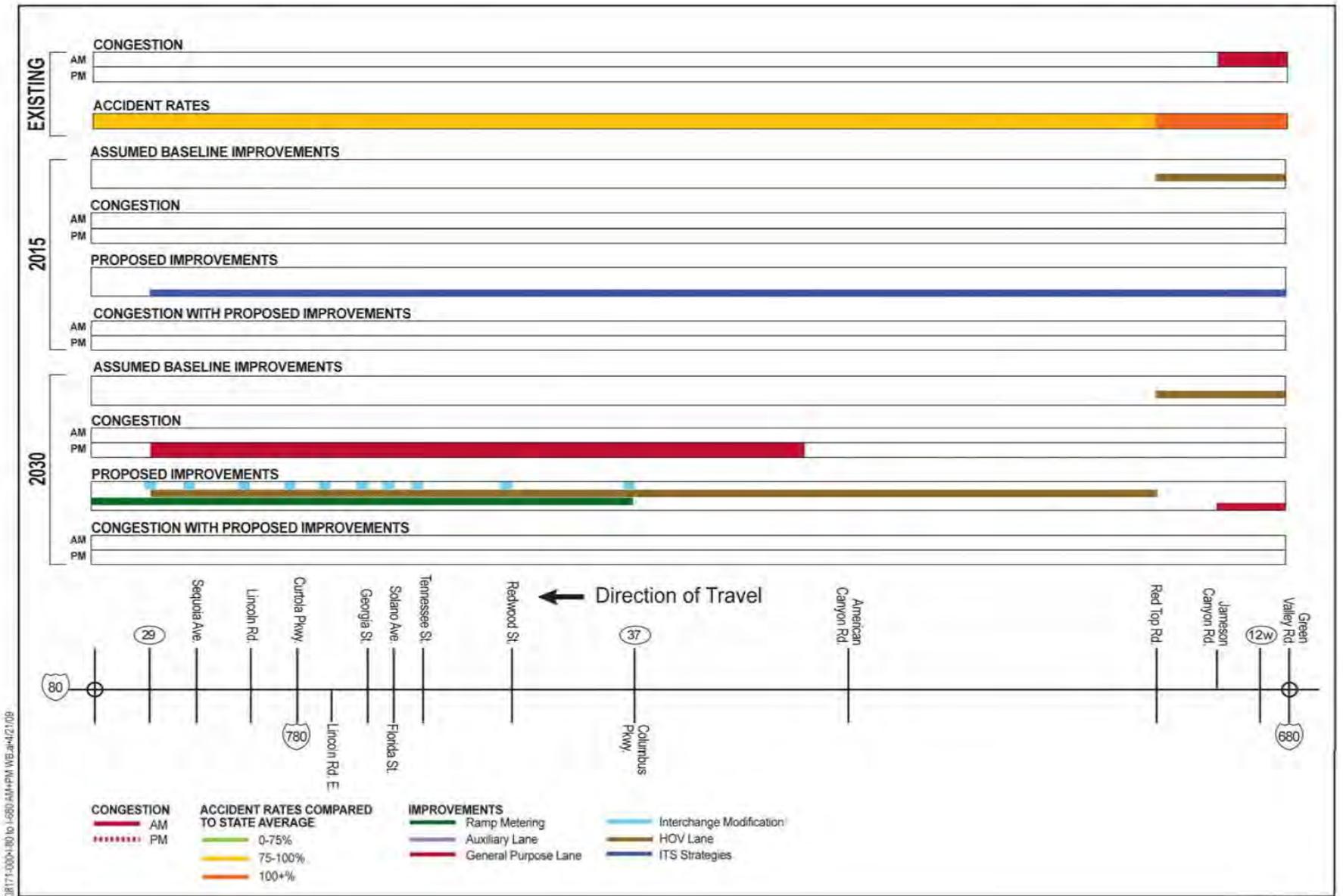


Figure 11. I-80 Westbound between I-680 and the Carquinez Bridge.

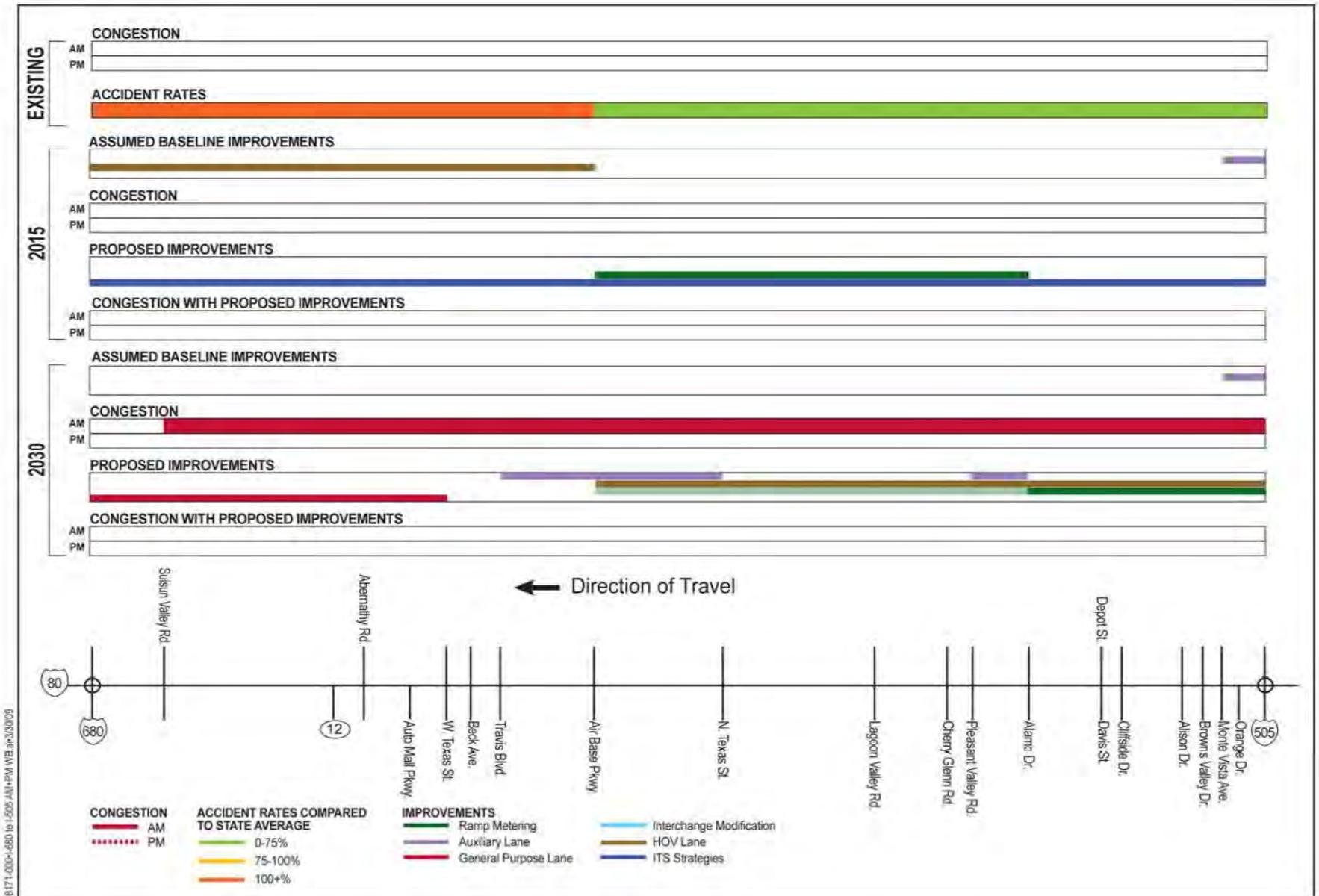


Figure 12. I-80 Westbound between I-505 and I-680.

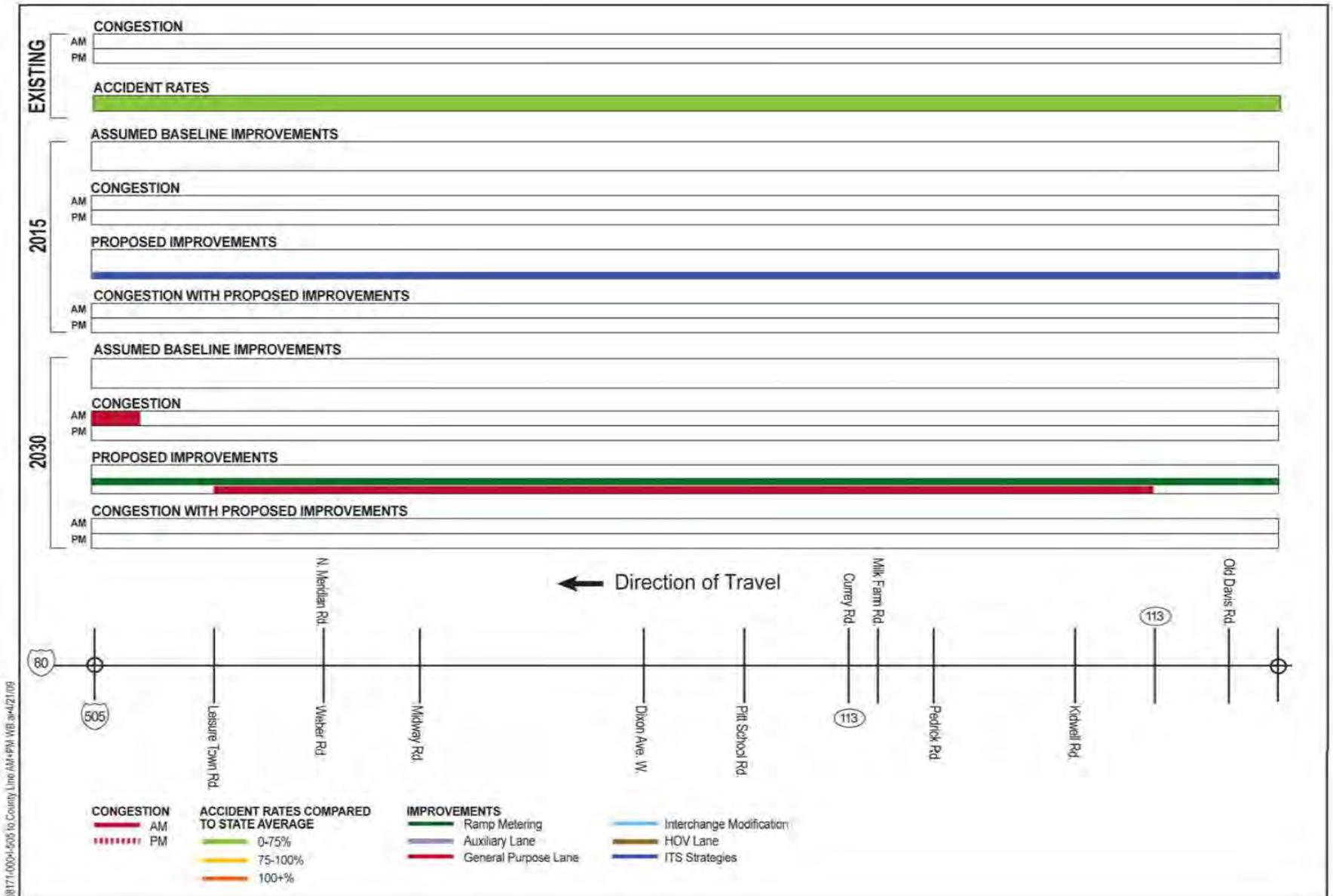


Figure 13. I-80 Westbound between Solano/Yolo County line and I-505.