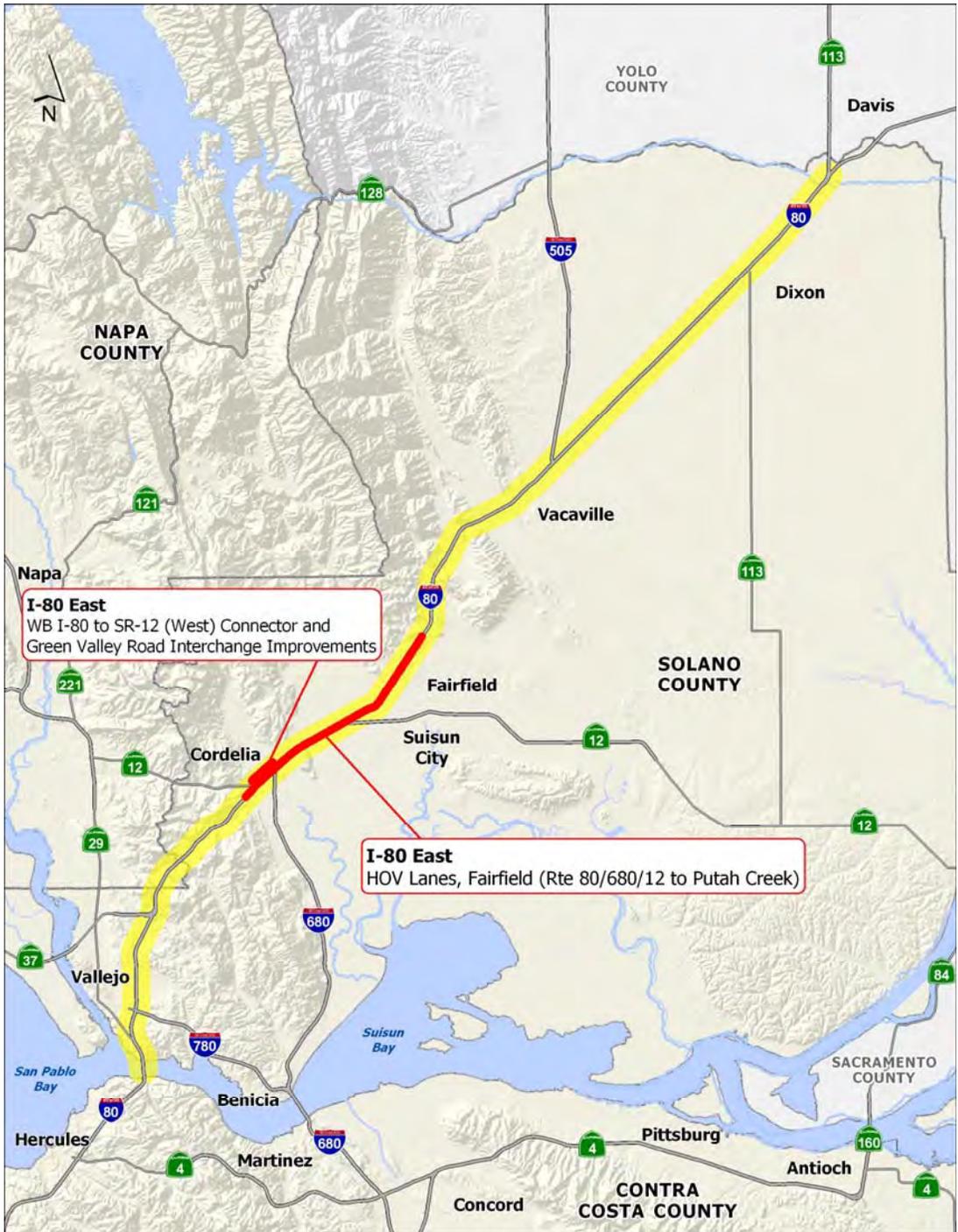


**FINAL**  
**10/11/10**

# I-80 EAST

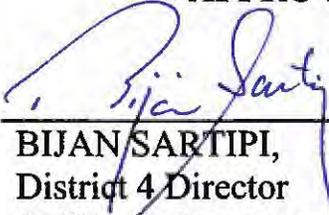
## CSMP Corridor Limits

*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.*



# I-80 East Corridor System Management Plan

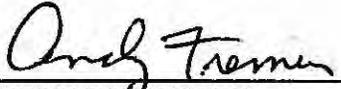
## APPROVED BY:

  
\_\_\_\_\_  
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

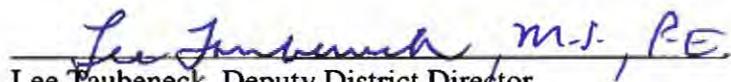
## ACCEPTED BY:

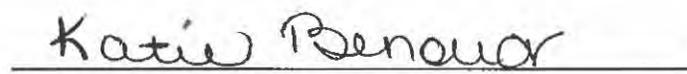
  
\_\_\_\_\_  
DARYL HALLS,  
Executive Director  
Solano Transportation Authority

9/13/10  
Date

# I-80 East Corridor System Management Plan

Approval Recommended by:

  
Lee Faubeneck, Deputy District Director  
Division of Transportation Planning & Local Assistance

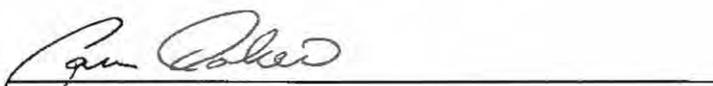
  
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## Stakeholder Acknowledgement

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](http://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.

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# 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.

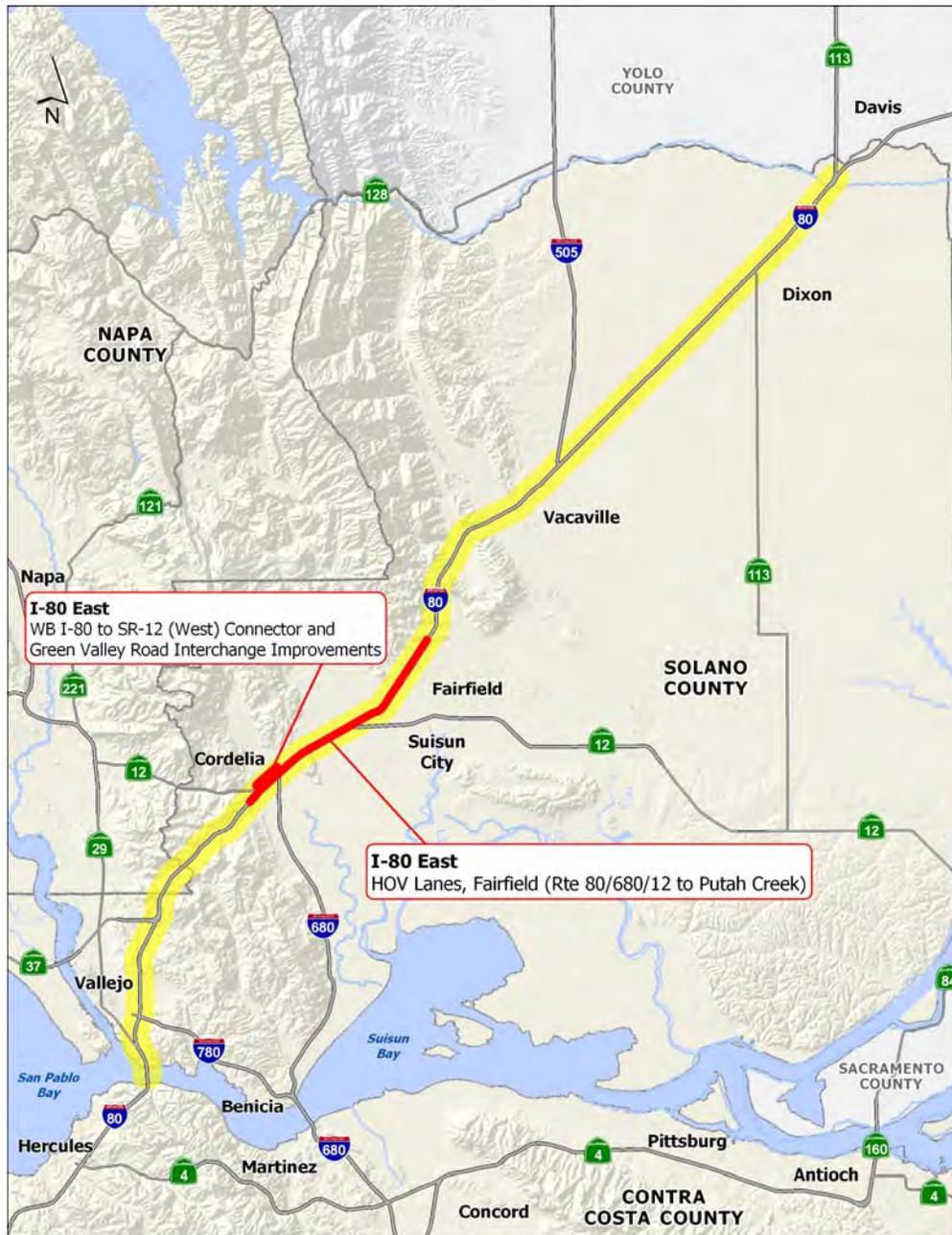
The I-80 East Corridor system will be regularly monitored using identified performance measures and Traffic Operations Systems (TOS) data, and will be reported in subsequent CSMP updates. This information will be used to continually improve system performance. As discussed above, new strategies may emerge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

CORRIDOR SYSTEM  
MANAGEMENT PLAN

# 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.*



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

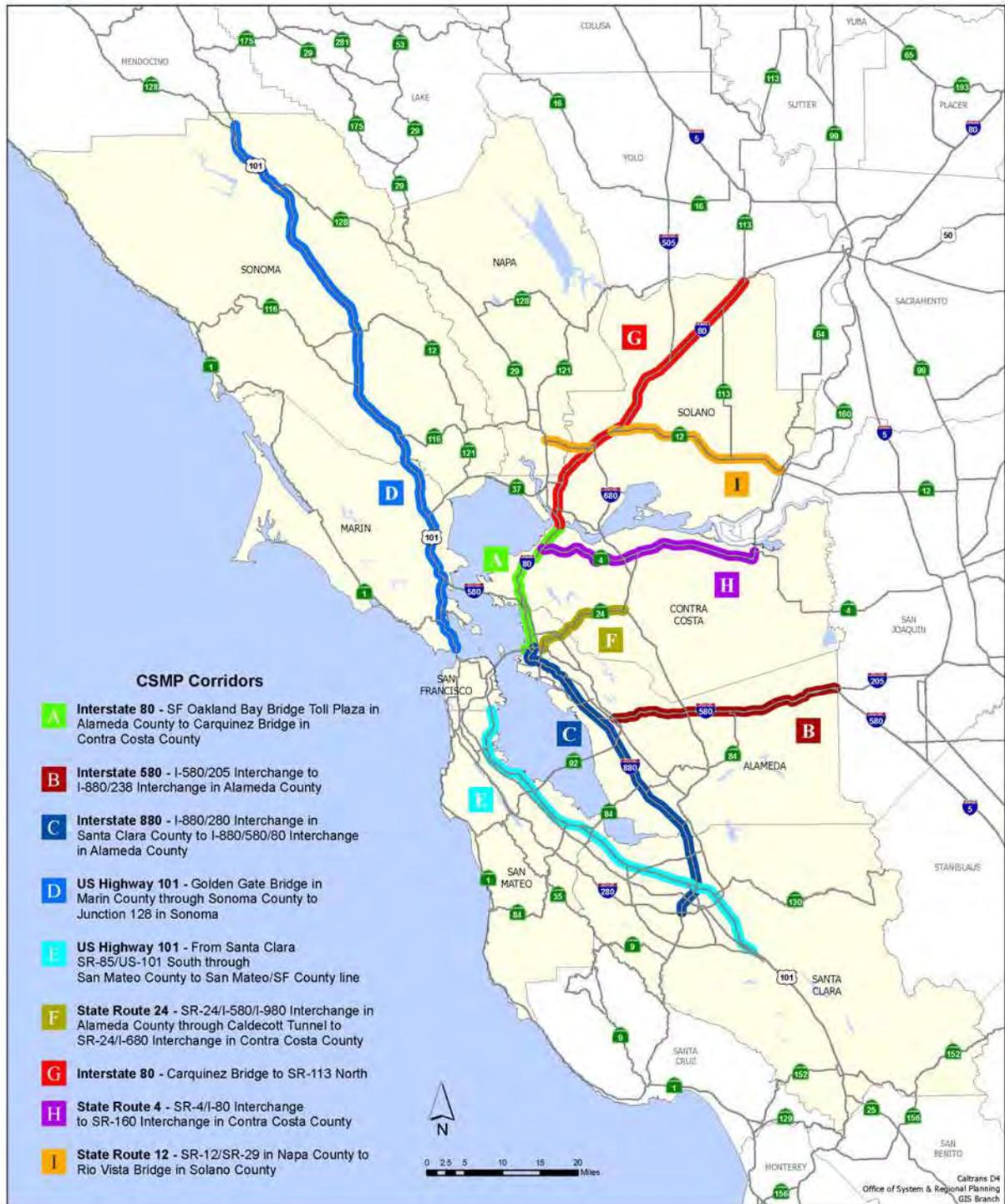


Figure 1. District 4 CSMP Corridors (May 2010).



### ***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.

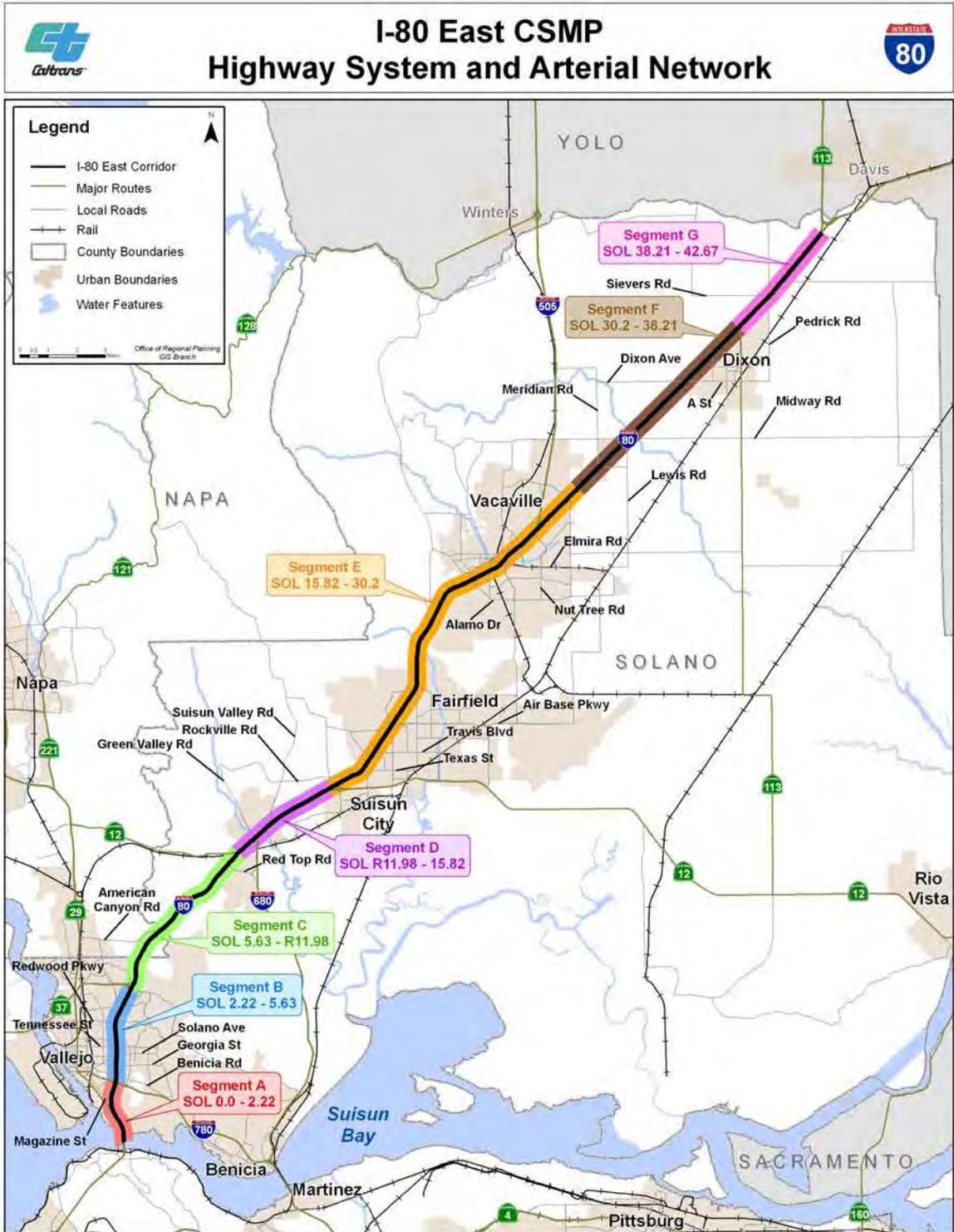


Figure 3. I-80 East CSMP Highway System and Arterial Road Network.

### ***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 60<sup>th</sup> 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).

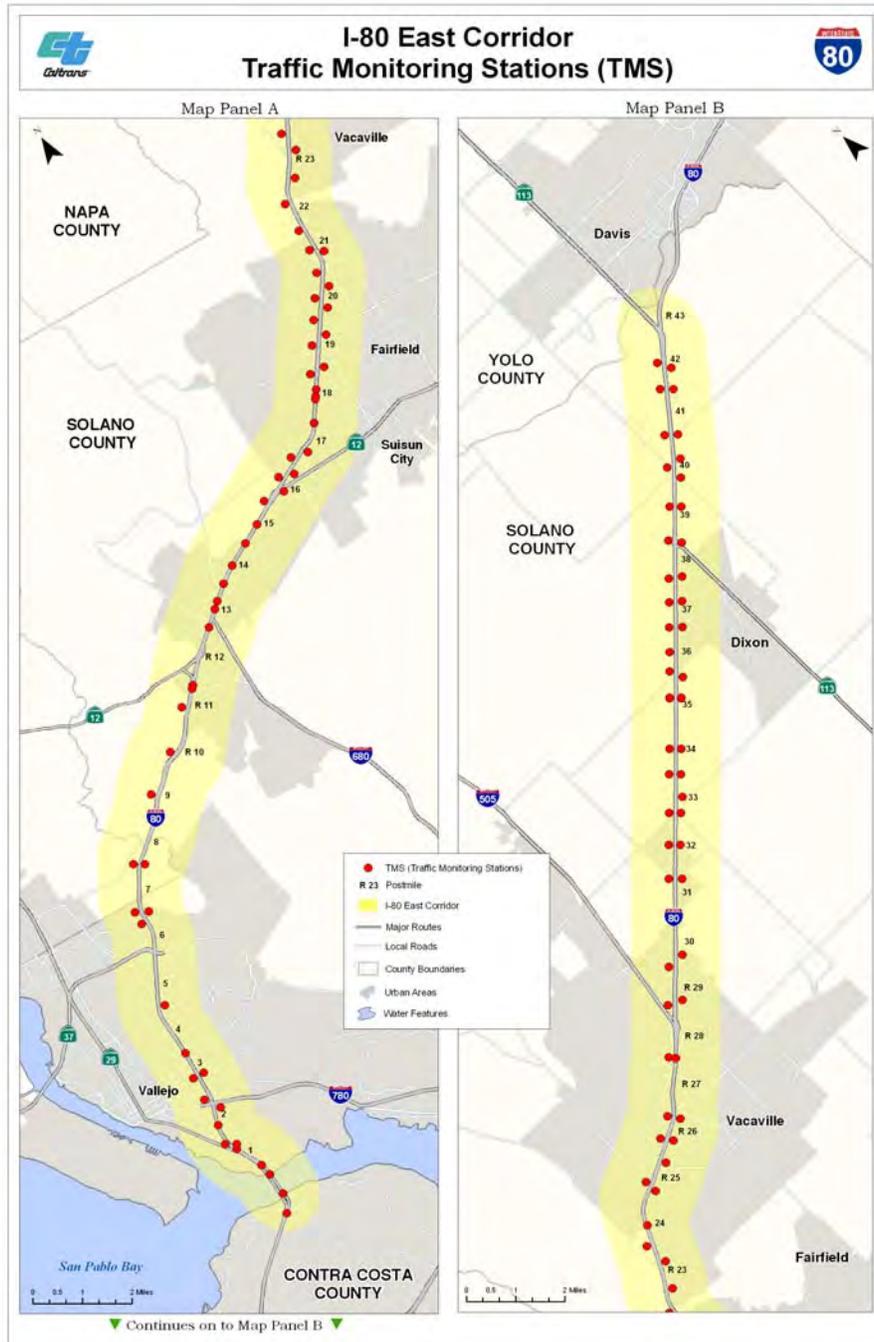


Figure 4. Existing traffic detection on I-80 East CSMP Corridor.

### ***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.

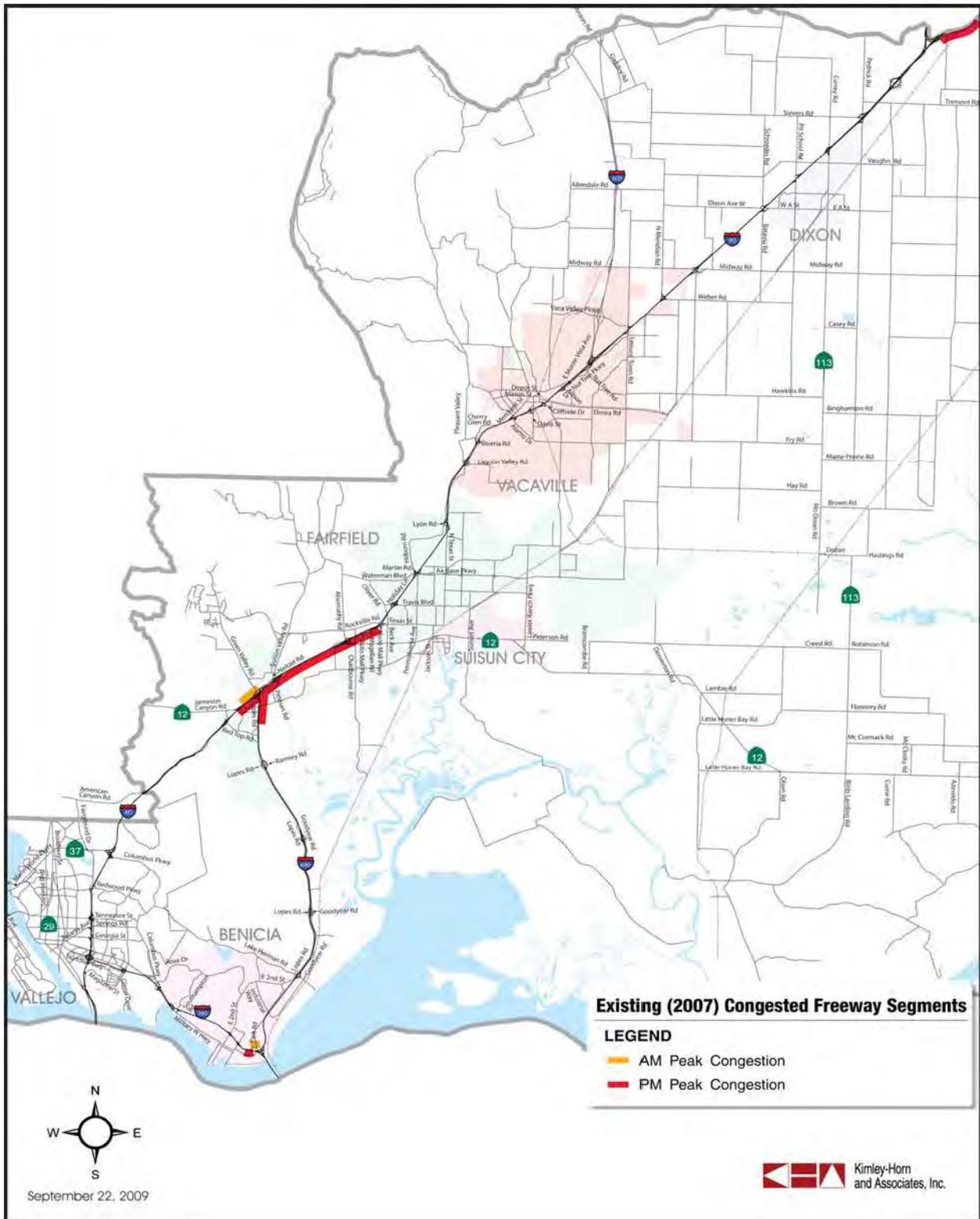


Figure 5. Existing Conditions (2007).

**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.

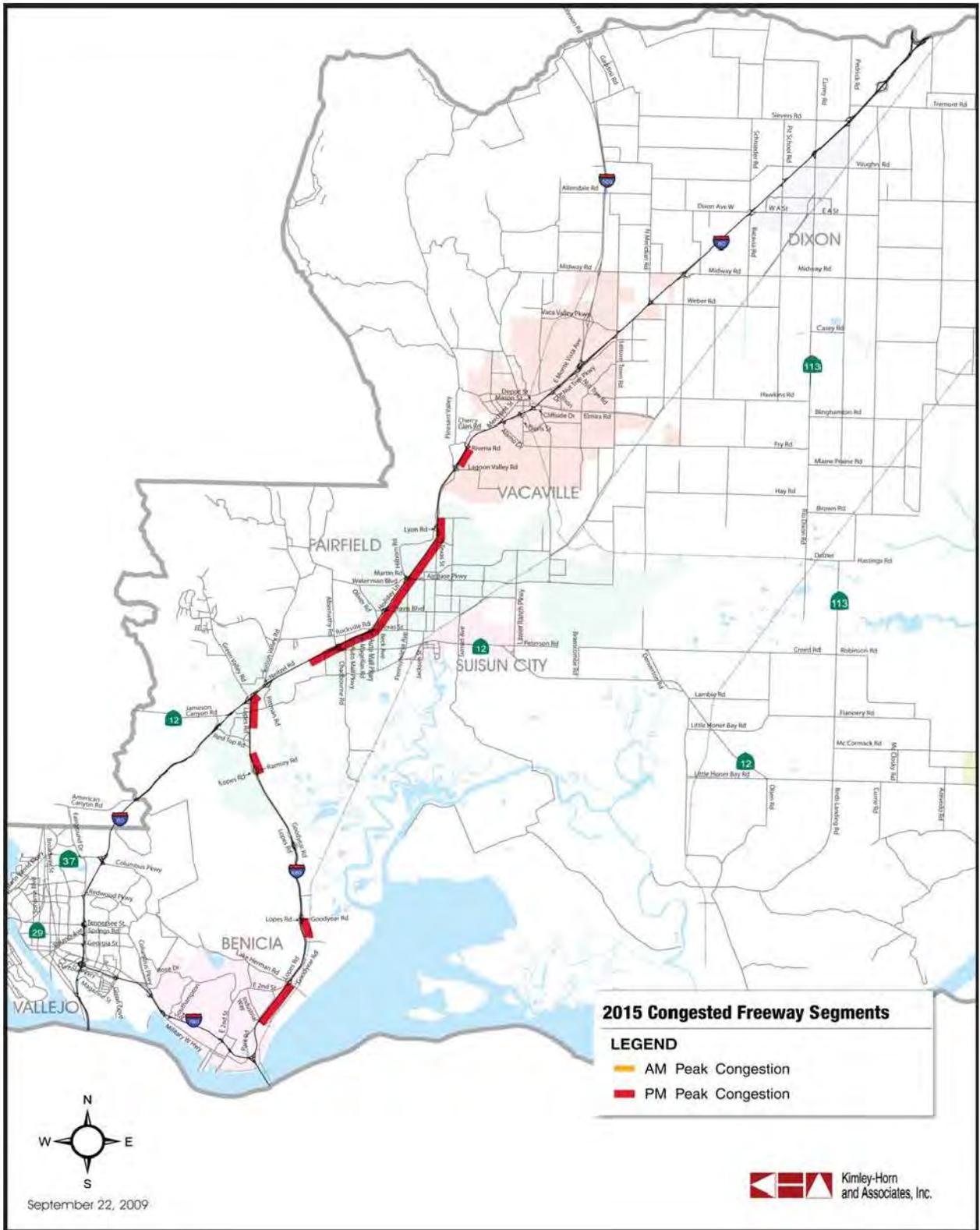


Figure 6. Year 2015 Congestion.

**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.

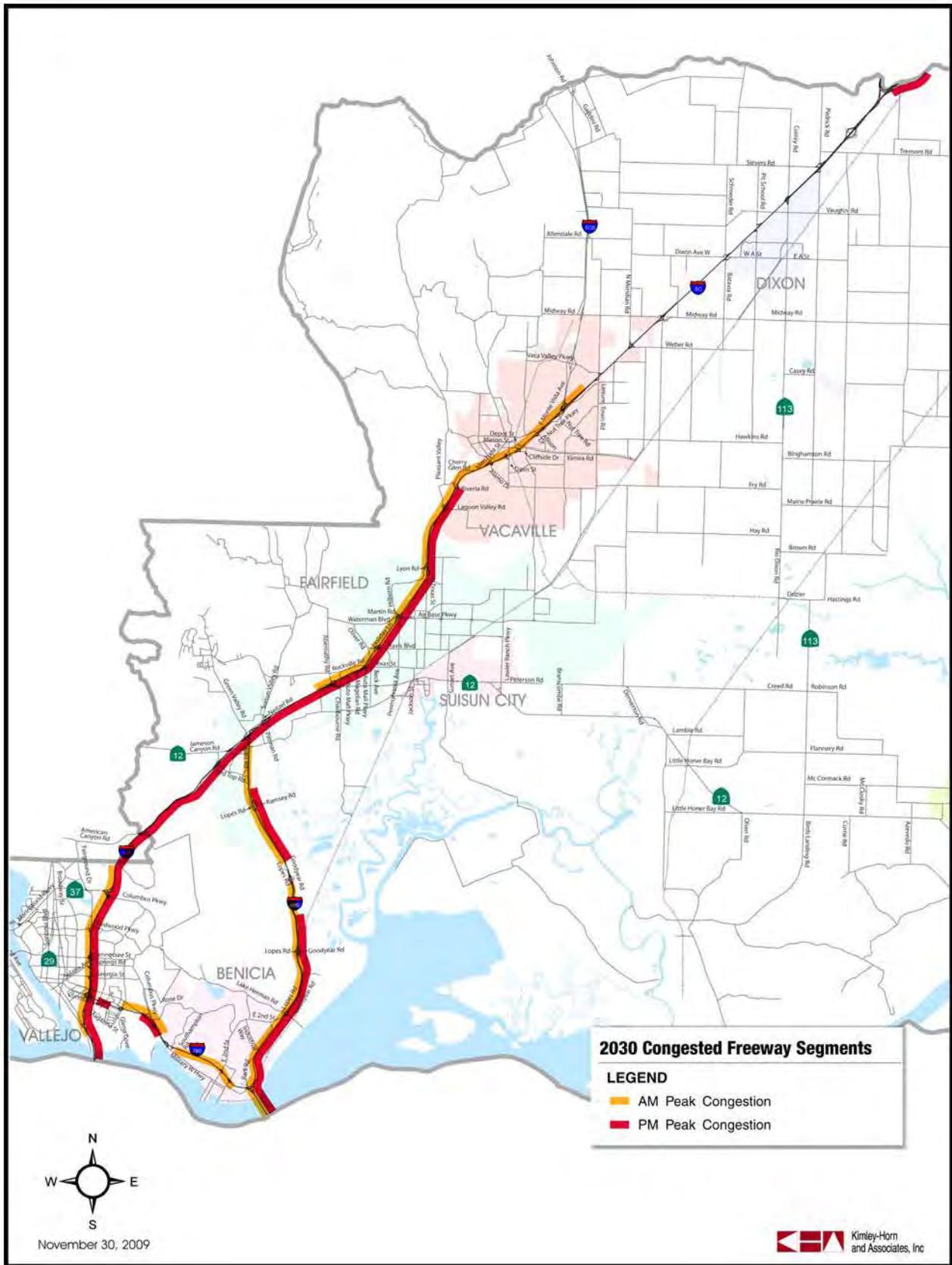


Figure 7. Year 2030 Congestion.

**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.

<b>2015 I-80 Operational Improvement Strategies</b>	
<b>Strategy</b>	<b>Location and Details</b>
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

<b>2030 I-80 Eastbound Operational Improvement Strategies</b>	
<b>Strategy</b>	<b>Location and Details</b>
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.

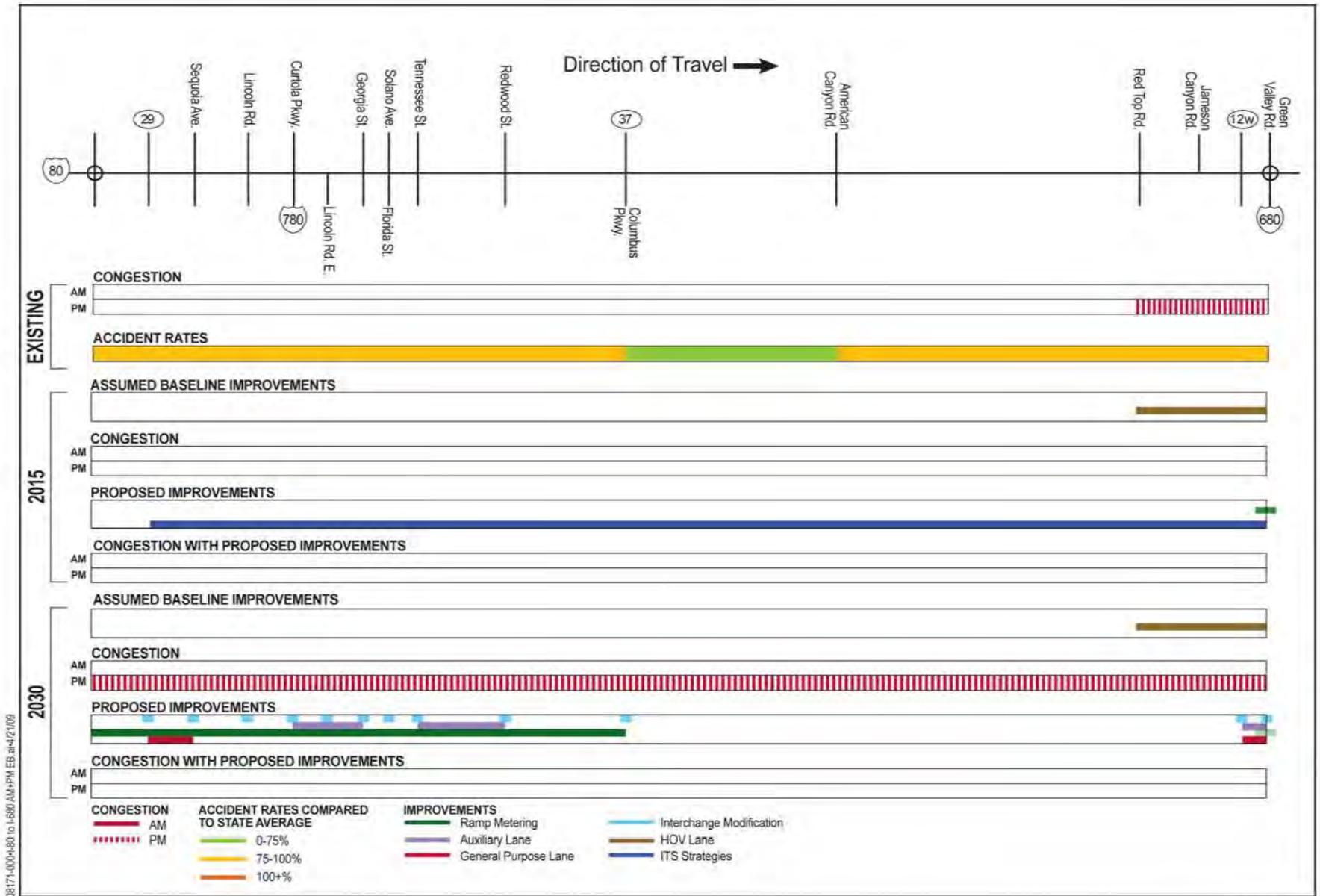


Figure 8. I-80 Eastbound between Carquinez Bridge and I-680.

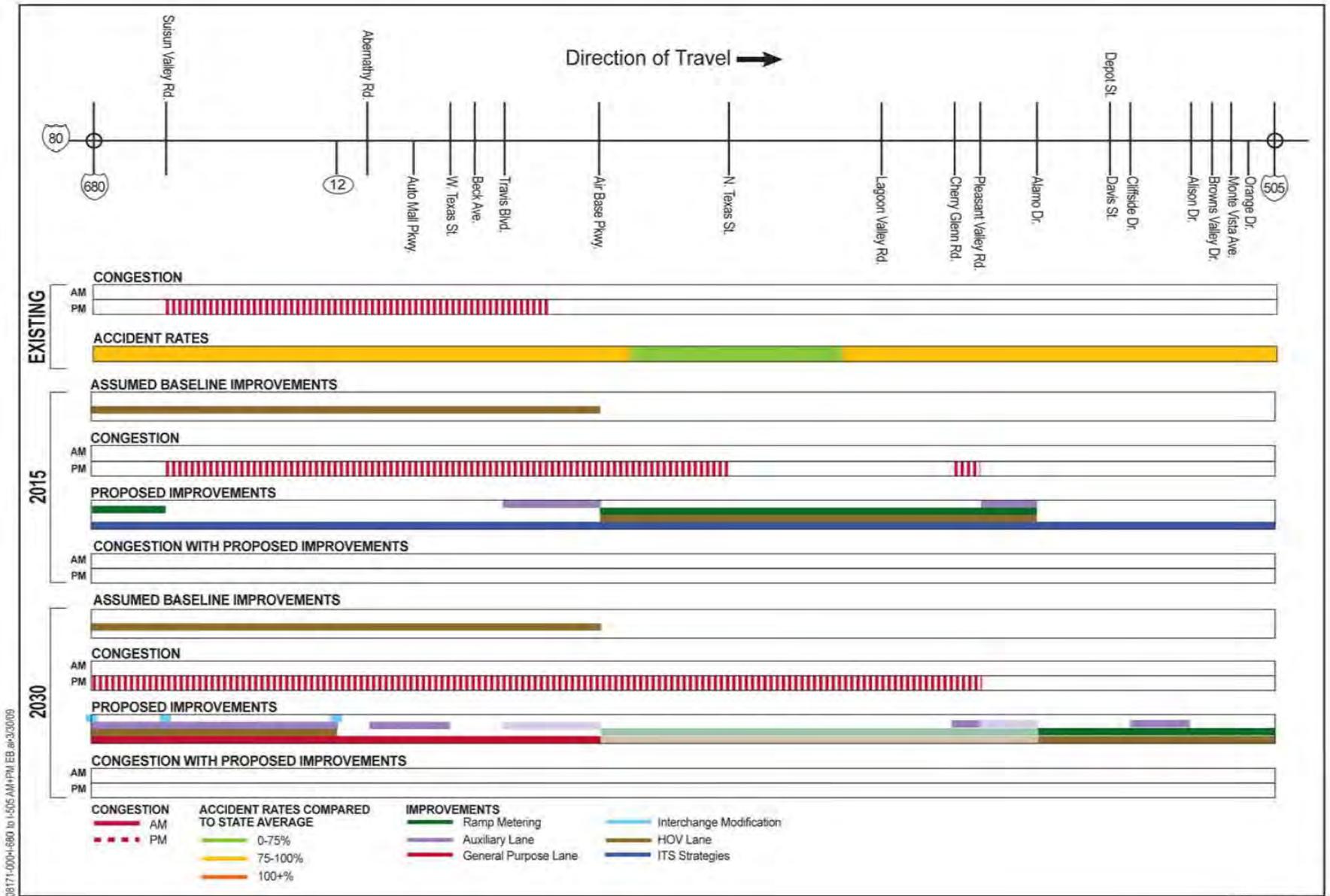


Figure 9. I-80 Eastbound between I-680 and I-505.

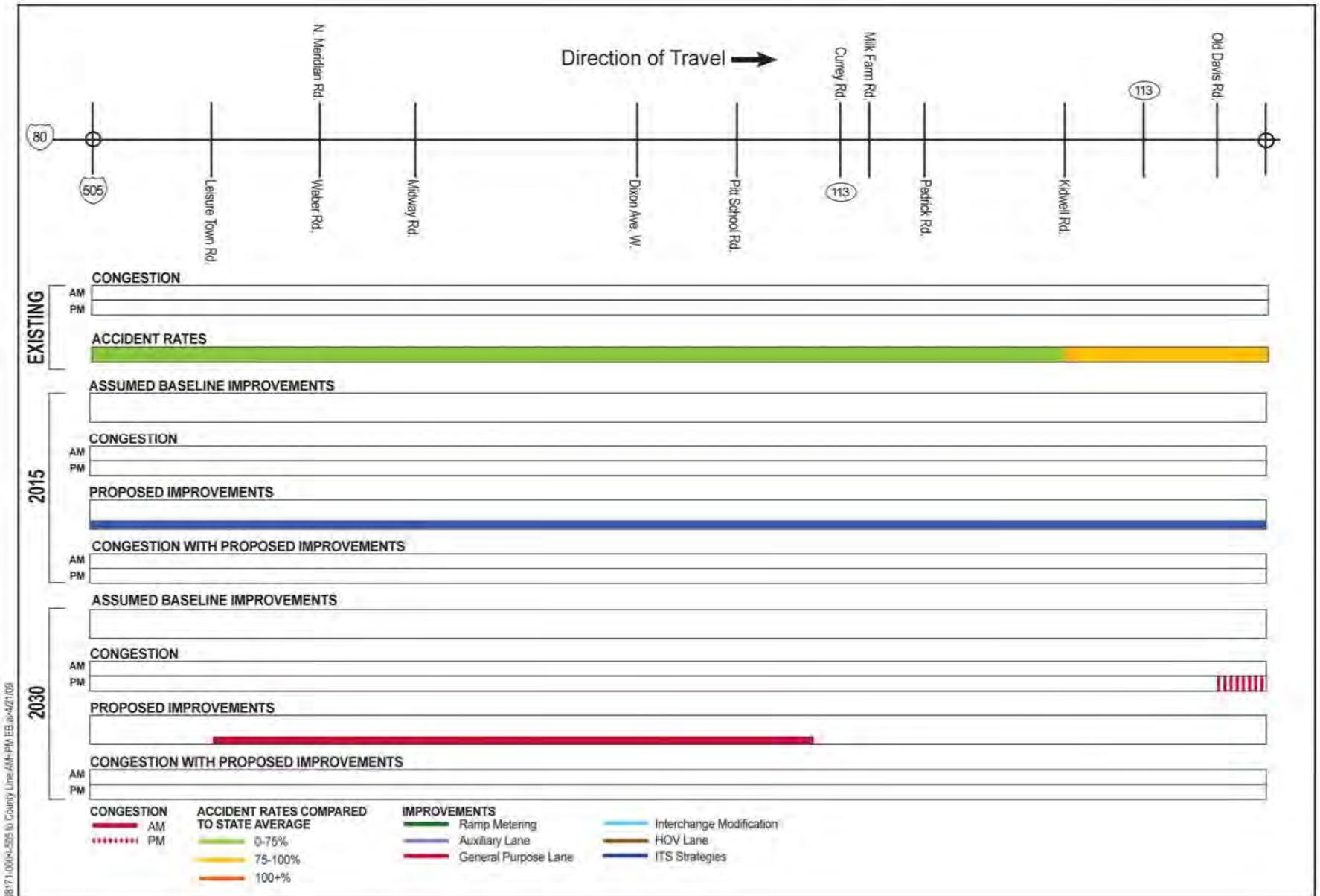


Figure 10. I-80 Eastbound between I-505 and Solano/Yolo County Line.

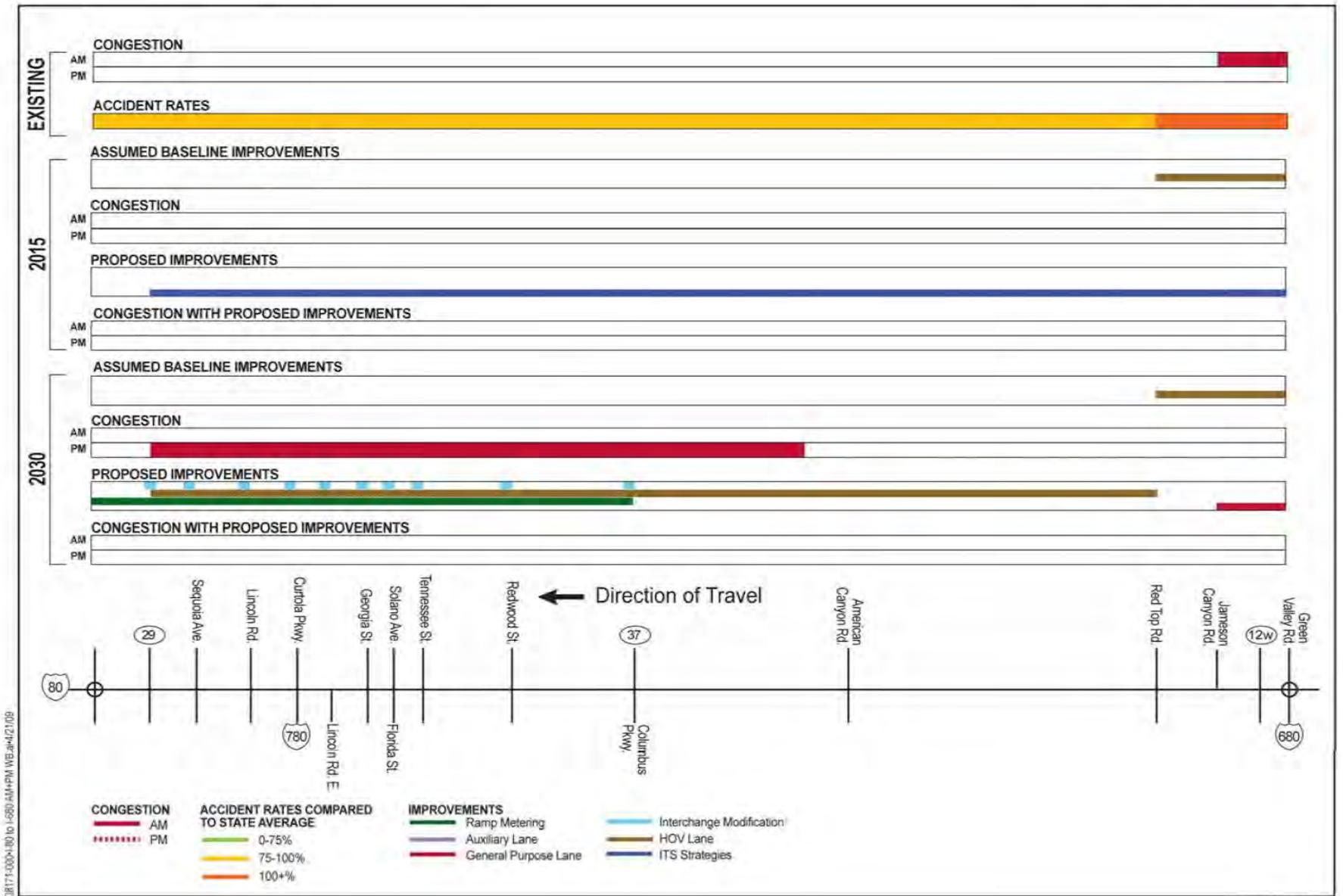


Figure 11. I-80 Westbound between I-680 and the Carquinez Bridge.

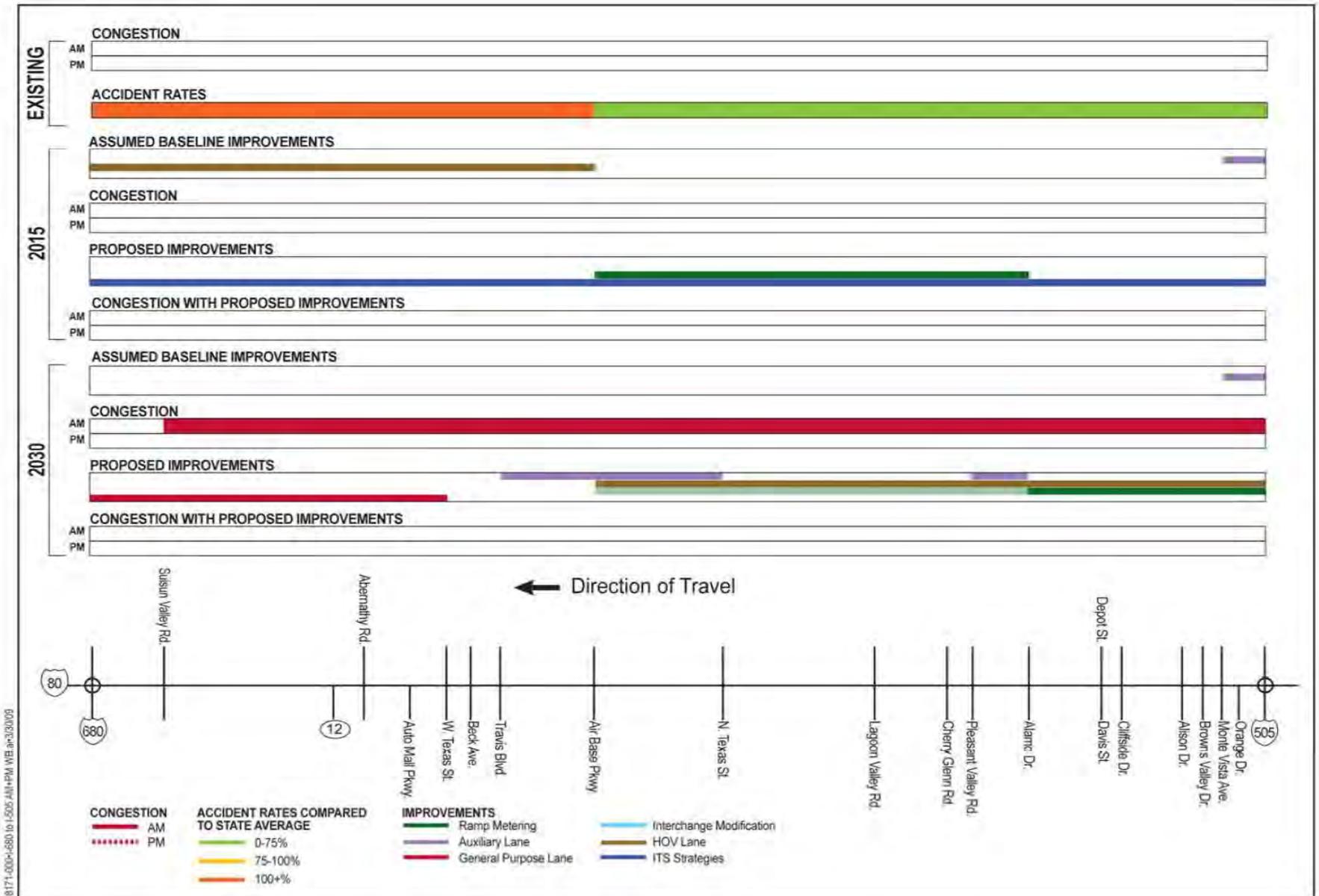


Figure 12. I-80 Westbound between I-505 and I-680.

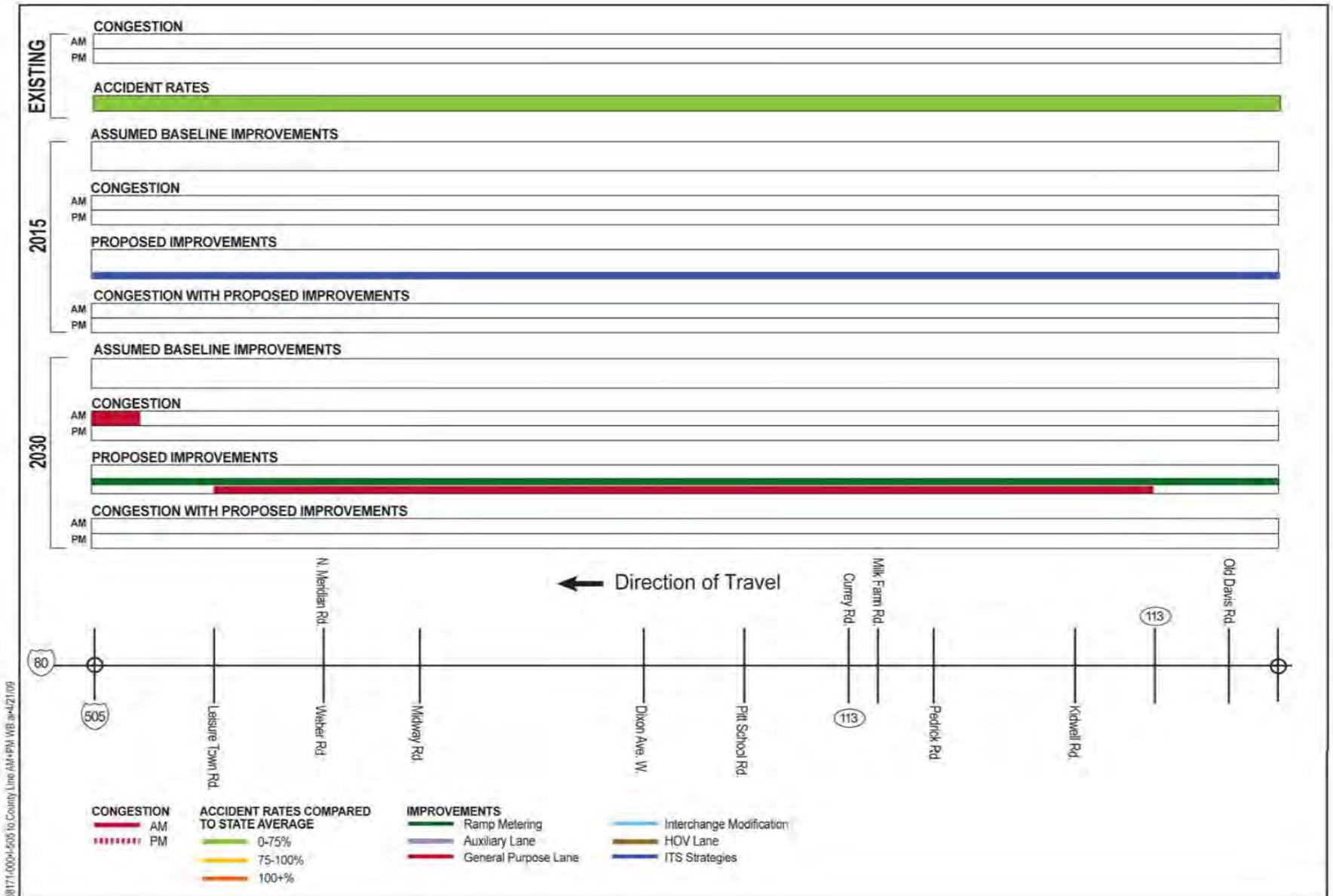


Figure 13. I-80 Westbound between Solano/Yolo County line and I-505.

# **SECTION 1: CSMP OVERVIEW**

## **CONTENTS**

- 1.1 District 4 CSMP Overview
- 1.2 CSMP Purpose and Need
- 1.3 Consistency with Strategic Growth Plan
- 1.4 Relationship to Other Plans
- 1.5 Stakeholder Engagement
- 1.6 CSMP Performance Measures and Objectives
- 1.7 Stakeholder Issues and Concerns

# SECTION 1: CSMP OVERVIEW

## 1.1 District 4 CSMP Overview

A Corridor System Management Plan (CSMP) is a transportation planning document “that identifies the facility based on comprehensive performance assessments and evaluations. The strategies are phased and include both operational and more traditional long-range capital expansion strategies. The strategies take into account transit usage and projections and interactions with arterial network and connection to State Highways.” 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. The corridor management planning strategy is based on the integration of system planning and system management. They provide for the integrated management of travel modes and roadways so as to facilitate the efficient and effective mobility of people and goods within our most congested transportation corridors. Each CSMP will address State Highways, local parallel roadways, regional transit services, and other regional modes pertinent to corridor mobility.

CSMPs are being developed throughout the State for corridors within which funding is being used from the Corridor Mobility Improvement Account 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 Department 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.

For the San Francisco Bay Area (Caltrans District 4), nine CSMPs were being developed as of May 2010:

US-101 North (MRN/SON)	I-580 (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 limits of each CSMP were determined by identifying the key travel corridor in which CMIA-funded projects were located in collaboration with MTC. In most cases the limits from District 4’s Transportation Corridor Concept Reports (TCCRs) were used, as well as corridor limits used in the FPI. Figure 1.1 on the following page depicts the location of the corridors for the CSMPs currently under development in District 4.



## District 4 CSMP Corridors

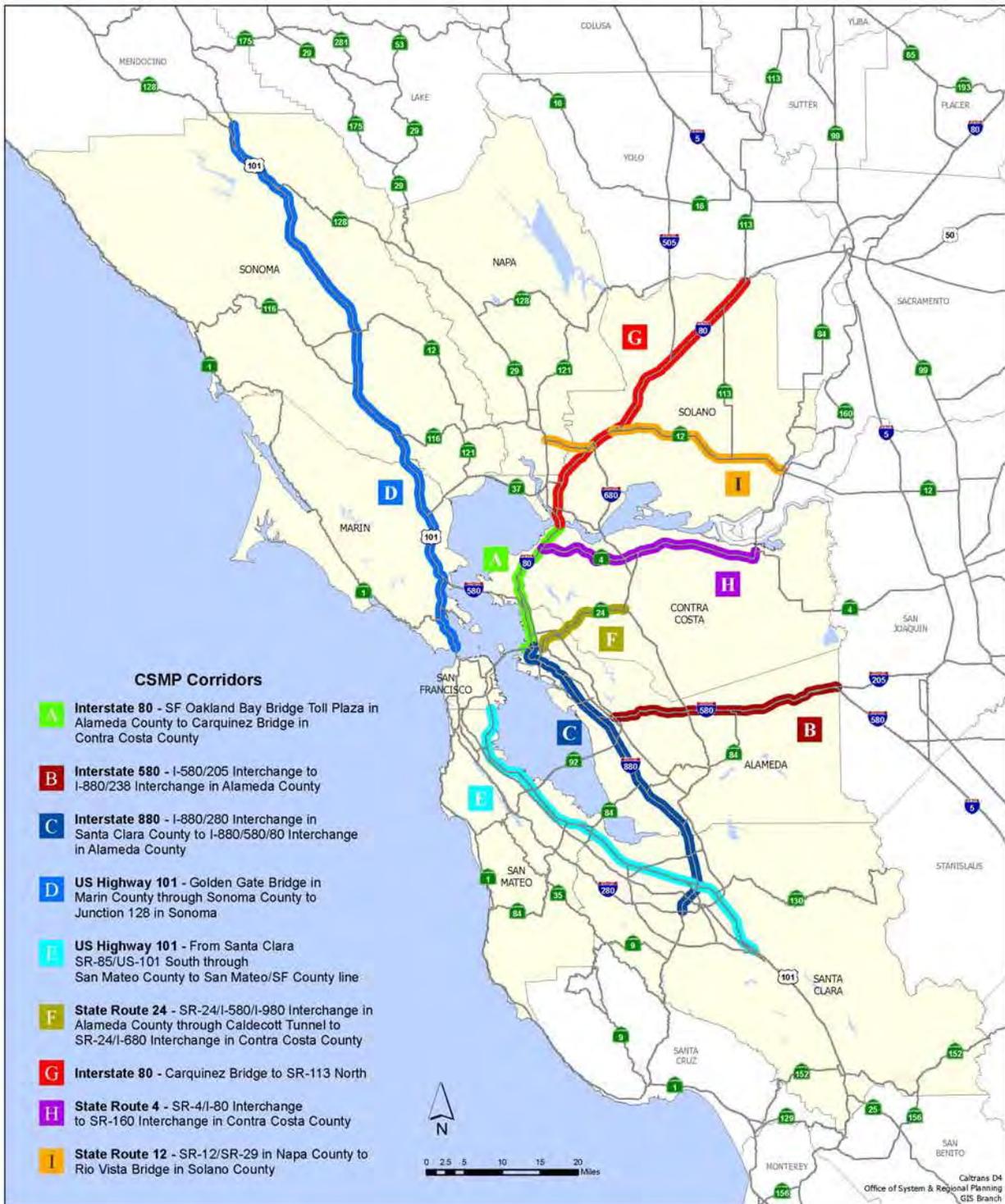


Figure 1.1. District 4 CSMP Corridors (May 2010).

Eight milestones have been identified by the CTC and Caltrans for monitoring the timely development of the required CSMPs, namely:

1. Define Corridor
2. Assemble Corridor Team
3. Develop Preliminary Corridor Performance Assessment
4. Ensure Adequate Corridor Detection
5. Comprehensive Corridor Performance Assessment
6. Identify Causality of Corridor Performance Degradation
7. Develop Corridor Simulation Model and Test Improvement Scenarios
8. Develop Corridor System Management Plan

This corridor performance assessment began with utilizing existing travel data and traffic detection capabilities within the corridor. The corridor performance assessment served to identify existing system management practices and the causes of performance problems along the corridor using a set of common performance metrics. The travel demand models for Alameda and Santa Clara County were used as a basis to forecast future travel demand along the corridor.

Traffic analysis methods were used to predict the impacts of a variety of operational strategies and investment scenarios, allowing the corridor team to evaluate the potential impacts of a range of operational strategies, capital improvements and opportunities for transportation technology integration. More detailed guidance regarding these CSMP milestones and performance measures is available from the Caltrans *2007 Guidelines for Completing CSMP milestones*.

## **1.2 CSMP Purpose & Need Statement**

On March 15, 2007, the CTC adopted *Resolution CMIA-P-0607-02*. In Sections 2.12 and 2.13 of this resolution, the CTC resolved that "...the Commission expects Caltrans and regional agencies to preserve the mobility gains of urban corridor capacity improvements over time that will be described in CSMPs, which may include the installation of traffic detection equipment, the use of ramp metering, operational improvements, and other traffic management elements as appropriate..." and "...the nominating agencies shall report the status of development and implementation of the corridor system management plans, including the installation of detection equipment and other supporting elements, to the project delivery council on a semiannual basis..."

The immediate purpose of preparing CSMPs is to satisfy the requirements to qualify for funding highway improvements under the Corridor Mobility Improvement Account (CMIA) and Highway 99 Bond programs. Both programs were established following the passage of Proposition 1B in the November 2006 election. The California Transportation Commission (CTC) has since adopted guidelines and adopted a program of projects for funding.

The need for preparing CSMPs is 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.

### 1.3 Consistency with Strategic Growth Plan

CSMPs are meant to support the Governor’s Strategic Growth Plan (SGP), which calls for a infrastructure improvement program that includes a major transportation component (GoCalifornia). The CMIA and other elements of the November 2006 transportation infrastructure bond are meant as 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 system management pyramid outlines strategies to be used to achieve the outcome of reduced congestion. The base of the pyramid is as important as the apex. System monitoring and preservation are the basic foundation upon which the other strategies are built. System expansion and completion will provide the desired mobility benefits to the extent that investments and implementation of the strategies below it establish a solid platform.



### 1.4 Relationship to Other Plans

There are a number of Caltrans system planning documents that have been used as the foundation for the preparation of this CSMP. The system planning documents prepared by Caltrans include the *2005 California Transportation Plan (CTP)*, the *1998 Interregional Transportation Strategic Plan (ITSP)*, and several Caltrans District 4 documents that include the draft *2002 Transportation Corridor Concept Report (TCCR) for Interstate 80 Eastshore North Corridor / SF-Oakland Bay Bridge to Sacramento I-5 (6/25/02)*.

In addition to the above-described planning documents, there are also a number of related Caltrans system management documents that have been utilized in the development of this CSMP. These documents include the *2006 Strategic Growth Plan (SGP)*, *2004 Transportation Management System Master Plan (TMSMP)*, *2004 California ITS Architecture and System Plan (SWITSA)*.

System and regional planning documents prepared by other agencies that have influenced CSMP development include the *2005 Regional Transportation Plan (T2030)* and the *2004 Bay Area Regional ITS Plan*. Most notably, the MTC Freeway Performance Initiative (FPI) is a regional program that has provided a foundation for corridor-level performance-based decision making for the 2009 RTP (*T2035*). Important documents in this effort have been the *2007 FPI Performance & Analysis Framework*, the *2007 FPI Prioritization Framework*, and the FPI’s corridor-specific documents noted below:

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

Additional Studies used include:

#### I-80/I-680/I-780 Major Investment & Corridor Study

Completed by the Solano Transportation Authority in July 2004, this study developed a long range, multi-modal transportation plan for the I-80, I-680 and I-780 corridors in Solano County. Alternatives were based on the existing and future unconstrained travel demand forecasts and prioritized using an

operationally constrained analysis of corridor bottlenecks and queues for mainline highway, transit and park and ride related improvements.

#### I-80/I-680/I-780 Transit Corridor Study

Completed by the Solano Transportation Authority in July 2004, this study provides an analysis of existing services and demand, and implementation plans for the County's intercity express bus services and auxiliary facility improvements, such as direct access ramps to center median HOV lanes, park and ride and transit center demand and site planning. To accommodate project growth in demand for transit, this study recommends that Solano County develop both a short and long range multi-modal transportation plans for the I-80/I-680/I-780 corridors. Overall conclusions of this study were incorporated into the I-80/I-680/I-780 Major Investment and Corridor Study as well.

#### Cordelia Truck Scales Relocation Study

Lead by the Solano Transportation Authority, the purpose of this February 2005 completed study was to identify potential sites along the I-80, I-505, SR-12 and SR-113 corridors and determine the feasibility of relocating the current (Cordelia) truck scales and whether they could adequately accommodate forecasted increases in truck traffic in the region. The study compared the potential benefits and impacts of relocating the scales versus expanding and keeping them in their current location within the I-80/I-680/SR-12 Interchange complex.

#### I-80 Smarter Growth Study

This October 2005 study, led by MTC, sought to analyze land use and transportation issues along the I-80 corridor in Solano, Yolo, Sacramento and Placer Counties. Completed in December 2008, the study compiled demographic forecasts for the San Francisco and Sacramento regions and developed different land use scenarios to compare and contrast key smart growth assumptions related to housing, employment, and travel growth trends.

#### Solano Highways Operations Plan

This study effort, which received funding for FY 07-08 and was led by the Solano Transportation Authority and the Metropolitan Transportation Commission, sought to create a partnership with the cities of Benicia, Dixon, Fairfield, Vacaville, Vallejo, Solano County and Caltrans District 4 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 hardscape improvements that visually link corridor segments to areas of Solano County. The plan was considered Phase II of the July 2004 completed I-80/I-680/I-780 Major Investment & Corridor Study.

#### **Regional Blueprint Planning Program**

The Regional Blueprint Planning Program supports the smart growth element of the Strategic Growth Plan by promoting smart land use choices at the regional and local levels. The Regional Blueprint Planning Program is a voluntary, competitive grant program that supports Metropolitan Planning Organizations (MPOs) and Regional Transportation Planning Agencies (RTPAs) to conduct comprehensive scenario planning. Using consensus-building and a broad-based visioning approach its goal is to envision future land use patterns and their potential impacts on a region's transportation system, housing supply, jobs/housing balance, resource management and other protections.

The Blueprint planning effort in the San Francisco Bay Area is the Focus our Vision (FOCUS) program, which is lead by the Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC) with support from the Bay Area Air Quality Management District (BAAQMD) the Bay Conservation and Development Commission (BCDC), and Caltrans. These agencies and local governments have participated in the Regional Blueprint Planning Program since the programs inception in 2005.

## 1.5 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 workplan unique to the needs of the CSMP Corridor and identified stakeholders.

The stakeholder engagement process framework has stakeholders placed in two categories:

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

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 and other key stakeholder groups were brought in to review and comment at key junctures, and help evaluate corridor improvement strategies.

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. 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. The key stakeholders listed below were identified for involvement in the engagement process.

### List of 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)

## 1.6 CSMP Performance Measures and Objectives

The Department will work in concert with stakeholders to develop goals, objectives, and performance measures that together will serve to focus directed action on desired corridor strategies and improvements. For purposes of initial discussions with stakeholders within CSMP corridors, the core corridor objectives are: minimizing overall system delay within the corridor (Mobility), reduce variation of travel time, (Reliability), and reduce accident rate (Safety). Performance measures that can be used as a starting point include: vehicle hours of delay (VHD), mode split, pavement condition, TASAS accident rates, and truck traffic percentages. This process is open to changes; additional objectives and performance measures can be added or changed through stakeholder discussion. Table 1.6.1 below displays potential Goals, Objectives and Performance Measures.

GOALS	OBJECTIVES	PERFORMANCE MEASURES
Mobility	Reduce delay within the corridor	Vehicle Hour of Delay (PeMS, Probe Vehicles)
Reliability	Reduce variation of travel time	Travel Time; (PeMS, Buffer Index)
Safety	Reduce accident and injury rate	TASAS Data

Table 1.6.1. CSMP Goals, Objectives & Performance Measures.

## 1.7 Stakeholder Issues and Concerns

Stakeholder concerns during the CSMP development process focused on implementation of ramp metering, interchange consolidation, HOV occupancy and HOT lane conversion; issues related to these stakeholder concerns will all require additional analysis before they could be implemented. In addition issues related to project delivery and coordination with District 3 will be discussed.

### Ramp Metering

In meetings with the SoHIP, local jurisdictions pointed out potential impacts of ramp metering on local arterials and how implementation may affect local circulation patterns. Caltrans has responded the goal of implementing ramp metering within a corridor is to provide consistent speeds, predictable travel times, improved safety and reduction in overall delay through managing access at on-ramps during peak commute periods. Minimizing impacts on local street traffic is also a goal of ramp metering. Execution of a ramp metering plan is considered a cost effective approach to improving the operation of the road network resulting in improvements to overall corridor mobility. Some jurisdictions have entered into Memorandums of Understanding (MOU) with Caltrans that represent the policies and procedures separate parties agree to undertake and follow during the operation of a ramp metering plan. The MOU dictates responsibilities such as governance, operating principles and parameters, implementation phasing, monitoring, and maintenance. Caltrans is committed to addressing concerns related to ramp metering through the MOU and development of a ramp metering plan.

### Interchange Consolidation

Interchange consolidation was also brought up at SoHIP meetings as a potential impact on local circulation patterns. I-80 between SR-29 and SR-37 through Vallejo is the specific area where consolidation is being considered as a means of addressing long-term projected capacity and operational deficiencies. The Solano Highways Operations Study and CSMP recommends that a comprehensive evaluation be conducted to identify and improve geometry and access between SR-29 and SR-37 in both directions. This could be done by consolidating or removing access points and improving merge and

diverge areas. The comprehensive evaluation would determine the feasibility and develop cost estimates for implementing such a project.

#### HOV Lane Occupancy and Express Lanes

The implementation of High Occupancy Vehicle (HOV-2 and HOV-3) lanes along the I-80 Corridor will take place in phases over the short and long term. The first HOV-2 lane implementation opened in late 2009 between Red Top Road and Air Base Parkway. Figure 1.7.1 on the following page illustrates the planned implementation of HOV lanes by corridor segment, horizon year and occupancy.

The Bay Area High Occupancy Toll (HOT) Network Study, which was updated and approved by MTC in 2008, identified segments of I-80 and I-680 in Solano County as part of a potential Express/HOT lane network. However, given that HOV lanes have just recently been constructed on I-80 in Solano County at present, the implementation of HOT lanes would be a conversion from these HOV lanes.

In response to issues concerning HOV lane occupancy and HOT lane conversion, MTC in partnership with Caltrans completed studies examining the feasibility of implementing a Bay Area regional HOT lane network. The initial study was prepared by MTC and Caltrans and was completed in September 2007. Its purpose was to advance the HOT lanes concept a step to examine the feasibility of creating a complete regional network level of HOT lanes in the Bay Area, as called for in the regional long range transportation plan. The system would be developed by converting the region's extensive HOV lanes to HOT lanes and closing gaps and extending the HOV/HOT system where possible. A complete regional network, as opposed to a series of individual corridors, has powerful potential to serve travelers, reduce congestion and reduce vehicle emissions at a regional scale.

MTC's Transportation 2035 Plan for the San Francisco Bay Area (T-2035) proposes a Regional Express Lane Network for the Bay Area, which includes Express Lanes on I-80 (source: <http://www.mtc.ca.gov/planning/hov/index.htm>). This issue will be further evaluated if enabling legislation for a Regional Express Lane Network becomes law. In addition, any proposal for the implementation of HOT Lanes on I-80 beyond Solano County will need regional coordination between Caltrans (Districts 3 and 4), MTC, STA, SACOG, and PCTPA (Placer County Transportation Planning Agency), as well as additional study.

#### Project Delivery

The early delivery of some long-term recommended projects was noted by the project team. Two projects, an I-80 eastbound auxiliary lane between Abernathy Road and West Texas Street and the westbound I-80 HOV lane from east of the SR-29 on-ramp to the Carquinez Bridge were listed as 2030 operational improvement strategies. Both of these projects have been delivered and are currently operational. While their early delivery is noted, the overall strategy for improving operations within in the I-80 East CSMP Corridor remains sound.

#### Coordination with Caltrans District 3 / SACOG

The issue of a continuous corridor concept with District 3 beginning at the Solano/Yolo County line has been brought up as a potential concern. The lack of identifying HOV or general-purpose lanes in the I-80 East CSMP extending to Yolo County to connect with an ultimate HOV concept in District 3 has been identified as a short HOV gap in the future. This first generation I-80 East CSMP recommends the correction of a lane drop in eastern Solano County with a proposed mixed flow, HOV or HOT lane. We recognize that CSMPs will evolve to facilitate additional integration of travel modes, as well as additional collaboration between Caltrans management districts. Future updates to the I-80 East CSMP can serve as a basis for comparison and discussion of overall management strategies within the I-80 Corridor. This collaborative process will help ensure future facility concepts reflect similar management strategies at district borders.

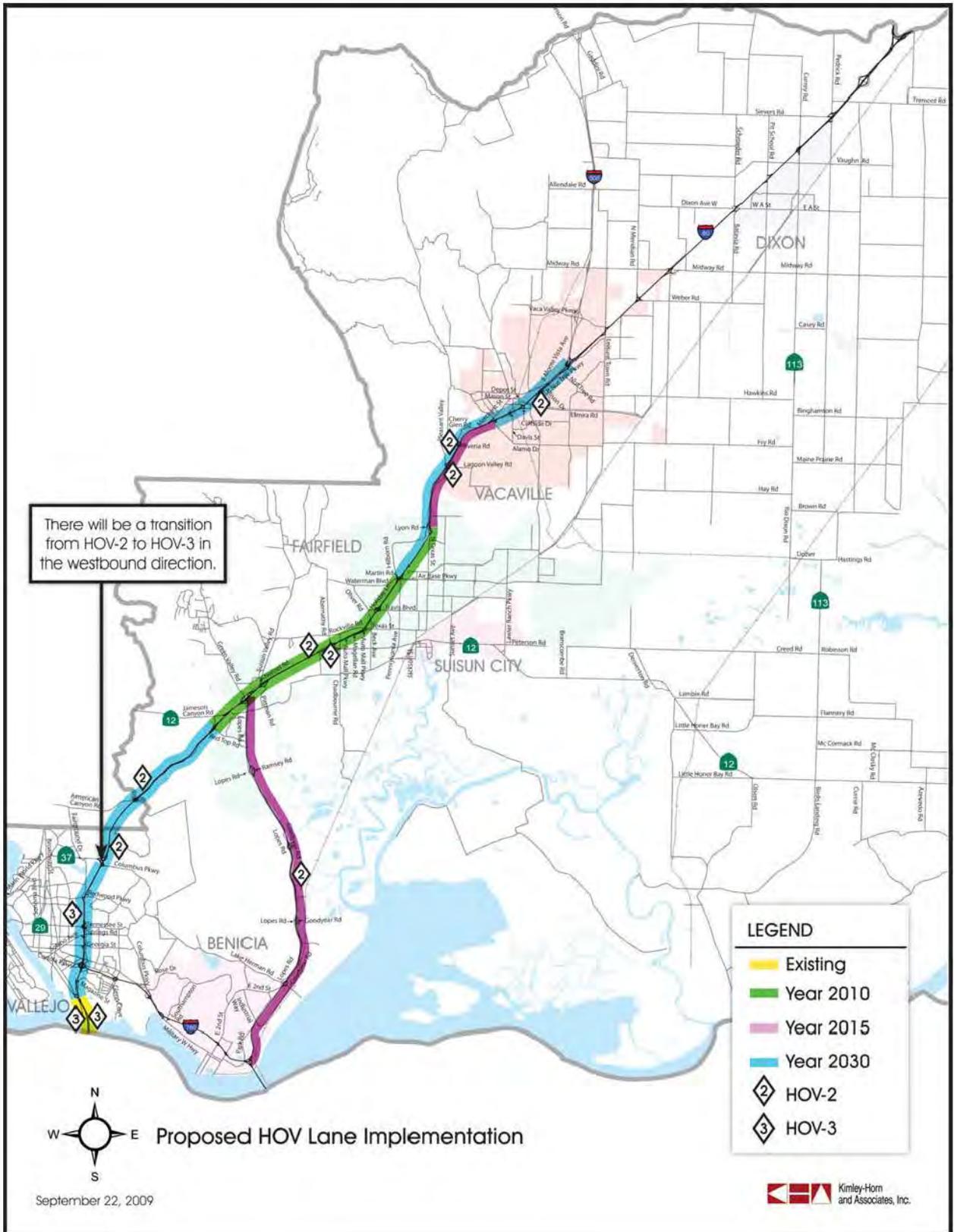


Figure 1.7.1. Solano County HOV Implementation Plan.

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- 2.5 Corridor Mode Split
- 2.6 Transit / Intermodal Facilities
- 2.7 Bicycle / Pedestrian Facilities
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- 2.10 Environmental Characteristics / Constraints
- 2.11 Maintenance

## SECTION 2 CORRIDOR DESCRIPTION

### 2.1 Corridor Limits – Route Designation

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.

### 2.2 Route Significance

I-80 has been identified by the State as an Interregional Road System route, and is a major transcontinental Interstate between the San Francisco Bay Area and the East Coast. Within California, the highway connects the Bay Area to the Sacramento metropolitan region and provides connectivity to I-5 to the north via I-505. Figure 2.2.1 below highlights I-80's path through the United States.



Figure 2.2.1. I-80 Route Significance Map.

## 2.3 Major Arterials

The I-80 East CSMP Corridor contains 10 major interchanges and 42 local interchanges. Due to the southwest to northeast orientation of the freeway combined with the mostly north to south and east to west grid pattern within the cities along the corridor, there tends to be no distinct main alternative parallel routes to the freeway. Figure 2.3.1 below depicts the I-80 East CSMP Highway System and Arterial Road Network.

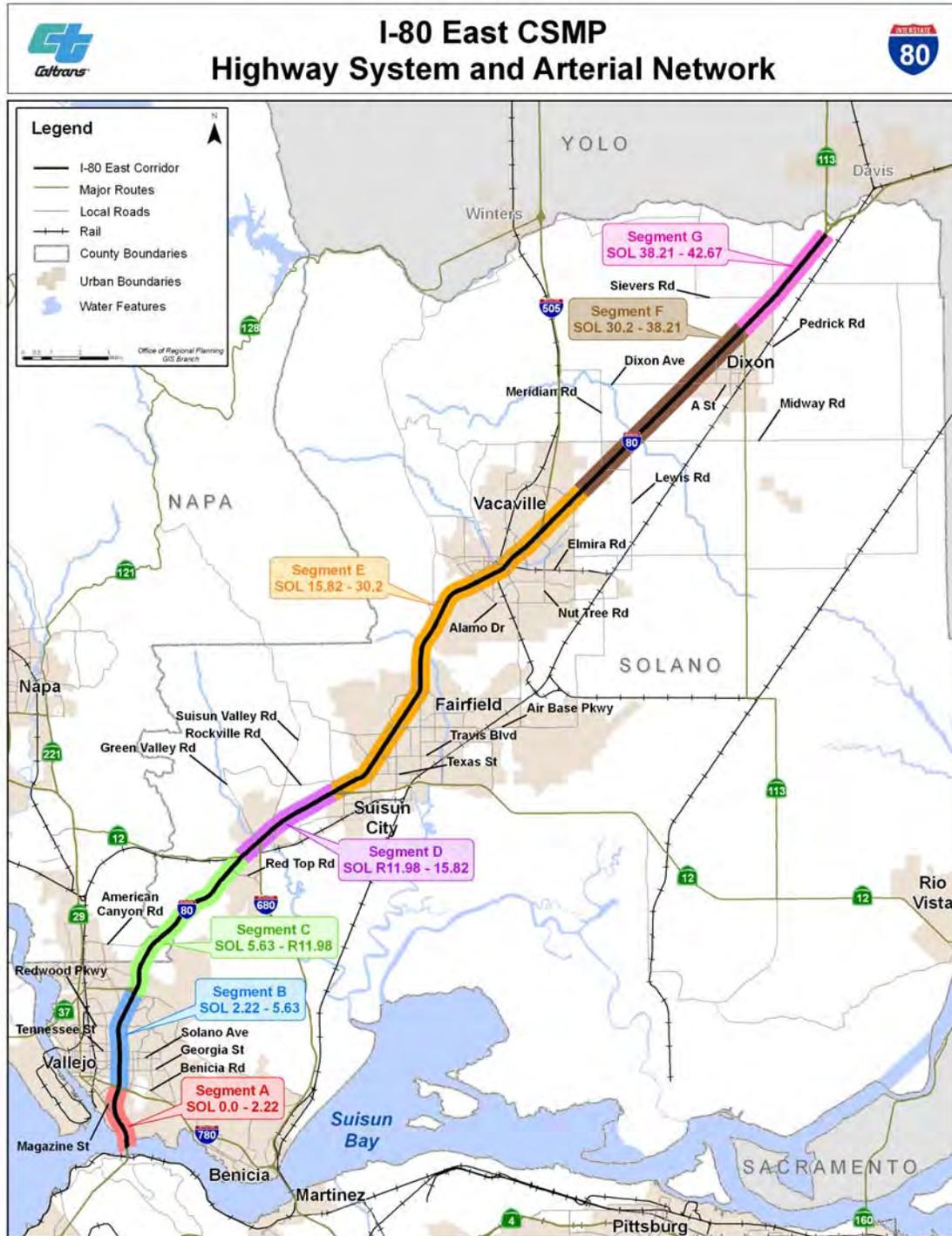


Figure 2.3.1. I-80 East CSMP Highway System and Arterial Network.

## **2.4 Goods Movement**

According to the Bay Area Regional Goods Movement Study (2004), by volume more than eighty percent of the goods movement in the Bay Area 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 60<sup>th</sup> 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.

## **2.5 Corridor Mode Split**

Information on Corridor Mode Split was provided by the, "2007 American Community Survey (ACS) for the San Francisco Bay Area," which compares data from the ACS with data from the 2000 Census, both provided by the U.S. Census Bureau. The geographic focus for the ACS is the nine-county San Francisco Bay Area, including the counties of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano and Sonoma. Data is reported for geographic areas with a population greater than 65,000, including states, census-designated metropolitan areas and places. Table 2.5.1 below reflects the modal split for means of transportation to work for cities along the Interstate 80 Corridor and is taken from the ACS Socio-Economic Characteristics by Bay Area Public Use Microdata Area (PUMA) of Residence summary.

<b>Mode Split (%)</b>	<b>SOV</b>	<b>HOV</b>	<b>Transit</b>	<b>Walk</b>	<b>Other</b>
<b>Vallejo-Benicia</b>	71.1	16.0	5.6	1.5	5.8
<b>Fairfield</b>	77.0	15.4	2.5	2.2	2.9
<b>Vacaville-Dixon</b>	81.3	11.6	1.0	1.0	5.1

*Source: 2007 American Community Survey*

Table 2.5.1. Mode split for the cities along the I-80 East CSMP Corridor.

## **2.6 Transit / Intermodal Facilities**

### ***Express Bus***

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.

### ***Park and Ride/Transit Centers***

1. Magazine Street Park and Ride Lot – 19 spaces
2. Curtola Parkway Transit Center Park and Ride Lot – 500 spaces
  - A. West side – 410 spaces
  - B. East side – 90 spaces
3. Green Valley Road Park and Ride Lot – 61 spaces
4. Cliffside Drive Park and Ride Lot – 129 spaces

### ***Ferry***

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.

### ***Intercity Rail***

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. Figure 2.6.1 on the following page illustrates major transit facilities and routes within the I-80 East CSMP Corridor.

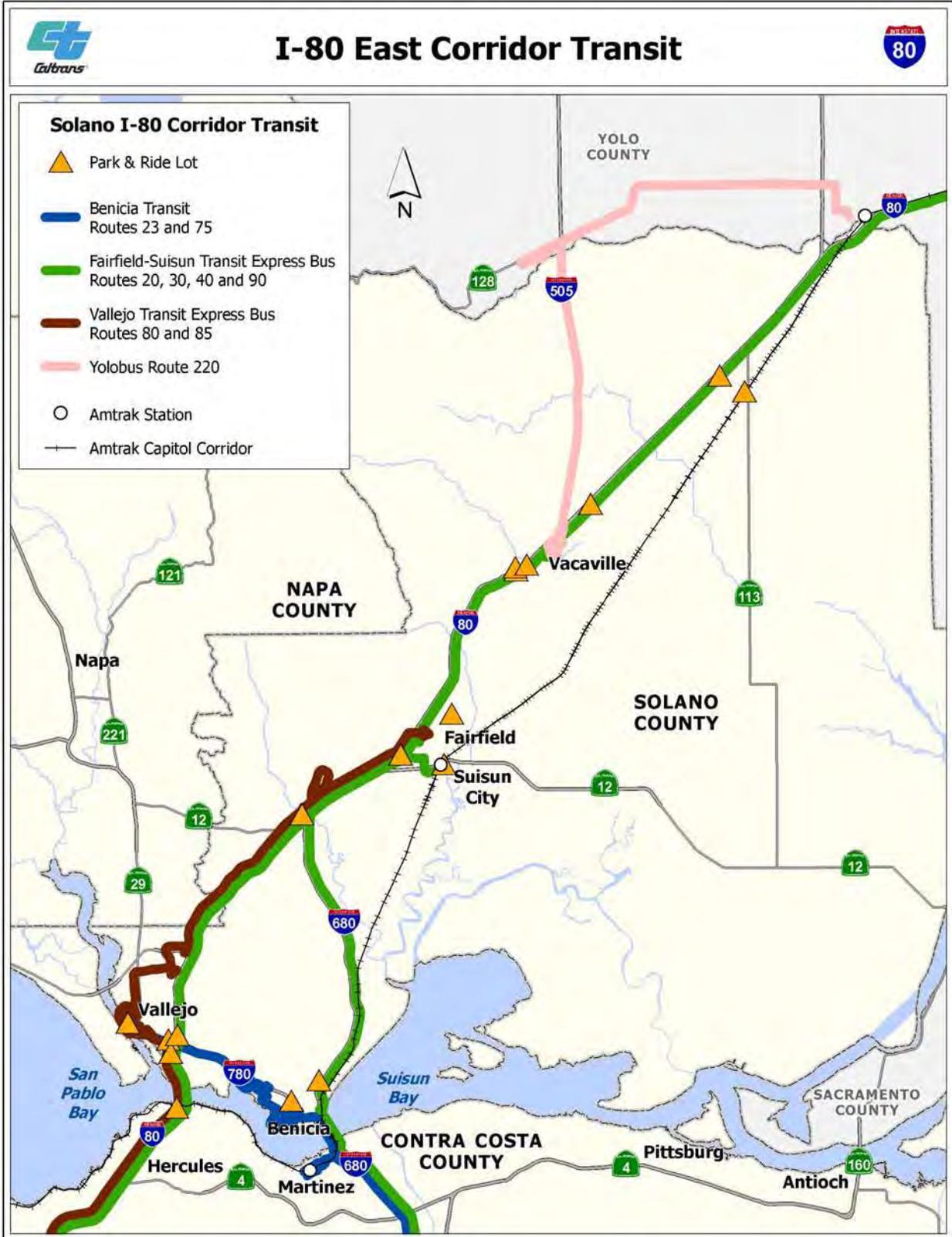


Figure 2.6.1. I-80 East CSMP Corridor Transit.

## **2.7 Bicycle / Pedestrian Facilities**

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.

## **2.8 Intelligent Transportation Systems**

### ***Statewide and Regional ITS Architectures***

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.

### ***Caltrans District 4 Traffic Management Center (TMC)***

The ITS infrastructure in the Bay Area includes deployment of ITS field elements (such as CCTV, Changeable Message Signs (CMS), Highway Advisory Radio (HAR), traffic detector stations, ramp metering) which enable traffic monitoring and management at the Caltrans District 4 TMC. The TMC is housed in the Caltrans District 4 office in downtown Oakland. The facility is co-staffed by Caltrans Maintenance and Operations workers, CHP officers, and operators for the 511 regional traveler information system. The main software collects data from field devices and generates the speed map display, places dynamic icons on the map, supplies real-time data to external systems (such as 511, PeMS, TMC archives), emails detector station data to interested parties, and provides a user interface for ramp meters.

A corridor-level ITS architecture and implementation plan is also included in Appendix A.1 which provides recommendations for policies and agreements that are necessary to ensure that ITS deployments are incorporated into operational improvements programmed along the freeway corridors in Solano County. It also provides guidance for design and deployment of ITS elements along the freeway corridors including any coordination and information sharing with the local cities, the County and the regional agencies as part of the Solano Highways Operations Study.

## **2.9 Land Use / Major Traffic Generators**

As of 2005, the population of the County was 423,800 and by 2030 is projected to be 581,800. The gross area of Solano County is 898 square miles, including 823 square miles of land and 75 square miles of water (U.S. Census, California Department of Finance 2003). Approximately 60% of the land is used for agriculture with roughly half of the land in irrigated crop production. The total incorporated area of the County is approximately 708 square miles with incorporated cities accounting for 15% of the total (incorporated) land area. There are seven incorporated cities in the County including Benicia, Dixon, Fairfield, Rio Vista, Suisun City, Vacaville and Vallejo. Five of those cities (Dixon, Fairfield, Suisun City, Vacaville, Vallejo) have direct access to Interstate 80.

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 which is home to the world's largest military airlift unit. 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.

In terms of jobs and housing, Solano County as a whole has a positive jobs/housing balance with a job/household ratio of 1.05. The unincorporated area of the County has a job/household ratio of 1.03. The cities of Dixon and Fairfield have job/household ratios greater than 1. Suisun City and Vallejo have ratios less than 1 while Vacaville has a ratio of 0.96. According to the Solano County Agriculture Commissioner's Office, agriculture and related activities generate almost \$1.3 billion each year in gross output value in the County and provide more than 10,000 jobs. Agriculture generates income and produces jobs directly on farms, but also through processing, transportation, and other activities generated through farming.

### ***Priority Development Areas***

The Focus Our Vision (FOCUS) Program seeks to work with local governments and others in the Bay Area to collaboratively address issues such as high housing costs, traffic congestion, and protection of natural resources. As the Regional Blueprint Planning Program for the Bay Area, the primary goal of FOCUS is to encourage future growth near transit and in the existing communities that surround the San Francisco Bay. The goal is to enhance existing neighborhoods and provide housing and transportation choices for all residents.

In the summer of 2007, local governments in the Bay Area were invited to apply for regional designation of an area within their community as a Priority Development Area (PDA). PDAs are infill development opportunities within existing communities. These communities welcome more residents; they are committed to creating more housing choices in locations easily accessible to transit, jobs, shopping and services. To be eligible to become a PDA, an area had to be within an existing community, near existing or planned fixed transit or served by comparable bus service, and planned for more housing.

In late 2007 the Executive Board of the Association of Bay Area Governments (ABAG) adopted a listing of Planned or Potential PDAs. Potential PDAs will be changed to the Planned category upon the jurisdiction's adoption of the applicable land use plan and resolution.

The following PDAs are planned within the Interstate 80 East CSMP Corridor area:

- Fairfield, Downtown South, Jefferson Street/Union Avenue
- Vallejo, Waterfront & Downtown

The following represents a listing of potential PDAs within the Interstate 80 East CSMP Corridor area:

- Fairfield, Fairfield/Vacaville Train Station
- Fairfield, West Texas Street Gateway
- Fairfield, North Texas Street Core

## **2.10 Environmental Characteristics / Constraints**

### ***Environmental Setting***

This *Environmental Characteristics/Constraints* section provides a general introduction to environmental constraints along the corridor. The natural environment of the Interstate 80 East Corridor is highly diversified in terms of its resources and related sensitivities.

Solano County is located within the southern portion of the Sacramento Valley and is one of the nine counties that constitute the Greater San Francisco Bay region. 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 Solano County Water Agency's *Solano Multispecies Habitat Conservation Plan and Natural Community Conservation Plan* (HCP/NCCP) provides detailed information on biological resources in Solano County. The HCP/NCCP balances the need for biological conservation with the needs created by local population growth and agriculture. The HCP establishes a framework for complying with State and federal endangered species regulations while accommodating future urban growth, infrastructure development, and ongoing operation and maintenance activities associated with flood control, irrigation facilities, and other public infrastructure. The conservation analysis for the HCP forms the backbone of risk analysis and risk management for planned development. The conservation strategies set forth in the HCP/NCCP apply to non-federal projects; however, federally funded projects must still comply with applicable State and federal endangered species act regulations. The HCP/NCCP identifies resources that would be evaluated during the project review and approval process. Accordingly, the HCP/NCCP provides baseline information and conservation strategies for individual long-term projects on the I-80 corridor. Corridor system management strategies, which are presented and discussed in the chapters following this Supplemental Corridor Description Section, will seek to mitigate the associated impacts from current and future urban growth through more sustainable and efficient methods of transport. Additionally, with the passage of SB 375 (2008) which requires Metropolitan Planning Organizations (MPO) to include Sustainable Communities Strategies (SCS) in their Regional Transportation Plans (RTP) for the purpose of reducing greenhouse gas emissions, the relationship between land use and transportation is now being recognized for resource conservation and sustainability objectives.

Figure 2.10.1 and Table 2.10.1 on the following pages illustrate, by segment, some of the key environmental issues present within the I-80 East CSMP Corridor in Solano County.

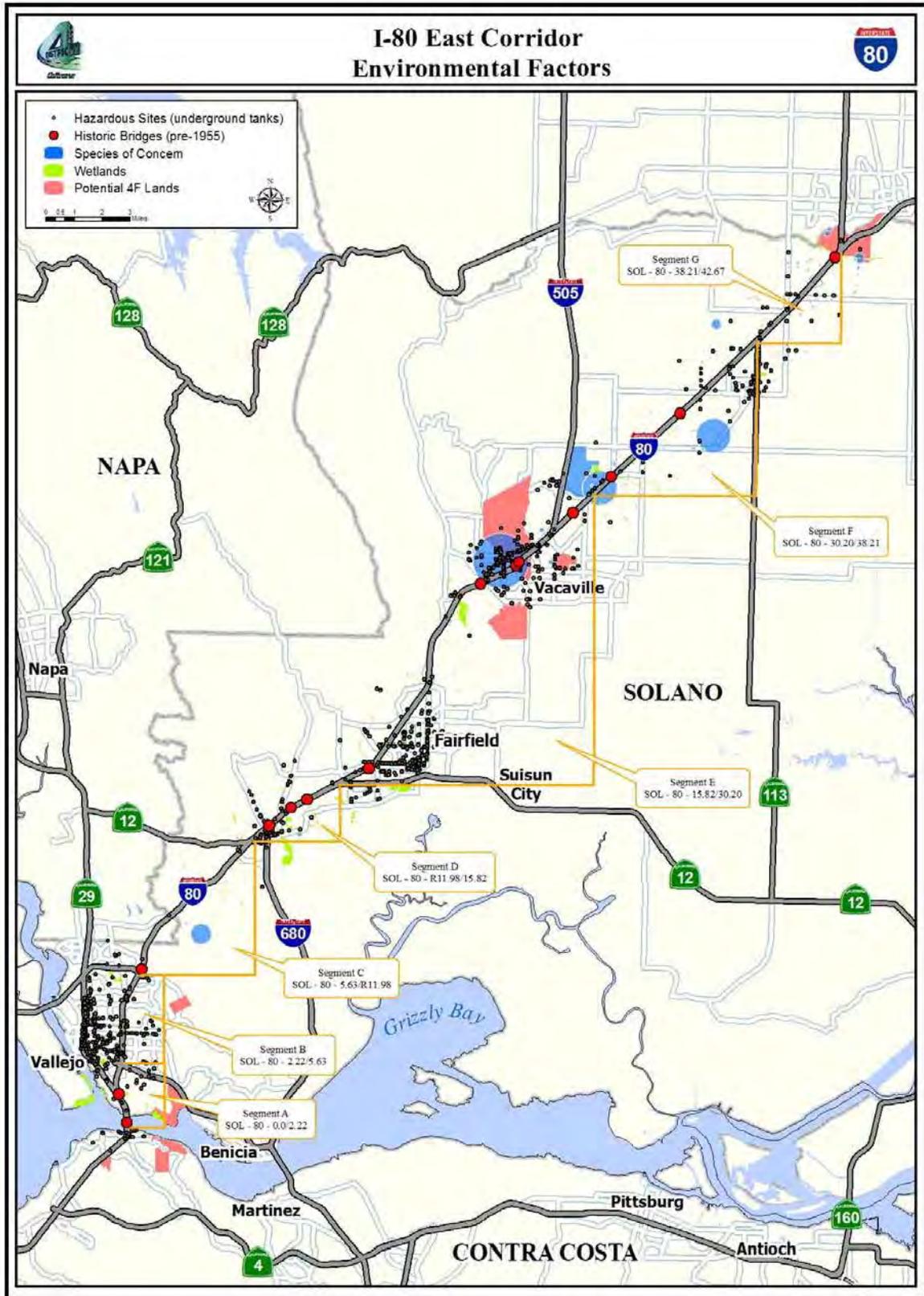


Figure 2.10.1. I-80 East CSMP Corridor Environmental Factors.  
 Sources: National Register of Historic Places (NRHP, National Wetlands Inventory, CA Natural Diversity Database (CNDDB))

The following table summarizes, by segment, the major environmental issues within the I-80 CSMP Corridor.

I-80 EAST CSMP	Historic Bridges	Farmlands of Local Importance	Wetlands	Species of Concern	Potential 4F Lands
Segment A (PM SOL 0.0 – 2.22)	X		X	X	X
Segment B (PM SOL 2.22 – 5.63)	X		X	X	
Segment C (PM SOL 5.63 – R11.98)	X	X		X	
Segment D (PM SOL R11.98 – 15.8)	X		X		
Segment E (PM SOL 15.82 – 30.2)	X		X	X	X
Segment F (PM SOL 30.2 – 38.21)	X		X	X	X
Segment G (PM SOL 38.21 – R44.7)	X			X	X
Segment H (PM YOL 0.0 – R11.71)	X	X	X	X	

Table 2.10.1. Key Environmental Factors in I-80 East CSMP Corridor.

Sources:

I-80/I-680/I-780 Major Investment & Corridor Study (<http://www.solanolinks.com/studies.html#i80study>), Solano Multispecies Habitat Conservation Plan and Natural Community Conservation Plan (HCP/NCCP) ([http://www.scwa2.com/Conservation\\_Habitat\\_Docs.aspx](http://www.scwa2.com/Conservation_Habitat_Docs.aspx)), and the Caltrans District 4 Geographic Information Systems Support Branch.

### ***Federal and State Regulations***

Table 2.10.2 below and on the following page references federal and state regulations related to environmental factors and potential environmental issues along the I-80 East CSMP Corridor.

Federal/State Regulation	Description/Purpose
Clean Air Act (latest amendment 2004) (federal)	Reduction of smog and air pollution; enforces clean air standards. Defines Environmental Protection Agency (EPA) responsibilities for protecting and improving the nation's air quality and the stratospheric ozone layer.
(Specific to Permits) Clean Water Act of 1977 and 1987 - Section 401, 402, 404 (federal)	401: Permit required for discharge of pollutants into waters of the U.S. and is issued by the Regional Water Quality Control Board. 402: Restore and maintain the chemical, physical, biological integrity of the Nation's waters through prevention and elimination of pollution. Oversees National Pollutant Discharge Elimination System (NPDES) permit program; regulates storm water; 404: Permits required for dredging or fill into water of the U.S. including wetland issued by U.S. Army Corps of Engineers.
Bay Conservation and Development Commission (BCDC) and California Coastal Commission	California's two designated coastal management agencies that administer the federal Coastal Zone Management Act (CZMA) in California. Involves federal activities and federally licensed, permitted or assisted activities, wherever they may occur (i.e., landward or seaward of the respective coastal zone boundaries fixed under state law) if the activity affects coastal resources.

Federal/State Regulation	Description/Purpose
Department of Transportation Act of 1966, Section 4(f) of USC 49 Section 303 (federal)	Preserve publicly owned public parklands, recreation areas, waterfowl and wildlife refuges, and significant historic sites
Endangered Species Act of 1973 (federal)	Protect critically imperiled species from extinction as a "consequence of economic growth and development untempered by adequate concern and conservation".
Executive Order 11988, Floodplain Management (1977) (federal)	Refrain from conducting, supporting or allowing actions in floodplains unless it is the only practicable alternative.
Executive Order 11990, Protection of Wetlands (1977) (federal)	Avoid adverse impacts on wetlands wherever there is a practicable alternative.
Executive Order 13112, Invasive Species (1999) (federal)	Prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause (plant species).
Executive Order 12898 (1994) - Environmental Justice (federal)	Avoid disproportionately high and adverse impacts on minority and low-income populations with respect to human health and environment
Farmland Protection Policy Act of 1981 (federal)	Minimize impacts on farmland and maximize compatibility with state and local farmland programs and policy.
National Environmental Policy Act (NEPA) (federal)	Established a U.S. national policy promoting the enhancement of the environment; Procedural requirements for Environmental Assessments (EAs) and Environmental Impact Statements (EISs) that contain statements of the environmental effects of proposed actions. Law applies to any project, federal, state or local, that involves federal funding or work performed by the federal government.
National Historic Preservation Act of 1966, as amended – Section 106 (federal)	Declares national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places.
Resource Conservation and Recovery Act of 1976 (federal); CA Health and Safety Code Hazardous Waste	Regulates the handling of hazardous waste sites for protection of human health and the environment.
Title VI of the Civil Rights Act of 1964, as amended (federal)	Prohibits discrimination, on grounds of race, color, national origin, age, sex, or disability, under any program or activity receiving federal funds.
The California Environmental Quality Act (CEQA) <i>Guidelines</i> 15355, 40 CFR 1508.7, 15358(a)(2)	Requires cumulative impacts be mitigated where identified and requires mitigation for reasonably foreseeable indirect or secondary effects related to changes in the pattern of land use, population density or growth rate and effects on air, water and other natural systems.
California Department of Conservation, Natural Resource Conservation Service (NRCS)	Regulates farmlands or Farmlands of Local Importance in California.
California Fish and Game Code, Section 1602	Any action from a public project that substantially diverts stream, or lake or uses material from a streambed must be previously authorized by the Department of Fish and Game (DFG).
Global Warming Solutions Act of 2006 (AB 32) (California)	Reduce California’s greenhouse gas emissions to 1990 levels by 2020, and emissions to 80 percent below 1990 emission levels by 2050.
Senate Bill 375 (California)	Requires greenhouse gas emission targets for automobiles and light trucks for 2020 and 2035. Must accurately account for the environmental benefits of more compact development and reduced vehicle miles traveled.

Table 2.10.2. Environmental Federal and State Regulations.

### ***Air Quality***

Solano County is located within two separate air basins. Air quality conformity is monitored by the Yolo/Solano Air Quality Management District (YSAQMD) for a small northeastern portion of Solano County and the Bay Area Air Quality Management District (BAAQMD) for the rest of the Solano County.

The northeastern portion of Solano County, representing approximately one-third of the county area, is located within Sacramento Federal Nonattainment Area. The area has been designated as a “severe” nonattainment area for ozone by the U.S. EPA. The average annual number of days exceeding the federal 1-hour ozone standard was 18 during the 1980s, and decreased to 8 during the 1990s. Due to the implementation of emission controls, there has been an overall trend towards improved air quality. The 1990 Federal Clean Air Act Amendments require that the region demonstrates how it will “attain” clean air standards by 2005. Failure to meet the federal standard could result in the loss of federal transportation funds that are allocated to the region.

A majority of Solano County lies within the San Francisco Bay Area Nonattainment Area. In April 2004, U.S. EPA made a final finding that the Bay Area has attained the nation 1-hour ozone standard. The BAAQMD plans to submit a re-designation request to EPA in order to be reclassified as an attainment area as well as a maintenance plan to show the region will continue to meet the 1-hour ozone standard.<sup>1</sup>

### ***Greenhouse Gas Emission Measures***

California passed the Global Warming Solutions Act of 2006 (AB 32) which seeks to reduce California’s greenhouse gas (GHG) emissions to 1990 levels by 2020, and emissions to 80 percent below 1990 emission level by 2050. Senate Bill 375, Statutes of 2008 (SB 375) builds on AB 32 by requiring GHG emissions targets for California’s automobiles and light trucks for 2020 and 2035. A California Climate Action Team was established with representatives from key State agencies responsible for implementing reduction strategies. AB 32 will establish a program of regulatory and market mechanisms to achieve quantifiable reductions of GHG and dictates that the California Air Resources Board (CARB) is responsible for monitoring and planning for GHG reductions. The California Environmental Protection Agency (CALEPA) is required to prepare a greenhouse gas emission reduction report card describing State agency actions to reduce GHG.

The transportation sector, at 38 percent, is the largest contributor of California's gross GHG emissions.<sup>2</sup> The State's strategy to lower emissions from transportation will likely focus on working with Congress to allow California to set higher vehicle efficiency and mileage standards, lower the levels of carbon in transportation fuels and transition the state to cleaner-burning alternative and renewable fuels. Other strategies could include a multi-state cap- and –trade program, or regional initiatives to focus development in transit- rich corridors (i.e. priority development areas).

On June 30, 2009, the EPA granted a waiver that enables California authority to adopt and implement greenhouse gas emissions standards for new motor vehicles overturning the previous administration’s ruling prohibiting such actions. ARB has subsequently approved a regulation that will implement a Low Carbon Fuel Standard calling for the reduction of greenhouse gas emissions from California’s transportation fuels by 10 percent by 2020.<sup>3</sup>

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<sup>1</sup> Source: 2005 Solano Comprehensive Transportation Plan / Alternative Modes Element  
<http://www.solanolinks.com/pdfs/CTP/2005/CTP%202030%20Alt%20Modes%2012-28-05.pdf>

<sup>2</sup> California Air Resources Board – Climate Scoping Plan: A Framework for Change (December 2008)

<sup>3</sup> California Air Resources Board – <http://www.arb.ca.gov/fuels/lcfs/lcfs.htm>

### ***Sustainable Community Strategy (SB 375)***

The next update of the Regional Transportation Plan in 2013 will include a Sustainable Community Strategy (SCS), as required by SB 375. The SCS will lay out how Green House Gas (GHG) emissions reduction targets will be met for cars and light trucks.

### ***Sea Level Rise***

Sea level rise and storm surge, along with frequency and severity of heat waves, and multiple changes concerning precipitation, are among the three anticipated climate changes of particular significance to the transportation system. Caltrans emphasizes a dual approach to managing climate risks with measures to reduce GHG emissions from transportation and minimizing the impacts on the essential transportation infrastructure through adaptation strategies.<sup>4</sup> Adaptation strategies related to corridor planning include:

- Prioritize long-term improvements needed to reduce vulnerability.
- Identify at-risk facilities on particular route segments.
- Evaluate climate impact on travel, modes, and emergency response.
- Integrate information on climatic events into transportation operational systems.

According to the Caltrans *Vulnerability to Transportation Systems to Sea Level Rise Preliminary Assessment* (February 2009), the I-80 East CSMP Corridor is not at risk given a 55-inch sea level rise by the year 2100.

### ***Habitat and Biological Resources***

The Greater San Francisco Bay region, which includes Solano County, has been characterized as a biodiversity hotspot at both global and national scales. Solano County has inland, saltwater and freshwater habitats with huge watersheds feeding the Sacramento River and its Delta. There are four dominant habitat types: Grasslands Valley Floor with Vernal Pools, Coastal Marsh, Freshwater Marsh, and Open Water Habitat.

The vicinity is rated as one of the five highest peaks in biodiversity for the United States. In a global analysis of biodiversity hotspots, Myers et. al (2000) located 25 regions that together comprise only 1.4% of the earth's land surface, but hold an estimated 44% of all species of vascular plants and 35% of all species of vertebrates. Only three of those 25 locations are situated in North America (the California Floristic Province, the Mesoamerica including tropical regions in Mexico, and the Caribbean including southern Florida). Solano County, located in the California Floristic Province, is included in this global underpinning of biodiversity. Despite its extraordinary assortment of flora, fauna, and habitat, Solano County today is fundamentally a human-altered landscape. Natural habitats have been degraded to one degree or another and are highly fragmented, with disruption of typical dispersal processes. Profound effects on the structure, composition and functionality of ecosystems have been sourced to urban development, agriculture, and roads, as well as to hydrological alterations and invasive species. In the area, a number of sensitive species have been affected by habitat loss from human activities, including the Swainson's Hawk, Burrowing Owl, Giant Garter Snake, California Red-Legged Frog, and the Callippe Silverspot Butterfly.

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

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<sup>4</sup> *California's Changing Climate Assessing Potential Risks and Adaptation Strategies for the State Transportation Infrastructure Preliminary Report, Final Draft* (February 2009)

Marsh is a critical part of the San Francisco Bay-Delta estuary ecosystem. Encompassing 116,000 acres, the Suisun Marsh includes 52,000 acres of managed wetlands, 27,700 acres of upland grasses, 6,300 acres of tidal wetlands, and 30,000 acres of bays and sloughs. The Marsh encompasses more than 10% of California's remaining natural wetlands and serves as the resting and feeding ground for thousands of waterfowl migrating on the Pacific Flyway. In addition, the Marsh provides essential habitat for more than 221 bird species, 45 animal species, 16 different reptilian and amphibian species, and more than 40 fish species. The Marsh supports 80% of the state's commercial salmon fishery by providing important tidal rearing areas for juvenile fish allowing them to grow twice as fast as those reared in the upper watershed, thus, greatly enhancing their survival. Two hundred and thirty miles of levees within the Marsh also provide critical protection of the drinking water for 22 million people by preventing salt water intrusion into the Delta.<sup>5</sup>

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. Suitable habitats can occur in a variety of natural and artificial locations including vernal pools, seasonal wetlands, alkaline pools, clay flats, vernal swales, stockponds, railroad right-of-way pools, roadside ditches, and road rut pools resulting from vehicular activity.

Due to drainage areas and seasonal wetlands mostly likely being present off the I-80 East Corridor, any project's proposed scope of work would have to be adjusted to avoid or minimize impacts (particularly those associated with staging of equipment and materials) to the wetlands. Potential impacts will be evaluated during the PA/ED phase of proposed projects.

Approximately 57 percent of Solano County lands are in some form of agriculture cultivation. Even when taken out of active production, agriculture land supports very few native plants; the majority of the non-cultivated species are ruderal, weedy grass and forb species. However, agricultural land still may provide wildlife biological opportunities such as foraging areas, nesting or den sites, and movement corridors. The value of agricultural lands to wildlife largely depends on the vegetation characteristics, cultivation practices, and flooding regimes of particular areas.

Urban areas occur throughout Solano County with the greatest concentration occurring along the axis of Interstate 80, the main transportation artery that runs northeast to the southwest. Urban vegetation consists, for the most part, of non-native, horticulture plants; few native species, except some trees and shrubs, typically remain in an urban setting. Most of the vegetation in urban settings is maintained as a monoculture, such as in tree groves, street strips, and lawns. Urban vegetation consisting of large stands and/or dense stands of trees and shrubs can provide habitat for "urban adapted" wildlife and, in some areas, habitat for migrating species. A second urban category exists in Solano County, rural residential areas. These rural residential areas are typically characterized by larger lots (typically 1 to 5 acres) and in many cases, remnants of native or naturalized plant communities may remain; however, human activities, development, and ornamental vegetation typically dominate the environment.

### ***Historic / Cultural Resources***

There are known historic properties from the National Register of Historic Places (NRHP) located within and around the I-80 East CSMP Corridor. Native American archaeological sites are likely to be buried beneath the ground surface. Archaeological sites dating to the historic period within the Corridor are typical of those found in rural settings where homesteads, ranches, or farms were once present. Architectural properties located within the Corridor will most likely be associated with the agricultural history of the area. There are 14 historical bridges (pre-1955) that cross the Corridor. There is also the possibility of state or locally listed historic properties being located in the general vicinity of the I-80 East

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<sup>5</sup> CA Department of Water Resources *Interagency Ecological Program/Suisun Marsh Program* – <http://www.iep.ca.gov>

CSMP Corridor. Studies would have to be initiated to see if any potential resources would be disturbed or affected. Historical properties could be in the sphere of influence, (within 1/2 mile) of the I-80 East corridor. Possible impacts to other historic architectural resources that are more distant to the I-80 East corridor may also need to be evaluated. Sensitive archeological sites are known to exist along the length of the corridor. Waterway routes in the corridor are of particular interest and need to be respected.

### ***Parks / Open Space***

Section 4(f) of USC 49 section 303 sets federal policy to preserve the natural beauty of open space and historic areas. Resources include publicly owned parks, recreation areas, wildlife or waterfowl refuges and historic sites. Environmental staff will determine the need for a Section 4(f) evaluation based on a specific project potential to impact 4(f) resources located in a given study area. Mitigation for impacts will be developed where appropriate in corridor-specific areas. Where specific projects for the CSMP study do not involve new R/W acquisition, potential impacts to 4(f) resources could result due to the proximity of project related construction to these resources.

### ***Visual / Aesthetics***

The Interstate 80 East Corridor in Solano County is not a State Scenic Highway nor is it eligible for designation as a scenic highway. The majority of the corridor is urban in nature. Either vine-covered sound walls or light landscaping run the majority of the corridor. Often neighboring businesses and other commercial properties are visible from the freeway.

Field elements of transportation projects typically include built elements such as poles, sign structures and electrical equipment within the freeway right-of-way. Within the context of this urbanized setting, these elements could represent a visual intrusion within a scenic corridor; however in this setting, these elements may have little overall visual impact. Additionally, the placement of poles and any miscellaneous structures within Bay Conservation Development Commission (BCDC) and/or Delta Protection Commission (DPC) jurisdictions could be subject to permit approval.

## **2.11 Maintenance**

Pavement and roadside maintenance are critical components of protecting and preserving the investment in the State Highway System, including I-80 in Solano County.

### ***Pavement Maintenance***

The maintenance of pavement at Caltrans is managed as two distinctive programs, maintenance and rehabilitation. Pavement Maintenance activities include: routine maintenance (day to day maintenance of roadway), major maintenance (planned work which is generally done by contract) and preventive maintenance (treatments applied when pavement distress is minimal, to extend the pavement life). Pavement Rehabilitation improves the facility and is designed to provide an additional ten years of service life. This is also planned work and generally done by contract. Maintenance activities keep the facility safe and serviceable until rehabilitation is needed.

### ***Existing Pavement Conditions***

Several tools have been developed to monitor the condition of existing pavement:

- 2007 State of the Pavement Report
- PCR-Pavement Condition Report
- GIS Based Mapping (2009 data)

The State of the Pavement Report is updated every two years and describes pavement condition by District. More detailed data is contained in the Pavement Condition Report including pavement condition

by post mile segment in specific corridors. Table 2.11.1 below lists I-80 East CSMP Corridor segments and lane-miles of distressed pavement. Distressed pavement is defined as lane-miles with poor structural condition or poor ride quality. Note, due to the completion of recent repaving of I-80 through Solano County in late 2009, some pavement conditions reflected in the table below may no longer be accurate.

Segment	County	Route	Segment Description	Begin Segment Post Miles	End Segment Post Miles	Number of Distressed Pavement Lane Miles
A	Solano	80	Contra Costa County Line to I-780 Interchange	0.000	2.220	None
B	Solano	80	I-780 Interchange to SR-37 Junction	2.220	5.630	14.511
C	Solano	80	SR-37 Junction to SR-12 West Junction	5.630	11.980	32.924
D	Solano	80	SR-12 West Junction to SR-12 East Junction	11.980	15.820	18.842
E	Solano	80	SR-12 East Junction to I-505 Interchange	15.820	30.200	30.665
F	Solano	80	I-505 Interchange to SR-113 South Junction	30.200	38.210	85.731
G	Solano	80	SR-113 South Junction to SR-113 North Interchange	38.210	42.67	43.068

Table 2.11.1. I-80 East CSMP Corridor Distressed Pavement Summary (2007).

GIS based mapping depicts corridor pavement status throughout the state and is based on the Pavement Condition Report. Figure 2.11.1 on the following page depicts I-80 East pavement condition by Damage Priority Group. Note, because the data for this map was developed before the recent repaving project on I-80 was fully complete, this map may not be fully accurate. The DPG legend for those shown on the map is:

- **RED:** Major Damage—Rehab is scheduled.
- **GREEN:** Minor Damage—Rehab is needed, not yet scheduled.
- **BLUE:** Bad Ride Only—Surface is rough, but repair not required.

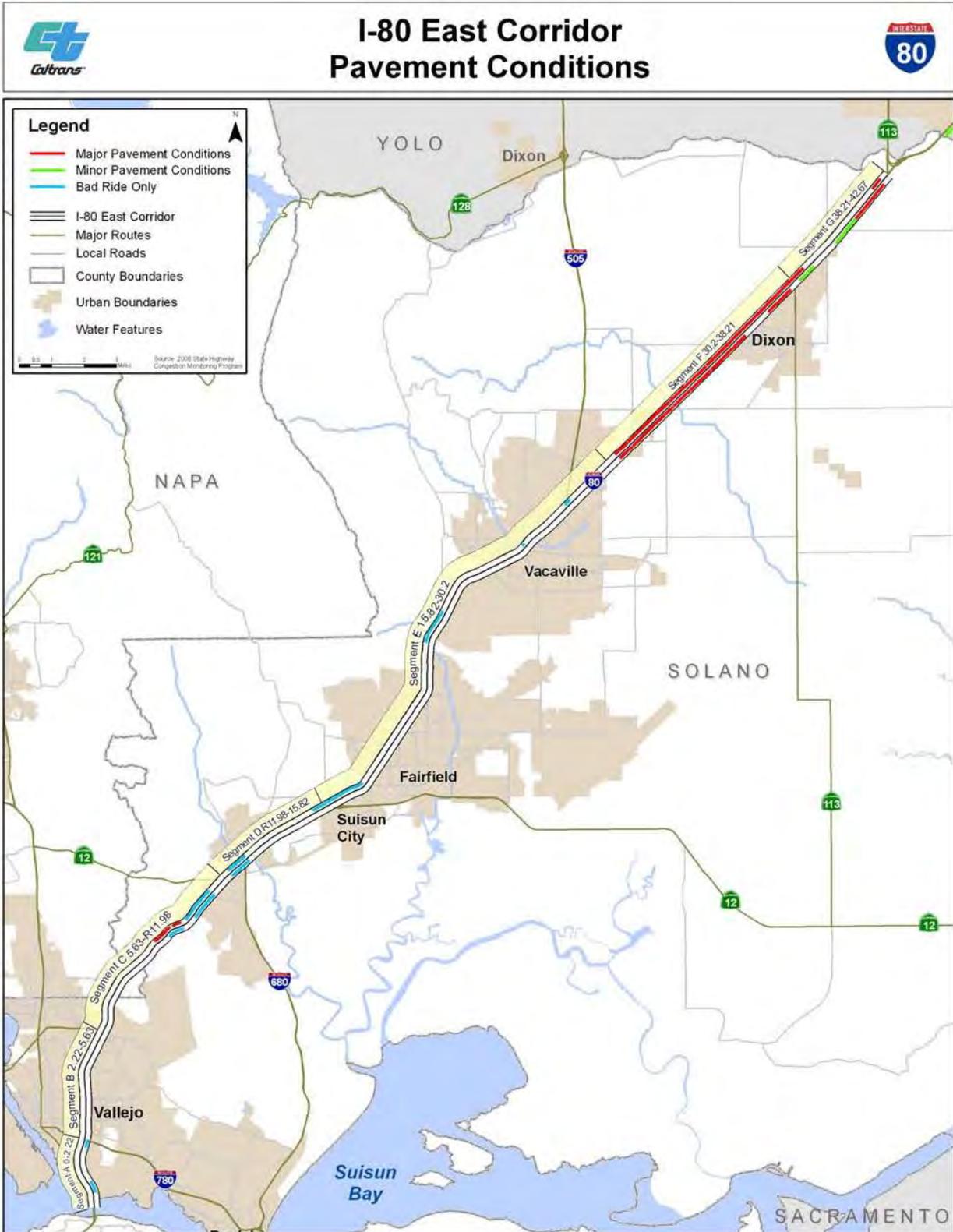


Figure 2.11.1. I-80 East CSMP Corridor Pavement Conditions (2009).

### ***Pavement Management Plans***

District 4 has developed detailed 10 year pavement management plans for all the principal routes in the District. The 10-Year Pavement Management Plan for I-80 East is located in Appendix A.6.

### ***Other Maintenance Tasks***

In addition to pavement management, District 4 Division of Maintenance performs other important functions in the I-80 East corridor. Major activities in the corridor include:

- Vegetation control—A significant portion of the roadside management and maintenance effort is devoted to activities associated with vegetation control. The need for vegetation control is driven primarily by safety issues such as minimizing fire concerns, promoting visibility of traffic and promoting good drainage.
- Landscaping upkeep—The maintenance of landscape vegetation includes irrigation, planting, plant removal and replacement. A fully landscaped planted area provides traffic screening and improves both aesthetic value and the stability of roadside slopes.
- Litter control—Maintenance workers remove litter, debris, and sediment to maintain traffic safety (for both motorized and non-motorized travelers), protect water quality, ensure drainage, and provide an attractive facility for travelers and local communities. Graffiti is also removed from signs and other structures “as soon as reasonably possible.” (Streets and Highways Code Section 96).
- Drainage control—Maintenance includes the repair, replacement and cleaning of drainage features. .
- Bridges—Bridge maintenance includes work such as repairing damage or deterioration in various bridge components. Although there are no moveable span bridges in the I-80 East corridor, maintenance of electrical and mechanical equipment on moveable span bridges, and operation of this type of bridge are parts of Maintenance duties.
- Safety devices—Safety devices are provided and maintained for the protection and guidance of the traveling public. These devices include Roadside Delineator Posts, Guardrail, Median Barriers and Vehicle Energy attenuators (energy dissipaters).
- Lighting—Highway lighting and sign illumination is provided to improve visibility and to promote safe and efficient use of special roadway facilities. Maintenance of highway lighting and sign illumination includes all work performed on highway electrical facilities used for control of traffic with traffic signal systems, highway and sign lighting systems, Traffic Management System (TMS) Field Elements, Intelligent Transportation Systems (ITS), count stations, and other related systems.
- Signs—The maintenance of signs typically includes work such as the placement of signs, identification of damaged or inadequate signs, cleaning of dirty signs and general inspection duties.
- Weigh station maintenance—District 4 Maintenance, along with the CHP, operates and maintains the truck weighing stations in the I-80 East corridor (Cordelia) to ensure truck safety and prevent excessive pavement damage from overweight vehicles.

## SECTION 3 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 and funded through a Caltrans FY 2007-08 Partnership Planning Grant, STA launched the Solano Highways Operations Plan effort and created the Solano Highways Partnership (SoHIP) with the cities of Benicia, Dixon, Fairfield, Vacaville and Vallejo, MTC and Caltrans Districts 3 & 4. In addition to establishing a working 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 freeway 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 results were 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.

### **3.1 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 3.1.1. Existing Conditions 2007,” on Page 3-3.

#### **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. The following graphic, Exhibit 1, helps to illustrate existing peak hour conditions.

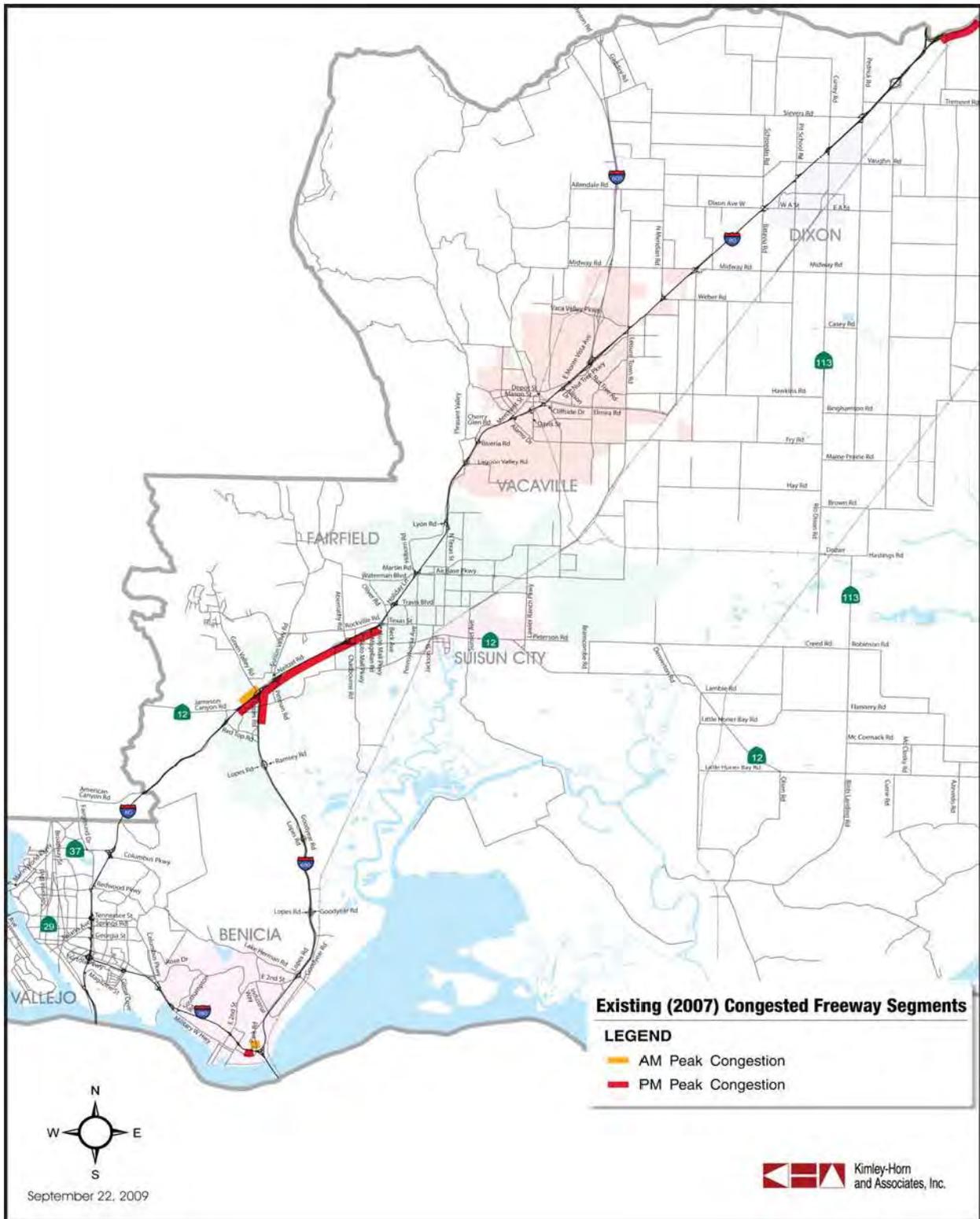


Figure 3.1.1. Existing Conditions (2007).

### 3.2 Accident Characteristics

As part of the I-80 FPI, accident data for segments of the I-80 Corridor was reviewed to determine any trends in incident rates and types of accidents. Accident data from September 1, 2003 to August 31, 2006 were collected for six different segments of the I-80 Corridor in each direction. As shown in Table 3.2.1 below, during this three year period there was a total of 4,941 accidents reported along the I-80 corridor in Solano County, an average of 4.5 accidents per day. Of these 1,321 were reported as injury accidents and 36 were reported as fatalities. As shown in Exhibit 2, 11 of the 12 segments have accident rates comparable to the statewide average for similar facilities and area types. However, the 7.8 mile westbound segment of I-80 between Air Base Parkway and Red Top Road has an overall accident rate that is greater than the statewide average for similar facilities.

<b>I 80 Accident Summary</b>													
Direction				Segment Length (Miles)	No. of Accidents			Accident Rates (No. of Accidents per Million Vehicle Miles)					
								Segment Rates			Statewide Average		
					Total	Fat	Inj	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
Bridge Toll Plaza	to	SR-37 / I-80 Interchange	EB	5.04	347	1	110	0.002	0.28	0.86	0.007	0.34	1.10
SR-37 / I-80 Interchange	to	American Canyon	EB	2.42	74	1	22	0.006	0.15	0.47	0.007	0.24	0.69
American Canyon	to	Air Base Parkway	EB	11.07	899	4	225	0.004	0.22	0.88	0.006	0.30	0.93
Air Base Parkway	to	Leisure Town	EB	10.68	457	4	134	0.004	0.14	0.48	0.006	0.30	0.93
Leisure Town	to	Kidwell Rd	EB	11.40	385	6	99	0.008	0.14	0.53	0.013	0.32	0.88
Kidwell Rd	to	Richards Blvd	EB	3.46	125	1	38	0.004	0.16	0.52	0.006	0.23	0.67
Richards Blvd	to	Kidwell Rd	WB	3.46	89	2	29	0.008	0.13	0.37	0.006	0.23	0.67
Kidwell Rd	to	Leisure Town	WB	11.40	325	3	84	0.004	0.12	0.44	0.013	0.32	0.88
Leisure Town	to	Air Base Parkway	WB	10.68	657	5	177	0.005	0.19	0.69	0.006	0.30	0.93
Air Base Parkway	to	Red Top Road	WB	7.78	1017	4	251	0.005	0.32	1.27	0.005	0.32	1.02
Red Top Road	to	Columbus Parkway	WB	10.83	202	4	59	0.011	0.17	0.53	0.007	0.25	0.70
Columbus Parkway	to	Carquinez Bridge	WB	5.68	364	1	93	0.002	0.21	0.81	0.007	0.33	1.06
<b>Total</b>					<b>4941</b>	<b>36</b>	<b>1321</b>						

Table 3.2.1. I-80 Accident Summary (September 2003 through August 2006).

Accidents on I-80 in Solano County by time of day and direction of travel are shown in Figure 3.2.1 on the following page where it can be seen that the pattern of accidents closely correlates to the pattern of hourly traffic volumes along the corridor. In other words, more accidents occur during those hours when the traffic flows are peaking in the morning and afternoon than during other hours of the day. Overall, about 45% of the accidents on I-80 in Solano County over this 3 year period occurred during the six hours of the morning (6:00 to 9:00 AM) and afternoon (3:00 to 6:00 PM) peak periods indicating that high traffic volumes are contributing factors.

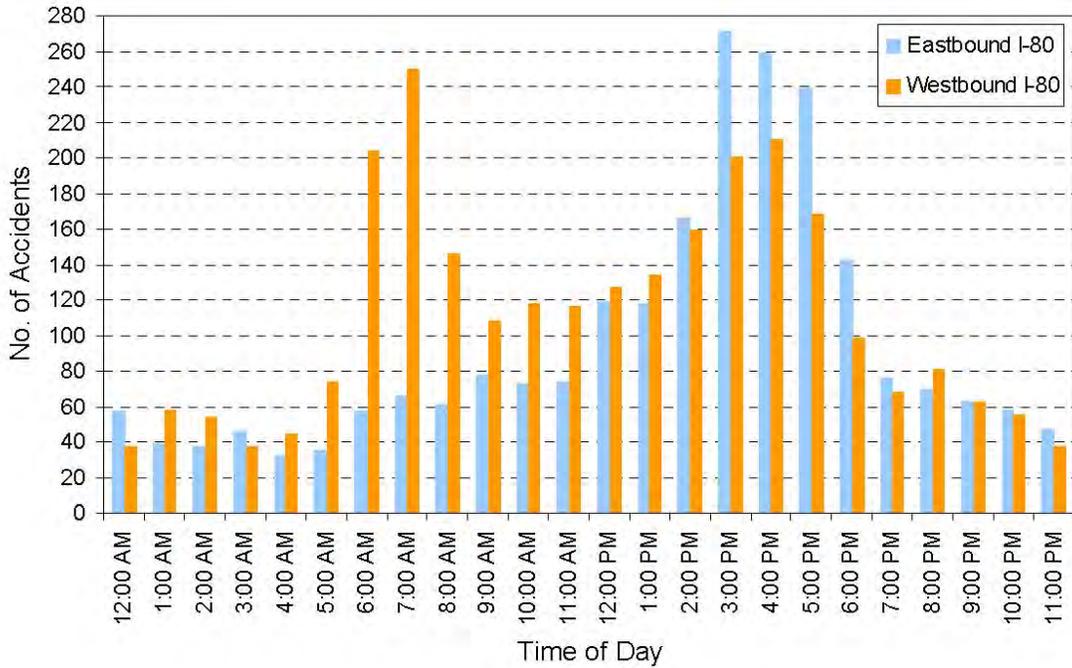


Figure 3.2.1. I-80 Accidents by Time of Day (September 2003 through August 2006).

Eastbound and Westbound accidents by type and by segment for I-80 in Solano County are shown in Figure 3.2.2 below and Figure 3.2.3 on the following page. At several of the segments along the corridor rear-end collisions are the predominate type of accident that occurs. Accidents of this type are typically associated with congested conditions where stop and go driving takes place either due to recurrent congested conditions, or incidents along the corridor.

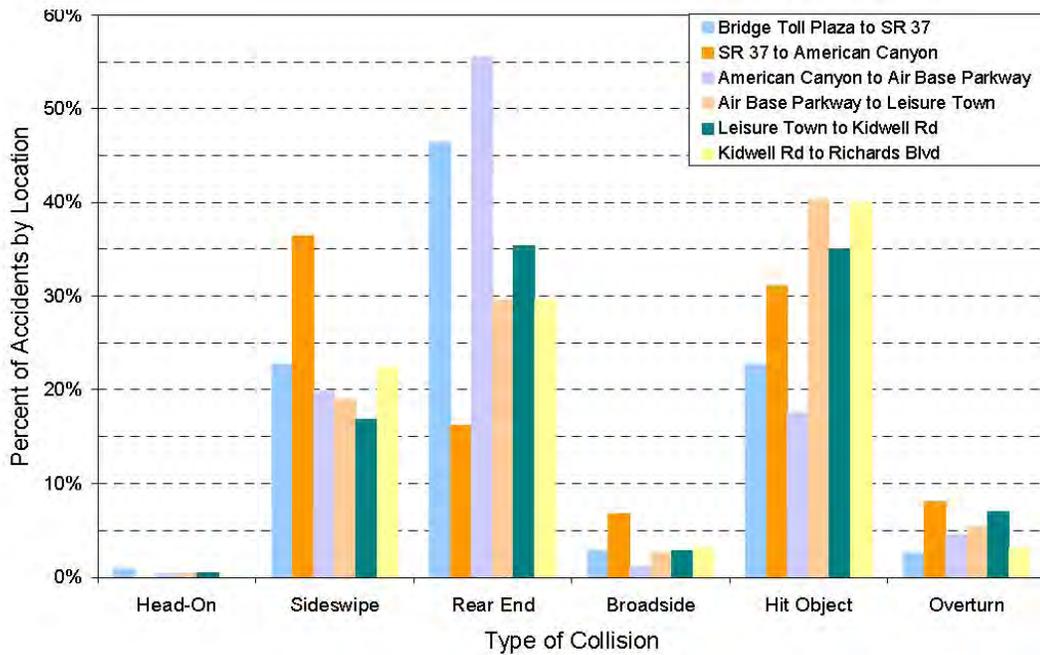


Figure 3.2.2. I-80 Eastbound Accidents by Type (September 2003 through August 2006).

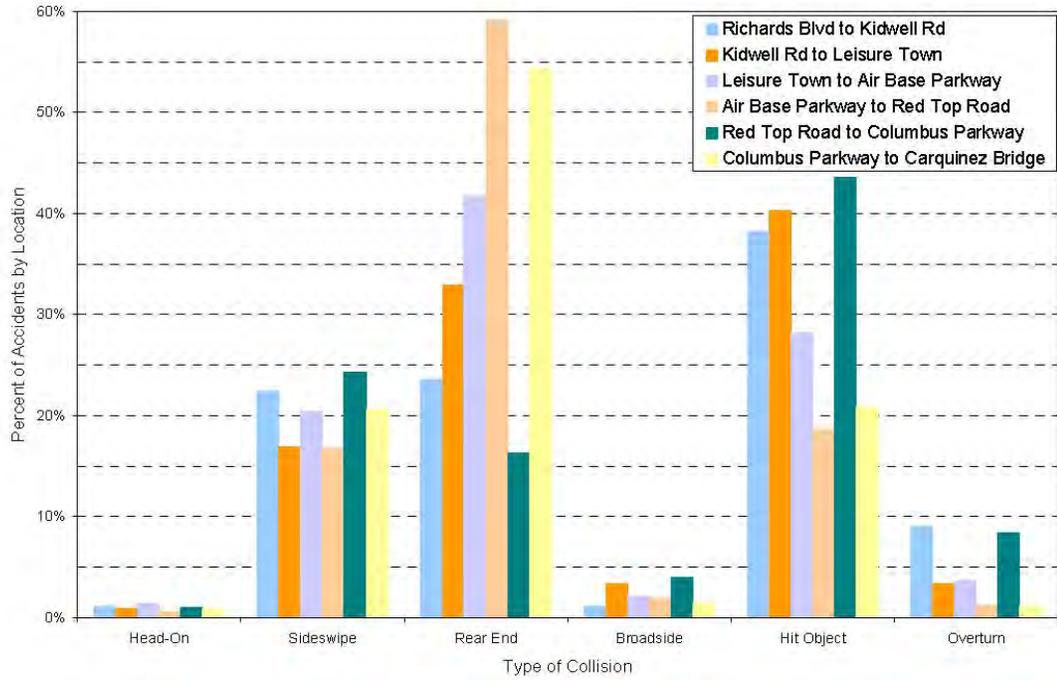


Figure 3.2.3. I-80 Westbound Accidents by Type (September 2003 through August 2006).

## SECTION 4 EXPECTED FUTURE PERFORMANCE

The section summarizes the projected future year recurring conditions for the I-80 East CSMP Corridor for 2015 and 2030 forecast years. A majority of the information reported in this section was taken from the I-80 FPI report.

### **4.1 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

### **4.2 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

#### **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.

<b>2015 I-80 Bottleneck Locations</b>		
<b>No</b>	<b>Location</b>	<b>Cause</b>
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 Parkway 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. Year 2015 conditions are further illustrated in Figure 4.2.1 on the following page.

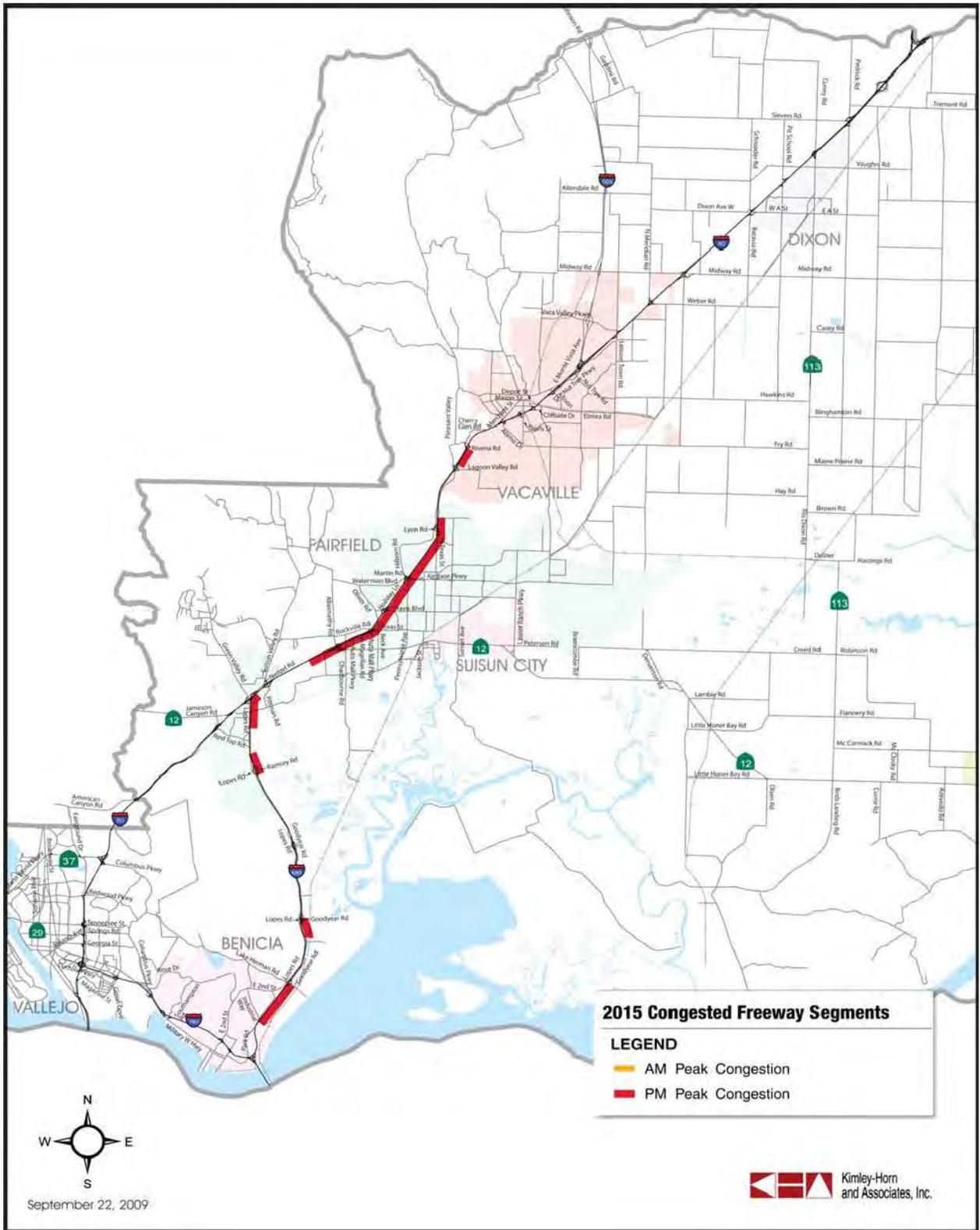


Figure 4.2.1. Year 2015 Congestion.

### **4.3 Year 2030 Conditions**

Freeway segments where recurring AM or PM peak period congestion is forecast for the Year 2030 are described and shown in the following map illustration. The four congested locations along I-80 are listed below and illustrated in Figure 4.3.1 on Page 4-6.

#### **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.

<b>2030 I-80 Bottleneck Locations</b>		
<b>No</b>	<b>Location</b>	<b>Cause</b>
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 Avenue, and Midway Road to Dixon Avenue.

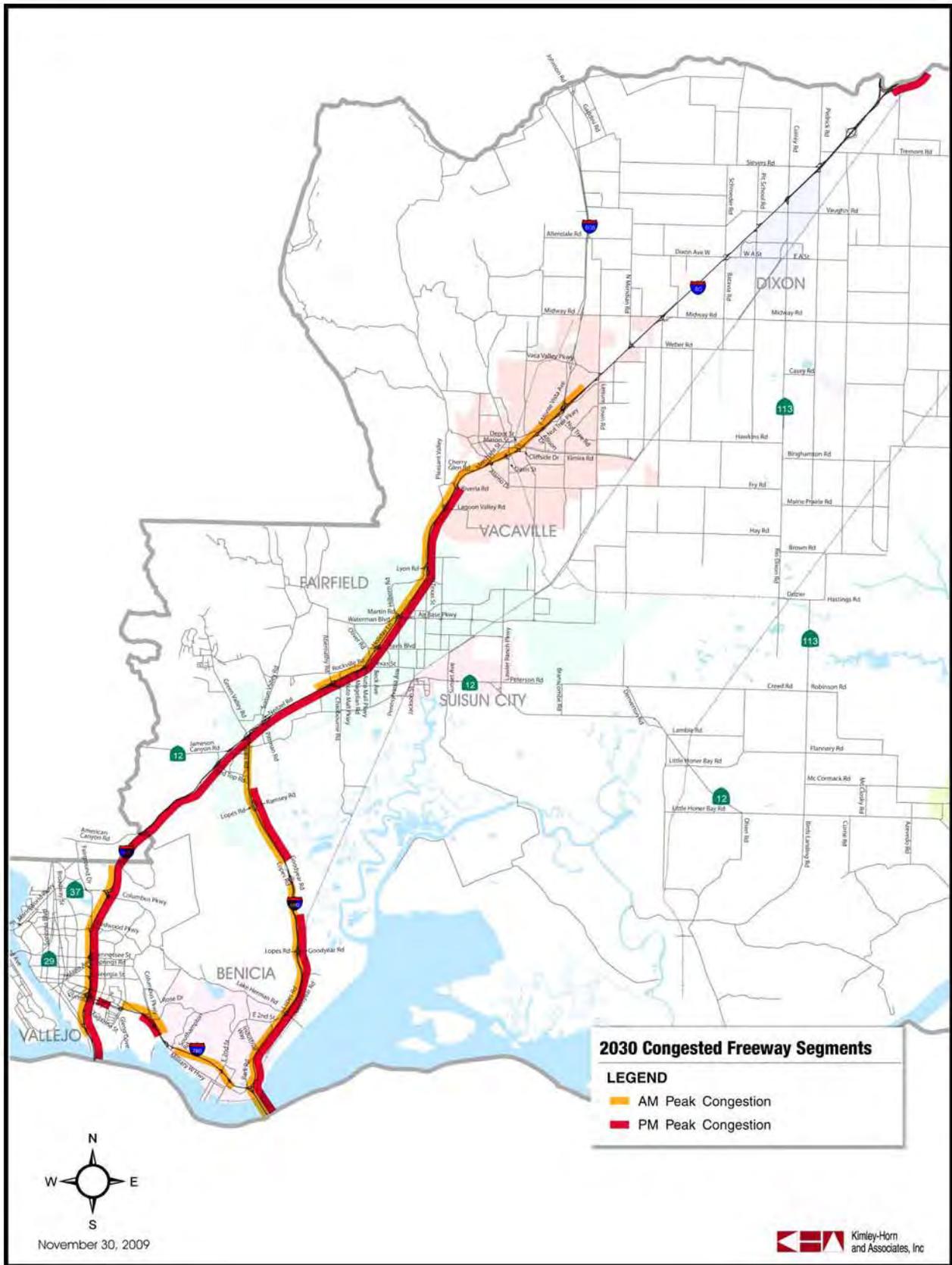


Figure 4.3.1. Year 2030 Congestion.

# SECTION 5 RECOMMENDED STRATEGIES & IMPROVEMENTS

## 5.1 Corridor Management Strategies

The section presents the overall plan for implementing the operational improvements identified in the operations analysis. This includes the identification of corridor management strategies, a prioritization of the specific projects and their respective year for implementation. The operational improvement strategies are 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.

## 5.2 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.

<b>2015 I-80 Operational Improvement Strategies</b>	
<b>Strategy</b>	<b>Location and Details</b>
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 Dr with a two-lane off ramp at Alamo Dr
	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 Road to west of SR 113 (the existing four-lane section is between Pedrick Road and Kidwell Road)
	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 Avenue off-ramp
Auxiliary Lane	Provide an eastbound auxiliary lane between Abernathy Road 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 an eastbound auxiliary lane between Cherry Glenn Road and Pleasant Valley Road
	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 Road
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 5.2.1 through 5.2.6) summarize the existing, 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.

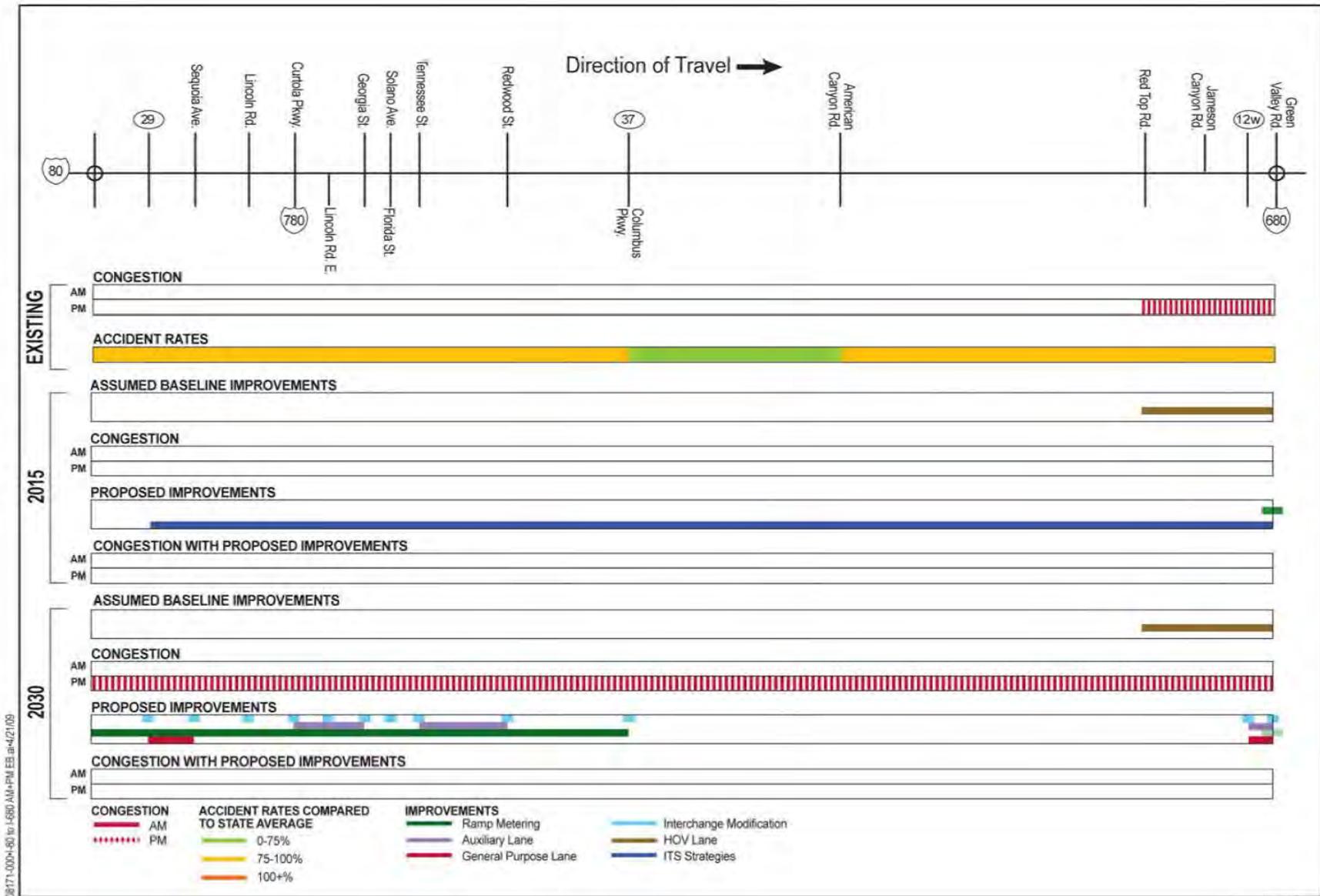


Figure 5.2.1. I-80 Eastbound between Carquinez Bridge and I-680.

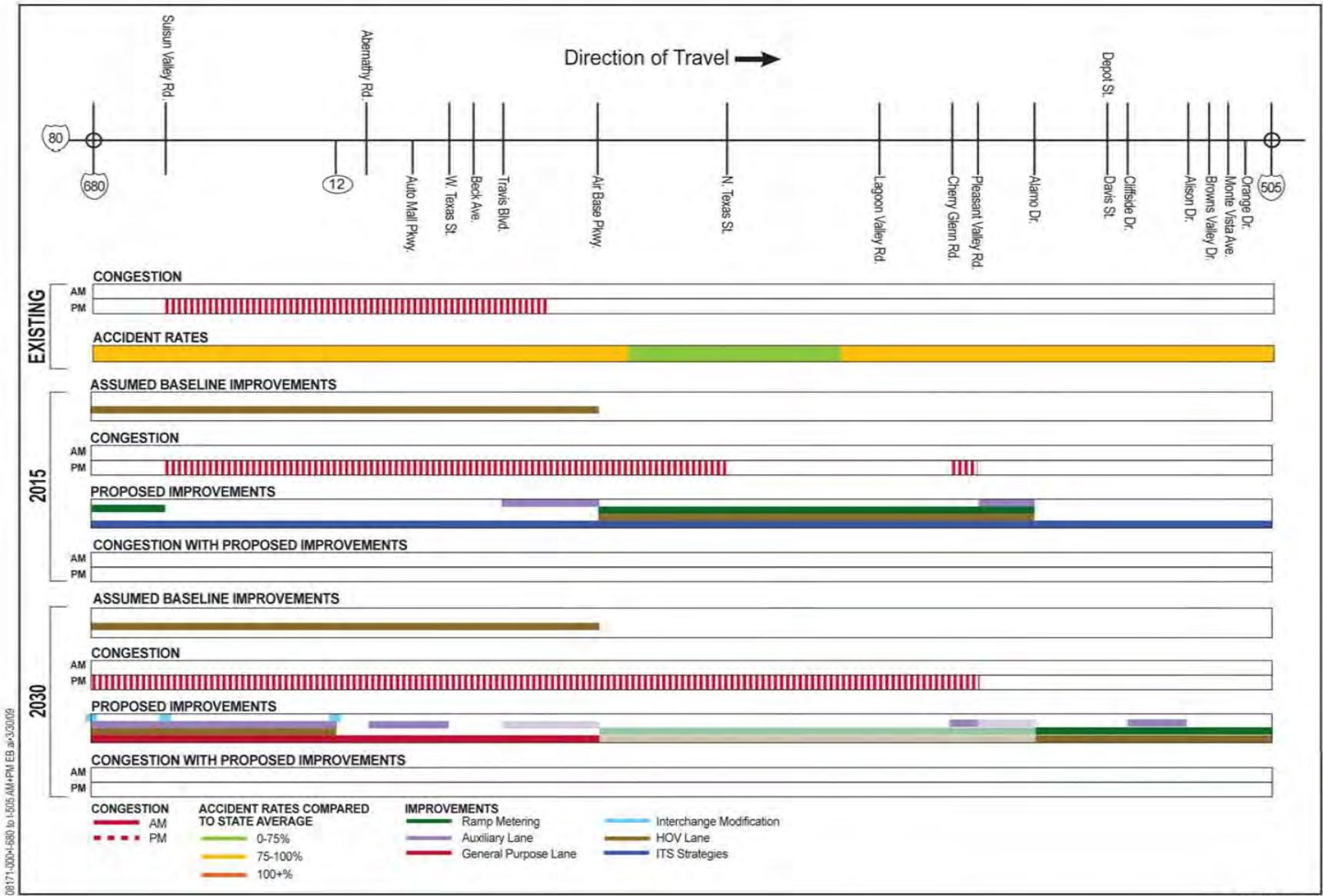


Figure 5.2.2. I-80 Eastbound between I-680 and I-505.

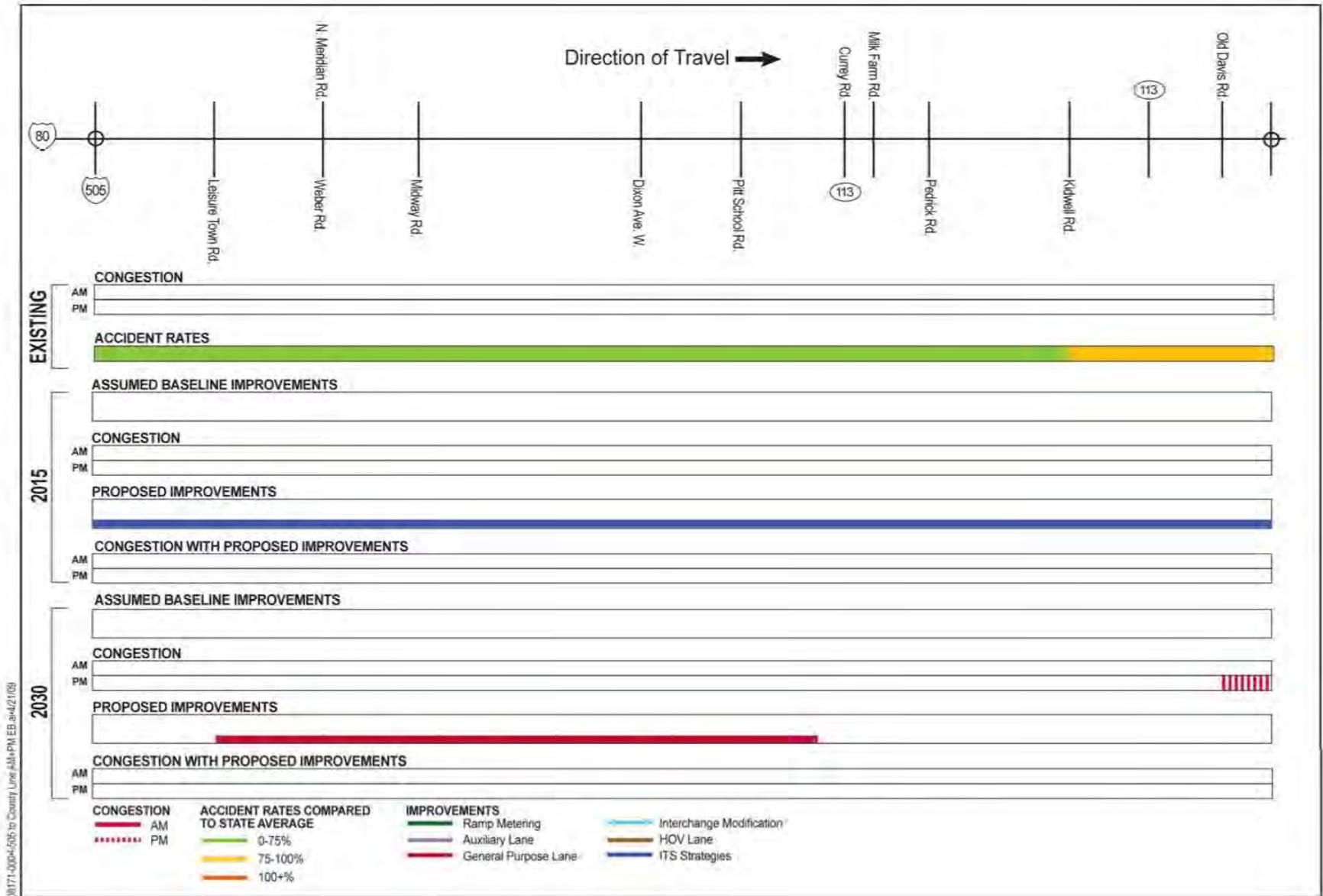


Figure 5.2.3. I-80 Eastbound between I-505 and Solano/Yolo County Line.

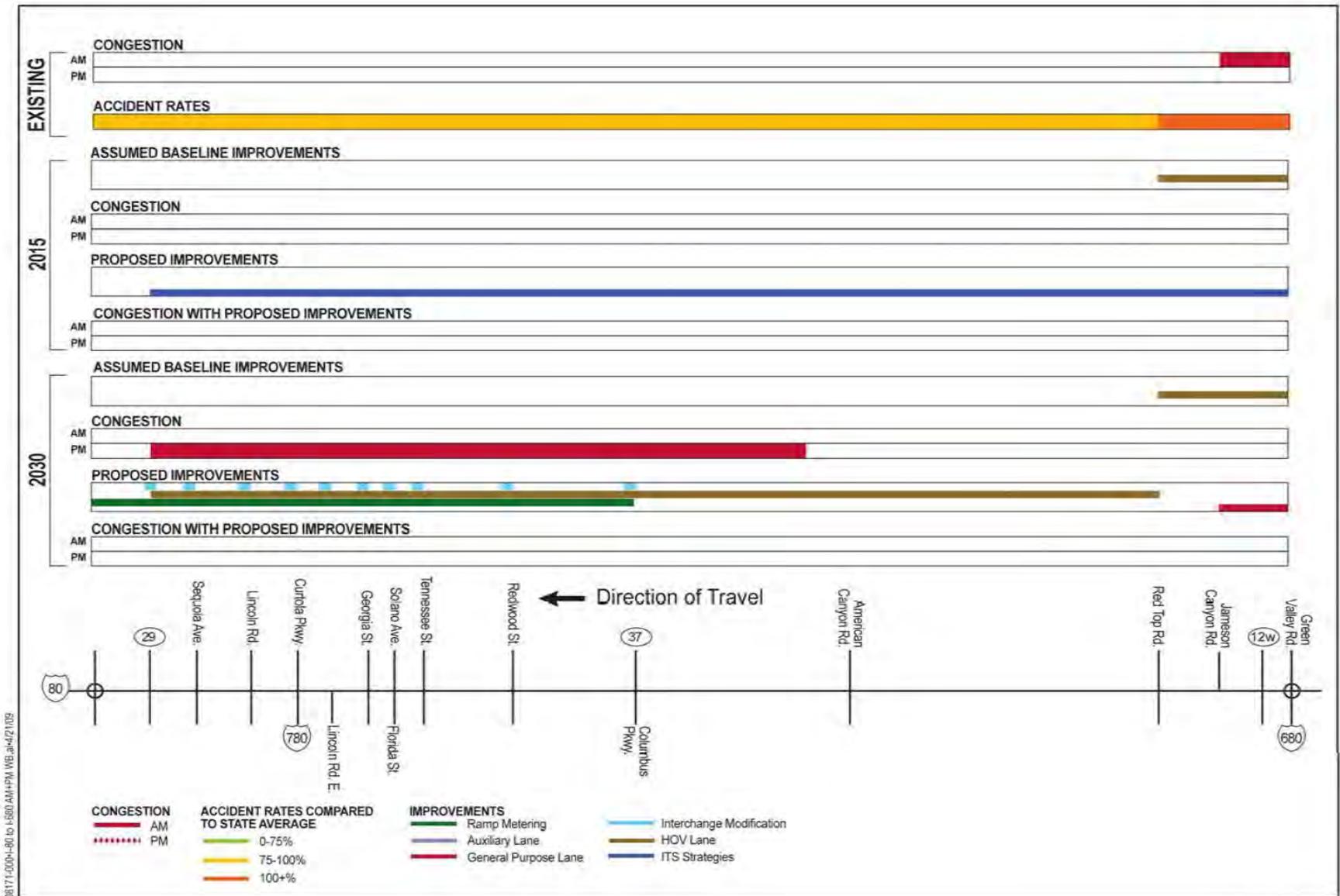


Figure 5.2.4. I-80 Westbound between I-680 and the Carquinez Bridge.

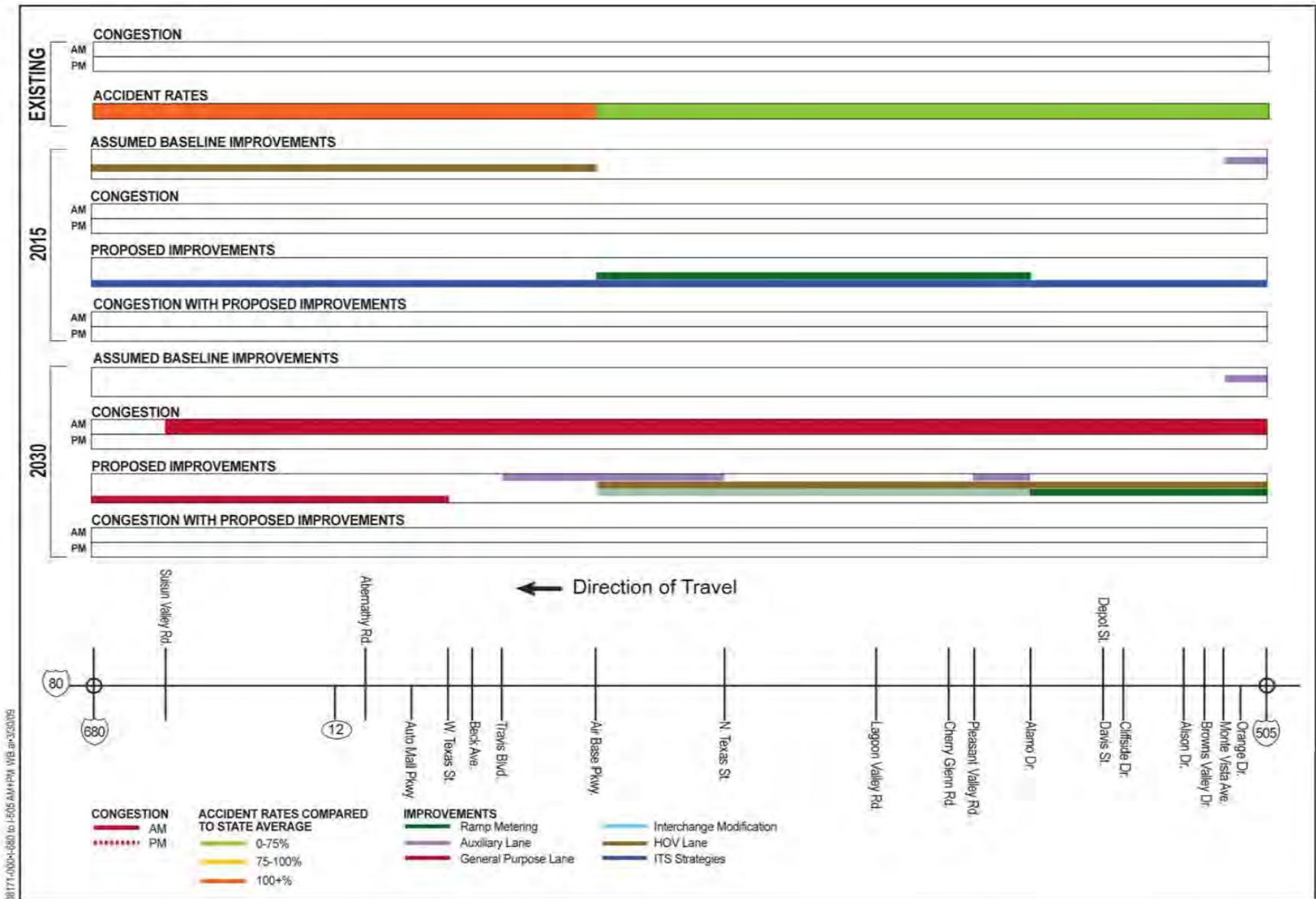


Figure 5.2.5. I-80 Westbound between I-505 and I-680.

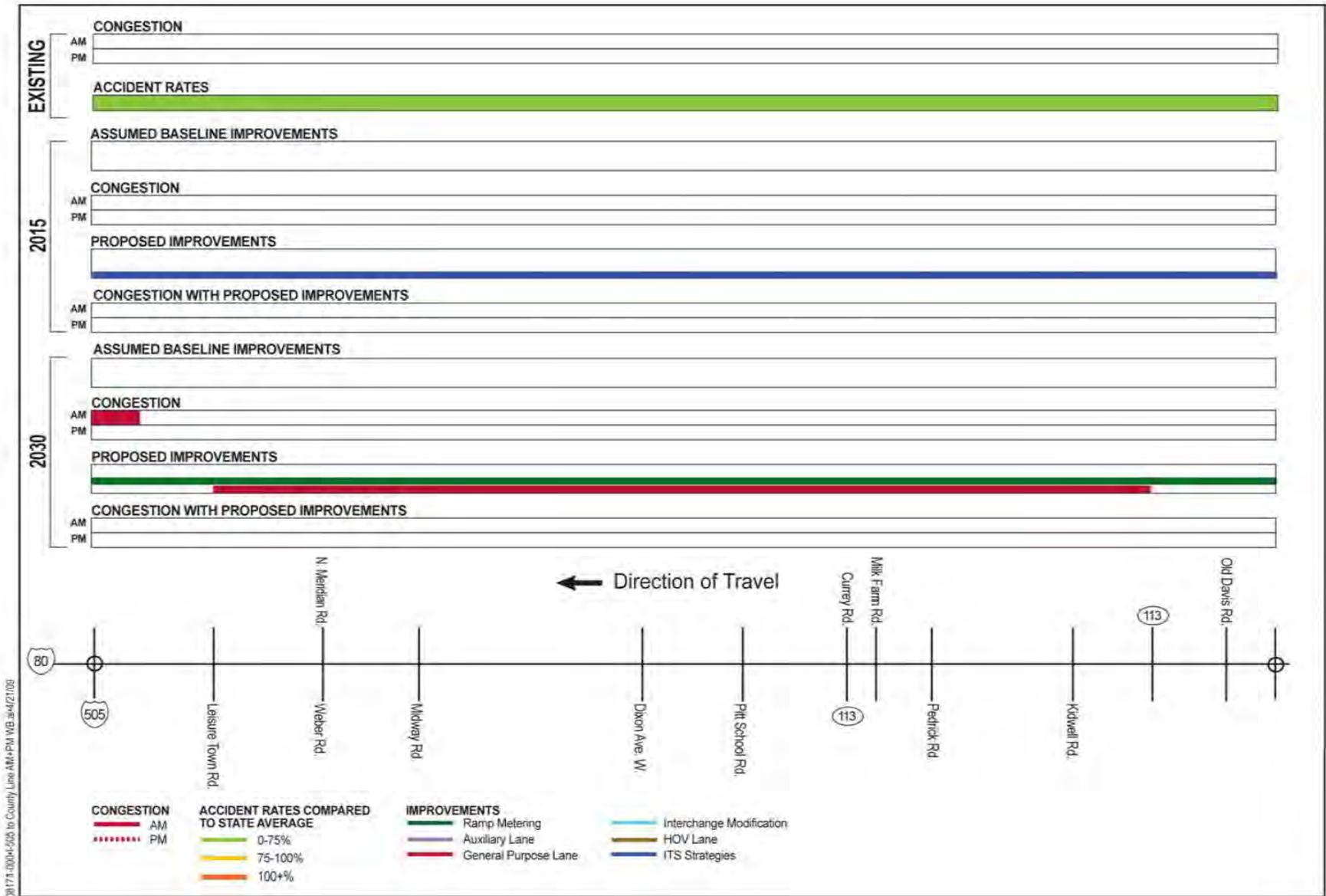


Figure 5.2.6. I-80 Westbound between Solano/Yolo County line and I-505.

### **5.3 Project Prioritization**

Based on the findings of the operations analysis, the Corridor Level ITS Architecture and Implementation Plan, and the development of the specific projects, each project was organized in priority order. Once the project bundling was developed, each project was prioritized using several factors including the following:

- Impact on reducing congestion;
- Cost;
- Balancing corridor improvements; and
- Overall Feasibility

Each project's impact on reducing congestion during the horizon year forecasts was documented in the FPI studies. Thus, the prioritization of the projects focused more on the timing and location of the projects within those horizon years.

The prioritization for the most part followed the order of the improvement packages identified in the FPI studies. Where there were deviations, these included ranking projects such that other freeway corridors would receive improvements in order to balance the order of the improvements (e.g., Project #6 versus Project #8). Additionally, ITS improvements were combined with other FPI packages (e.g., Projects #17 and #18) in order to realize synergies when constructing the projects. Other HOV gap filling projects were ranked lower except in those cases where they would provide a level of continuity (e.g., Project #11).

The most cost effective strategies for the corridors under the Year 2015 were the system management strategies, or ITS strategies. These types of strategies reduce the amount of non-recurrent congestion as they provide the tools and means to identify, respond to and clear incidents in a timely manner before the incident has a severe impact on congestion. However, it is understood that having ITS coverage alone does not relieve congestion. Moreover, the approach to prioritization was to not only combine ITS with operational improvements, but also to order the installation of the projects such that meaningful segments of the freeways are covered with successive projects. To that end, in the near-term (2015), the implementation of ITS as standalone projects was ranked highest, which is consistent with the FPI.

The following maps (Figures 5.3.1 through 5.3.3) provide illustrated summaries of the prioritized projects along the I-80 East CSMP Corridor as well as the I-680 and I-780 Corridors within Solano County which were included for analysis in the Solano Highways Operations Plan. For more information on the I-680 and I-780 Corridors please see the following web link to the Solano Highways Operations Plan (<http://www.solanolinks.com/studies.html#sohip>).

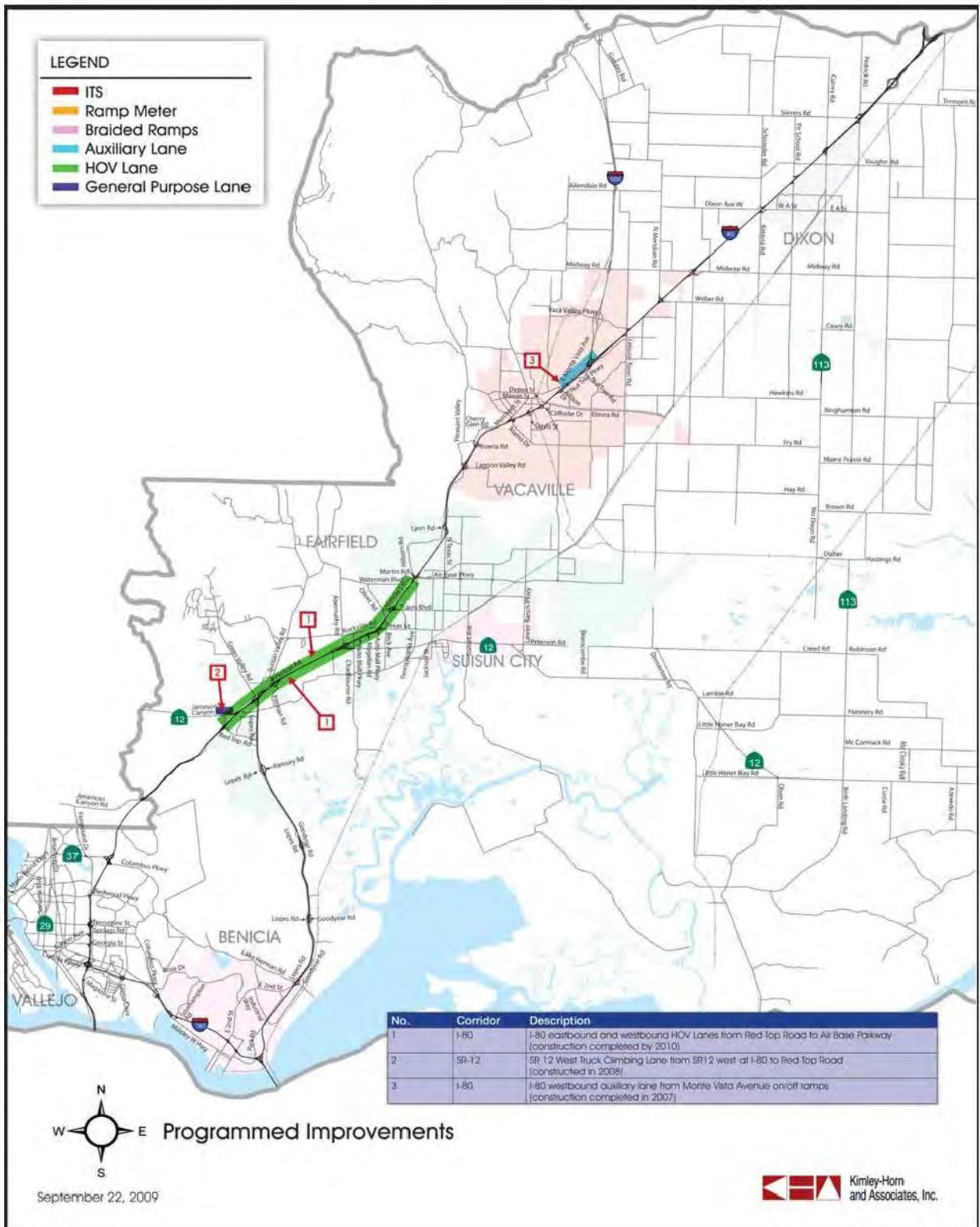


Figure 5.3.1. Programmed Improvements along I-80 East CSMP Corridor.

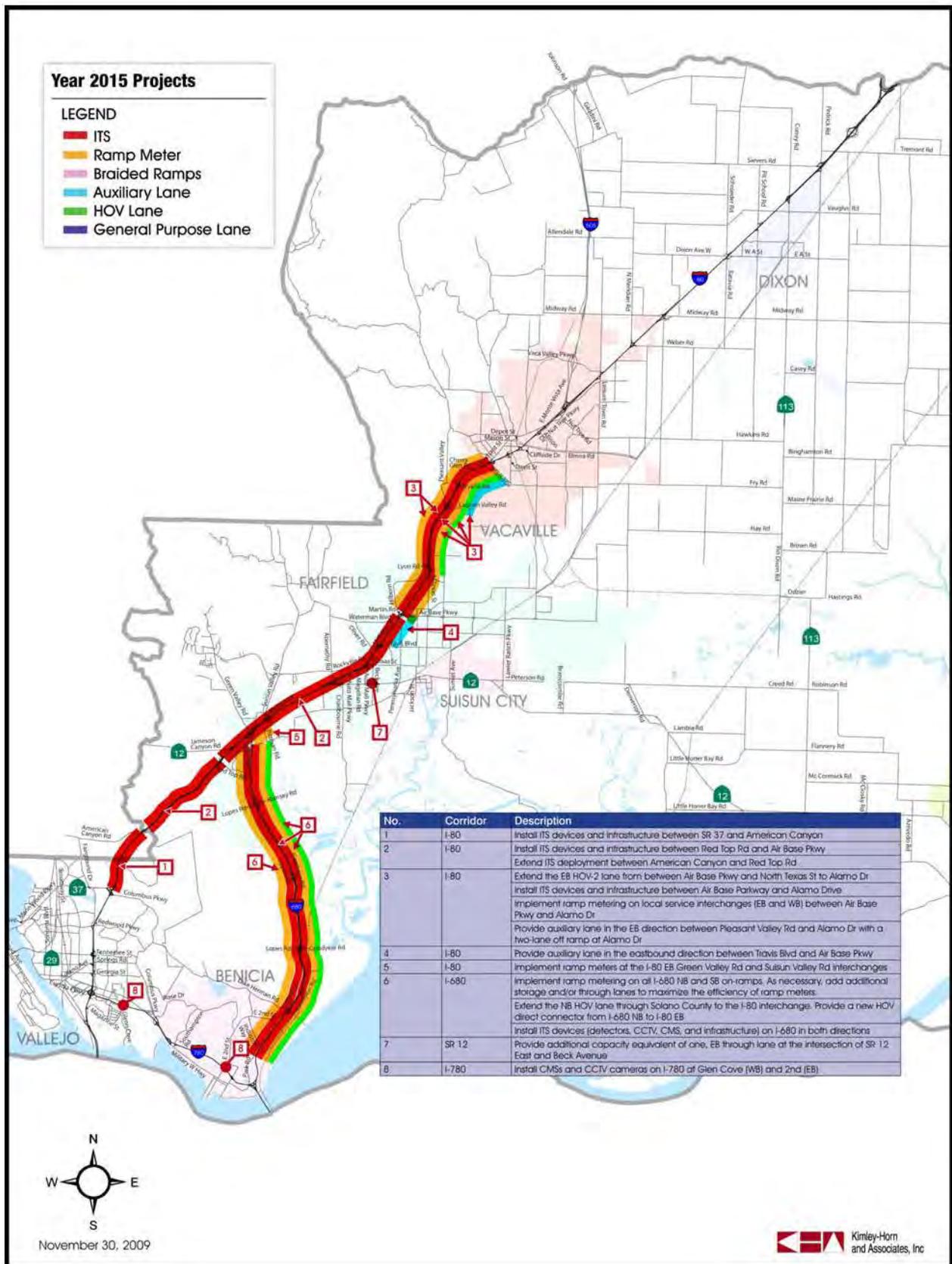


Figure 5.3.2. Year 2015 Proposed Improvements (I-80 East CSMP Corridor, I-680, I-780).

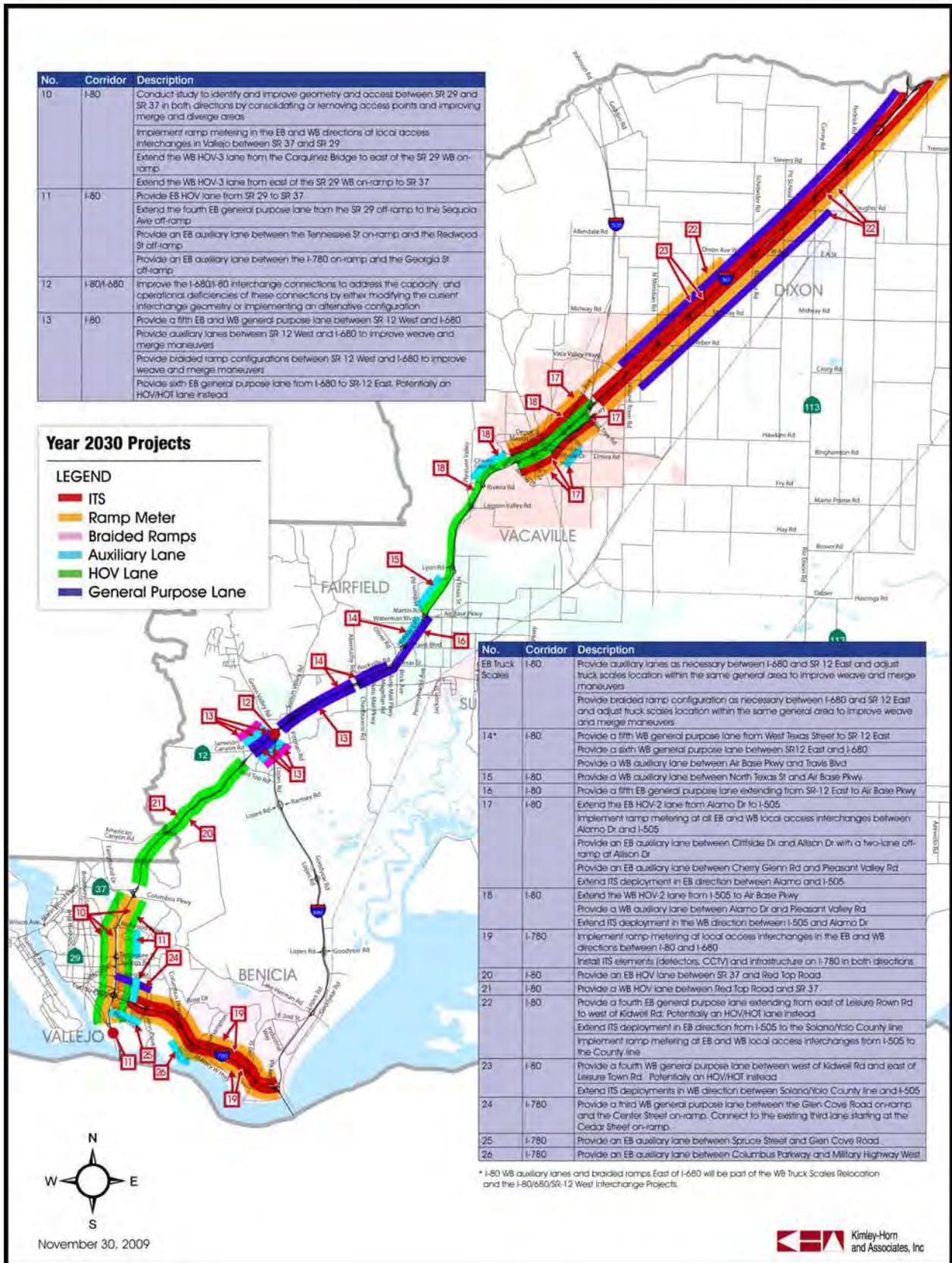


Figure 5.3.3. Year 2030 Proposed Improvements (I-80 East CSMP Corridor, I-680, I-780).

## **5.4 Year 2015**

The installation of system management strategies for the short-term was deemed the highest priority for the corridors, particularly for I-80. This was done, as system management are the most cost effective strategies for the corridor under the Year 2015 – this is supported by the mitigation strategies listed in the I-80 FPI report. These types of strategies reduce the amount of non-recurrent congestion as they provide the tools and means to identify, respond to and clear incidents in a timely manner before the incident causes congestion.

The I-80 corridor has many gaps in ITS coverage. Thus, the highest priority projects were identified to be those that implemented and closed the existing gaps in the ITS coverage. Next, combining ITS strategies with operational improvements was evaluated. In some cases, there were recommended operational improvements where the inclusion of ITS improvements would be appropriate. However, in most cases, the need for ITS coverage was not in locations that needed operational improvements. To that effect, the existing areas without ITS coverage that would benefit the most while still maintaining its cost effectiveness are along north Vallejo and through Fairfield along I-80.

The operational improvements that would reduce congestion along I-80 through the Fairfield and Vacaville areas were ranked high in priority (Project #3) since those improvements, which includes an eastbound HOV lane and an auxiliary lane, would mitigate a substantial bottleneck in the eastbound direction. Additionally, the forecast of a series of congested locations and bottlenecks on I-680 in the northbound direction resulted in the need for operational improvements, i.e., HOV lane and ramp metering.

The I-80 operational improvements ranked higher than the I-680 improvements due to the levels of congestion and cost, where the congestion levels on NB I-680 are not projected to be as significant as I-80. Also, mitigating the I-80 bottleneck would be required before mitigating the NB I-680 bottlenecks since I-680 feeds into I-80. However, with one goal of maintaining a balance between corridors in terms of the order of project priorities, improvements along I-680 (Project #6) were ranked slightly higher than one system management strategy along I-80 (Project #8).

Under Projects #3 and #6, ITS improvements were combined with other operational improvements including HOV lanes, auxiliary lanes and ramp metering. Additionally, ramp metering implementations were packaged such that both directions at each interchange would be combined. As an example, I-680 (Project #6) includes SB ramp metering, even though the implementation of ramp metering along I-680 in the SB direction is not recommended until Year 2030 in the FPI.

The other projects in Year 2015 consisted of standalone ITS improvements along I-80 (Projects #1, #2 and #8) and I-780 (Project #9), and improvements at the intersection of SR12 East and Beck Avenue. For I-780, the installation of CMS and CCTV cameras at two locations near I-80 and I-680 are intended to provide some form of system management coverage in the short-term until such time as ITS improvements can be combined with other operational improvements.

For Year 2015, nine projects are recommended for deployment totaling approximately \$131,000,000. Under this year, full ITS coverage along I-680 in the County and on I-80 from the Carquinez Bridge to Alamo Drive would be achieved.

Table 5.4.1 below provides a summary of the prioritized projects and their order of magnitude costs for the Year 2015.

<b>Year 2015 Prioritization of Projects</b>			
<b>Priority</b>	<b>Corridor</b>	<b>Description</b>	<b>Order of Magnitude Cost</b>
1	I-80	Install ITS devices and infrastructure between SR 37 and American Canyon Road. This will consist of CCTV cameras, changeable message signs and communications infrastructure.	\$6,500,000
2	I-80	Install ITS gap between Red Top Road and Air Base Parkway. This will consist of CCTV cameras, Highway Advisory Radio and communications infrastructure.	\$6,000,000
3	I-80	Extend the EB HOV-2 lane from between Air Base Parkway and North Texas Street to Alamo Drive.	\$19,000,000
		Install ITS devices and infrastructure between Air Base Parkway and Alamo Drive	\$7,800,000
		Implement ramp metering on local service interchanges (EB and WB) between Air Base Parkway and Alamo Drive. This will include four interchanges with eight on-ramps.	\$2,200,000
		Provide an EB auxiliary lane between Pleasant Valley Road and Alamo Drive. Provide a two-lane off-ramp at Alamo Drive. This includes the EB auxiliary lane between Cherry Glen Road and Pleasant Valley Road.	\$7,200,000
		Subtotal No. 3:	\$36,200,000
4	I-80	Provide auxiliary lane in the EB direction between Travis Boulevard and Air Base Parkway. Install ITS devices and infrastructure.	\$18,000,000
5	I-80	Implement ramp meters at the I-80 EB Green Valley Road and Suisun Valley Road interchanges	\$550,000
6	I-680	Implement ramp metering on all I-680 NB and SB on-ramps. As necessary, add additional storage and/or through lanes to maximize the efficiency of ramp meters.	\$2,700,000
		Install ITS elements (detectors, CCTV, CMS & Infrastructure) on I-680 in both directions	\$9,200,000
		Extend the NB HOV lane through Solano County to the I-80 interchange. Provide a new HOV direct connector from I-680 NB to I-80 EB.	\$44,100,000
		Subtotal No. 6:	\$56,000,000
7	SR 12	Provide additional capacity equivalent of one, EB through lane at the intersection of SR 12 East and Beck Avenue	\$2,900,000
8	I-80	Extend ITS deployment between American Canyon and Red Top Road	\$3,600,000
9	I-780	Install CMS and CCTV cameras on I-780 at Glen Cove (WB) and 2nd Street (EB)	\$1,400,000
<b>Total Year 2015 Improvements:</b>			<b>\$131,150,000</b>

Table 5.4.1. Year 2015 Prioritization of Projects.

## **5.5 Year 2030**

Following the same process as Year 2015, the projects identified for Year 2030 were derived from bundling the improvement packages from the FPI and including system management strategies. As an example, Project #17 includes HOV lanes, auxiliary lanes, and ramp metering taken from the I-80 FPI Package F plus the implementation of ITS improvements.

For ramp metering, the projects were bundled such that both directions of the freeway corridors would implement ramp metering. Using Project #17 as an example, ramp metering in the WB direction was added to this project even though it was not part of FPI Package F.

The prioritization of projects in Year 2030 was generally divided into segments along the freeway corridors. The areas through Vallejo were ranked highest followed by areas through Fairfield and Vacaville (I-80 and I-680), through Benicia along I-780 and finally along I-80 through Dixon to the county line.

The operational improvements along I-80 through Vallejo (Projects #10 and #11) were prioritized higher partly to balance the set of improvements along I-80 to the west along with the costs and projected levels of congestion that the projects are anticipated to mitigate. Additionally, since this corridor segment has been studied at length, it is anticipated that this segment may be the most prepared for the installation of the recommended operational improvements. There is already ITS coverage including CCTV cameras, CMS and vehicle detection along this segment. The projects include HOV lanes as part of the project bundle mainly for continuity and synergy of projects, e.g., since auxiliary lanes and ramp metering are recommended, adding in the EB HOV lane (Project #11) would provide continuity of the HOV lane from the Carquinez Bridge.

The improvements at the I-80/680/SR 12 interchange (Project #12), while prioritized lower than the I-80 segment through Vallejo, are currently being analyzed and developed, and the overall cost is anticipated to be significantly higher in comparison. Figures 5-7 and 5-8 illustrate the current concept for the I-80/680/SR 12 interchange. The improvements would create a direct I-680 and SR 12 connection, a direct HOV connection between I-80 and I-680, a new interchange at I-680 and Red Top Road, a new interchange on SR 12 West to facilitate the connection from WB SR 12 West and WB I-80, and a new overcrossing and improved interchange at Green Valley Road. The project is still in the environmental clearance stage of development.

The improvements in the vicinity between SR 12 West and SR 12 East (Projects #13 and #14) are forecast to have significant congestion such that additional general purpose and auxiliary lanes are needed in both directions of I-80. This influenced the high ranking of projects along this segment. The recommendations from the I-80 FPI were modified based on direction in order to account for the segment of I-80 EB that is currently being designed as part of the EB truck scales relocation project. Under this project, auxiliary lanes and braided ramps will be included. However, a sixth EB general purpose lane is not part of the current EB Truck Scales Relocation design.

The eastbound portion between Alamo Drive and I-505 is projected to have the potential for bottlenecks even with the recommended improvements. For this reason, the set of eastbound improvements are ranked just higher than the westbound improvements for this specific segment (Projects #17, #18, #22 and #23). The only exception is that ramp metering is recommended to be implemented in both directions.

The operational improvements and ITS installations along I-80, east of Alamo Drive (Projects #17 and #18), round out the recommended priority projects. The HOV lanes in both directions along I-80 between SR 37 and Red Top Road were identified as gap filling projects and thus were prioritized accordingly (Projects #20 and #21). One other point of discussion for this segment is that there is the possibility that the installation of High Occupancy Toll (HOT) lanes would be the extent of feasible improvements given the geometric and right of way constraints in the area. This is a topic that is beyond the limits of this study but will need to be addressed at a later time.

The operational improvements and ITS installations along I-80, east of Alamo Drive, round out the recommended priority projects. It is recommended that the eastbound improvements be installed before the westbound since the westbound improvements are primarily to fill in gaps. However, a similar point of discussion is noted for this segment regarding the potential for HOT lanes as a congestion mitigation strategy.

Along I-780, the implementation of ramp metering (Project #19) was ranked lower in priority as the levels of congestion forecast along this corridor are substantially less than the other corridors. However, this project, which includes full ITS coverage, was prioritized ahead of the HOV gap filling projects along I-80 (Projects #20 and #21). A third general purpose lane on I-780 between Glen Cove and Cedar (Project #24) and auxiliary lanes along two segments (Projects #25 and #26) round out the list of projects.

For Year 2030, 17 projects are recommended for deployment totaling approximately \$622,000,000. Under this year, full ITS coverage would be achieved along all three freeway corridors in the County. Table 5.5.1 below provides a summary of the prioritized projects and their order of magnitude costs.

<b>Year 2030 Prioritization of Projects</b>			
<b>Priority</b>	<b>Corridor</b>	<b>Description</b>	<b>Order of Magnitude Cost</b>
10	I-80	Conduct study to identify and improve geometry and access between SR 29 and SR 37 in both directions by consolidating or removing access points and improving merge and diverge areas.	\$500,000
		Implement ramp metering in the EB and WB directions at local access interchanges in Vallejo between SR 37 and SR 29	\$3,500,000
		Extend the WB HOV-3 lane from the Carquinez Bridge to east of the SR 29 WB on-ramp	\$3,800,000
		Extend the westbound HOV-3 lane from east of the SR 29 westbound on-ramp to SR 37	\$14,900,000
		Subtotal No. 10:	\$22,700,000
11	I-80	Provide an EB HOV lane from SR 29 to SR 37	\$15,200,000
		Extend the fourth EB general purpose lane from the SR 29 off-ramp to the Sequoia Avenue off-ramp	\$3,000,000
		Provide an EB auxiliary lane between the Tennessee Street on-ramp and the Redwood Street off-ramp	\$13,800,000
		Provide an EB auxiliary lane between the I-780 on-ramp and the Georgia Street off-ramp	\$9,200,000
		Subtotal No. 11:	\$41,200,000

**Year 2030 Prioritization of Projects**

<b>Priority</b>	<b>Corridor</b>	<b>Description</b>	<b>Order of Magnitude Cost</b>
12	I-80/I-680	Improve the I-680/I-80 interchange connections to address the capacity and operational deficiencies of these connections by either modifying the current interchange geometry or implementing an alternative configuration	\$100M (allocated)
13	I-80	Provide a fifth EB and WB general purpose lane between SR 12 West and I-680.	\$23,000,000
		Provide WB auxiliary lanes as necessary between SR 12 West and I-680 to improve weave and merge maneuvers	\$2,600,000
		Provide WB braided ramp configurations as necessary between SR 12 West and I-680 to improve weave and merge maneuvers	\$4,200,000
		Provide sixth EB general purpose lane from I-680 to SR 12 East. <i>Potentially an HOV/HOT lane instead.</i>	\$36,800,000
		Subtotal No. 13:	\$66,600,000
EB Truck Scales	I-80	Provide EB auxiliary lanes 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	(Part of EB Truck Scales Project)
		Provide EB braided ramp configuration 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	(Part of EB Truck Scales Project)
14	I-80	Provide a fifth WB general purpose lane from West Texas Street to SR 12 East	\$9,000,000
		Provide a sixth WB general purpose lane from SR 12 East to I-680	\$11,500,000
		Provide a WB auxiliary lane between Air Base Parkway and Travis Boulevard	\$12,000,000
		Subtotal No. 14:	\$32,500,000
15	I-80	Provide a WB auxiliary lane between North Texas Street and Air Base Parkway.	\$20,000,000
16	I-80	Provide a fifth EB general purpose lane extending from SR 12 East to Air Base Parkway	\$40,300,000
17	I-80	Extend the EB HOV-2 lane from Alamo Drive to I-505	\$19,200,000
		Implement ramp metering at all EB and WB local access interchanges between Alamo Drive and I-505	\$2,800,000
		Provide an EB auxiliary lane between Cliffside Drive and Allison Drive with a two-lane off-ramp at Allison Drive	\$3,500,000
		Provide an EB auxiliary lane between Cherry Glenn Road and Pleasant Valley Road	\$9,200,000
		Extend ITS in EB direction between Alamo Drive and I-505	\$2,300,000
		Subtotal No. 17:	\$37,000,000
18	I-80	Extend the WB HOV-2 lane from I-505 to Air Base Parkway	\$32,800,000
		Provide a WB auxiliary lane between Alamo Drive and Pleasant Valley Road	\$4,400,000

<b>Year 2030 Prioritization of Projects</b>			
<b>Priority</b>	<b>Corridor</b>	<b>Description</b>	<b>Order of Magnitude Cost</b>
		Extend ITS in the WB direction between I-505 and Alamo Drive	\$2,000,000
		Subtotal No. 18:	\$39,200,000
19	I-780	Implement ramp metering at local access interchanges in the EB and WB directions between I-80 and I-680	\$4,400,000
		Install ITS elements (detectors, CCTV and infrastructure) on I-780 in both directions	\$6,700,000
		Subtotal No. 19:	\$11,100,000
20	I-80	Provide an EB HOV lane between SR 37 and Red Top Road	\$36,000,000
21	I-80	Provide a WB HOV lane between Red Top Road and SR 37	\$36,000,000
22	I-80	Provide a fourth EB general purpose lane extending from east of Leisure Town Road to west of Kidwell Road. <i>Potentially an HOV/HOT lane instead.</i>	\$78,000,000
		Extend ITS in EB direction from I-505 to the Solano County line	\$8,100,000
		Implement ramp metering at EB and WB local access interchanges from I-505 to the County line	\$4,700,000
		Subtotal No. 22:	\$90,800,000
23	I-80	Provide a fourth WB general purpose lane between west of Kidwell Road and east of Leisure Town Road. <i>Potentially an HOV/HOT lane instead.</i>	\$132,300,000
		Extend ITS in WB direction between Solano/Yolo County line and I-505	\$8,000,000
		Subtotal No. 23:	\$140,300,000
24	I-780	Provide a third WB general purpose lane between the Glen Cove Road on-ramp and the Cedar Street on-ramp. Connect to the existing third lane starting at the Cedar Street on-ramp.	\$4,100,000
25	I-780	Provide an EB auxiliary lane between Spruce Street and Glen Cove Road	\$2,900,000
26	I-780	Provide an EB auxiliary lane between Columbus Parkway and Military Highway West	\$2,900,000
<b>Total Year 2030 Improvements:</b>			<b>\$623,600,000</b>

Table 5.5.1. Year 2030 Prioritization of Projects.

## 5.6 HOV Implementation

The implementation of HOV (HOV-2 and HOV-3) lanes along the three corridors in Solano County will take place in phases over the short and long term. The first HOV-2 lane implementation opened in late 2009 between Red Top Road and Air Base Parkway. Figure 5.6.1 below illustrates the planned implementation of HOV lanes by corridor segment, horizon year and occupancy.

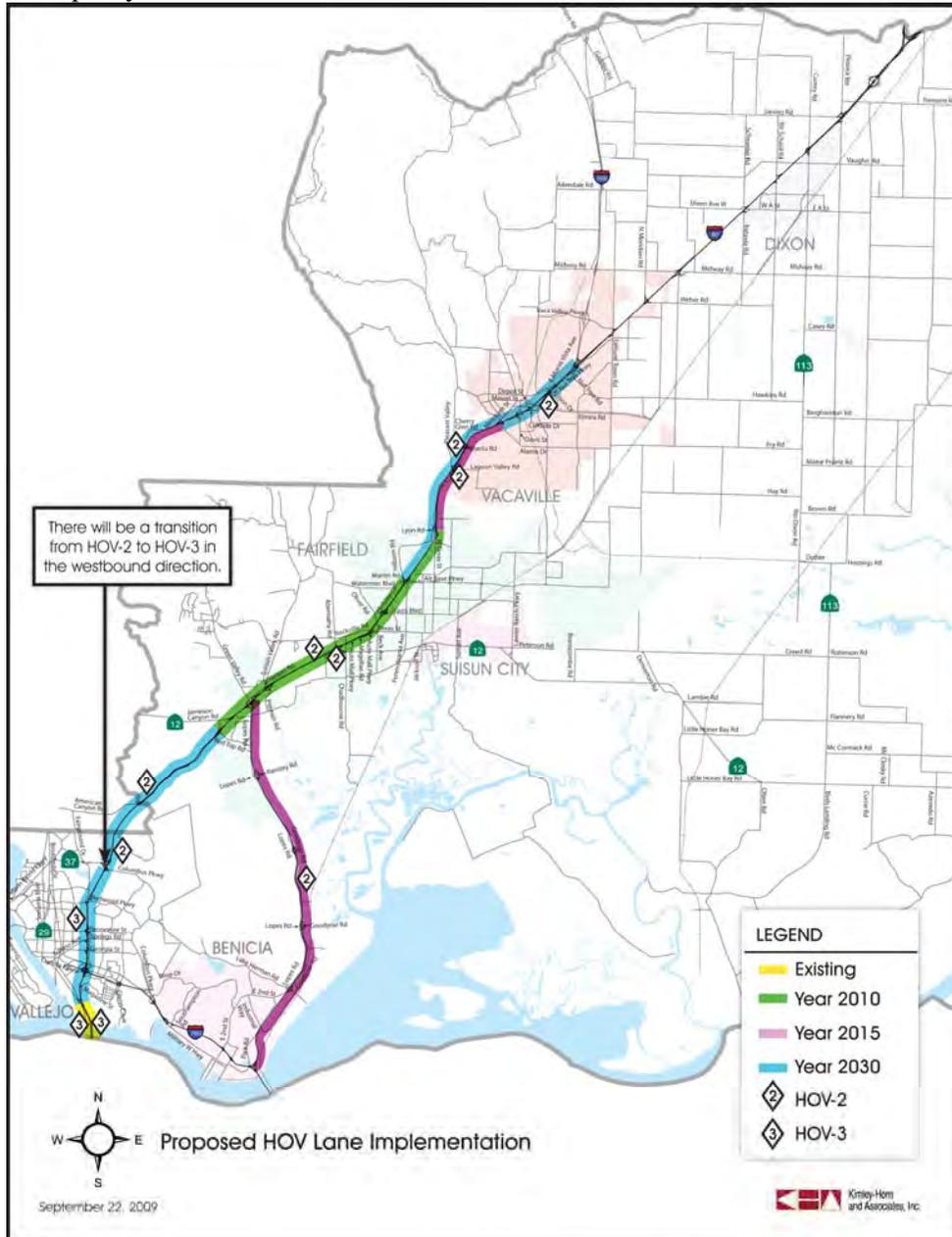


Figure 5.6.1. Solano County HOV Implementation Plan.

## 5.7 Highway Project Planning

As highway projects are identified in the Solano County area, it is recommended that these future highway planning efforts take into consideration all modes of travel along the study corridors, as well as the impacts of rising sea level, as required by State Law.

# **APPENDIX**

## **( Supporting Documents )**

- A.1 ITS Architecture and Implementation Plan
- A.2 Freeway Agreements
- A.3 Corridor Mobility Improvement Account Project Factsheets
- A.4 Corridor Segment Data Sheets
- A.5 10-Year Pavement Management Plan – Solano County Interstate 80
- A.6 Metropolitan Transportation Commission Resolution No. 3794
- A.7 Corridor Concept

## **A.1. ITS Architecture and Implementation Plan**

This section consists of a Corridor-Level ITS Architecture that provides recommendations for policies and agreements that are necessary to ensure that ITS deployments are incorporated into operational improvements programmed along the freeway corridors in Solano County. It will also provide guidance for design and deployment of ITS elements along the freeway corridors including any coordination and information sharing with the local cities, the County and the regional agencies as part of the Solano Highways Operations Study.

An ITS Architecture is defined by the US Department of Transportation as “*a common framework for planning, defining, and integrating intelligent transportation systems.*” It is a blueprint or a plan of how ITS will be deployed, how it will interact with other systems, and how it functions and exchanges information.

### **Background**

The I-80/I-680/I-780 Corridor-Level ITS Architecture builds on previously developed reference documents to develop a more specific picture of ITS deployment in the corridor. These reference documents provide background on other projects in the region and guidance from the Federal Highway Administration (FHWA) on the future of ITS integration. It is important for the I-80/I-680/I-780 ITS Architecture to provide continuity with past deployments but also to be consistent with future guidelines in order to provide flexibility for future procurements and revisions.

### **Conformance with Statewide and Bay Area Regional ITS Architectures**

#### **Statewide ITS Architecture and System Plan**

The National ITS Architecture and Standards Conformance rule and policy (often referred to collectively as the Final Rule) require that projects funded with highway trust funds conform to the national architecture and standards, be guided by a regional architecture of geographic boundaries defined by stakeholder needs, and use a system engineering analysis that considers the total project life cycle.

The Statewide ITS Architecture and System Plan is a framework for identifying present and future information system integrations serving transportation that are *inter-regional*, *inter-jurisdictional* in nature. It is also a planning platform for future transportation information systems. The System Plan identifies high level operational concepts, necessary multi-party institutional agreements, stakeholders and system functional requirements. The California Statewide ITS Architecture and System Plan meets the requirements of the final rule for those services that are statewide and/or are state-level in nature for California.

#### **Bay Area Regional ITS Architecture**

FHWA’s Final Rule requires major ITS projects to be in conformance with the Regional ITS Architecture. Thus, the I-80/680/780 Corridors are governed by the Bay Area Regional ITS Architecture, and any major ITS project within those corridors must be in conformance with the Bay Area Architecture. The following outlines how this Corridor-Level ITS Architecture is in conformance with the 2008 Bay Area Regional ITS Architecture:

- Stakeholders – All of the stakeholders in the Solano Highways Partnership are included as stakeholders in the Bay Area Regional ITS Architecture.

- Market Packages – Market packages are categories of ITS projects. In order to be in conformance, the I-80/I-680/I-780 Corridor-Level ITS Architecture must only be implementing projects that match the categories found in the Bay Area ITS Architecture. The following are the ITS project categories (identified by a standard 4-letter, 2-number code and title) that this corridor-level architecture will be implementing. All of these categories are identified in the Bay Area ITS Architecture.
  - ATMS04 – Freeway Control
  - ATMS01 – Network Surveillance
  - ATMS06 – Traffic Information Dissemination
  - ATMS08 – Traffic Incident Management
  - ATIS01- Broadcast Traveler Information
  
- Project – The I-680 Corridor is already included in the Bay Area ITS Architecture in one place:
  - The Bay Area ITS Architecture includes a “future” project called “I-680 Corridor Traffic Operations System Elements and Ramp Metering.”

The Bay Area ITS Architecture also includes a generic project that is used to provide a framework for the freeway control projects that are not identified by name. This “freeway control” project involves deploying TOS elements on the freeway and sending the data back to the Caltrans District 4 Transportation Management Center.

Based on this information, it is recommended that an update the Regional Architecture be processed to include the I-80 and I-780 Corridors similarly to the I-680 Corridor. This is to bring all three corridors closer to conformance with the Regional Architecture. However, it should be noted that based on the two projects already in the Regional Architecture, it is believed that the I-80/680/780 Corridors are in conformance with the Regional Architecture. The updates with the additional projects will serve to clearly define the conformance limits

### **FHWA’s Interim Guidance on Information Sharing**

For the I-80/680/780 Corridors ITS Architecture, the exchange of real-time information will be essential. Having up-to-date information on roadway conditions, especially during incidents and emergencies will be critical to providing traveler information and implementing management strategies.

To that effect, FHWA has issued an Interim Guidance on Information Sharing Specifications and Data Exchange Formats in response to SAFETEA-LU legislation that called for a Real-Time System Management Information Program to provide for the ability to monitor real-time travel conditions and provide that information to the general public. The Final Guidance is being developed based on comments received through February 2008.

The Final Guidance will clarify and provide additional information on the Interim Guidance, and will eventually become recommended as a final rule. The Interim Guidance focused on the center-to-center data exchange of real-time congestion and incident information between agencies. The Real Time Information Program (RTIP) addresses interoperability of systems and standardized data exchange. It does not address the scope or type of data collection or control of field equipment or data. The guidance focuses on the creation of statewide data exchange standards for interoperability between different types

of agencies – transit, traffic, and emergency service providers – and information service providers. The Interim Guidance does acknowledge that over time existing systems will need to be migrated to the system, and new systems should use the statewide standards. The Interim Guidance provides data standards for each of the functions of the RTIP.

Although the FHWA Interim Guidance is not finalized, it is important to keep its ultimate message in mind for the I-80/I-680/I-780 Architecture. This Architecture provides a framework for a center-to-center data exchange to the Caltrans TMC and the MTC center-to-center network using adopted data exchange standards consistent with the Interim Guidance and the National ITS Architecture.

### **Caltrans Traffic Operations System (TOS) Implementation Plan**

The Caltrans Traffic Operation System Implementation Plan is a long-term plan for the implementation of TOS elements and communications throughout the Bay Area. It provides details on types of equipment, existing and proposed communications, and functional requirements. It is important for the Corridor-Level ITS Architecture to be consistent with the functional requirements used in the TOS Implementation Plan and to use standard Caltrans field equipment within Caltrans right of way. This Corridor-Level ITS Architecture was developed in close coordination with the TOS Implementation Plan.

### **MTC Freeway Performance Initiative (FPI)**

MTC's Freeway Performance Initiative is an area-wide assessment of the freeway conditions in terms of congestion – existing levels of congestion, possible causes, and future impacts. This Corridor-Level ITS Architecture combined with the subsequent Implementation Plan will facilitate the deployment of ITS elements identified and recommended under the FPI studies prepared for I-80 and I-680 corridors. Moreover, under this Solano Highways Operations Study, an operational analysis is being conducted along I-780, which will include recommendations for operational improvements to improve congestion. The ITS deployments recommended as part of this Architecture combined with the operational improvements will provide the tools necessary for system management of the three corridors.

### **Bay Area 511 System**

The Bay Area's 511 Traveler Information Program is a partnership among MTC, Caltrans, the California Highway Patrol, and many of the region's transit and paratransit operators. The program provides traffic, transit, rideshare and bicycling information to the public by telephone via the federally dedicated information phone number (511) and on a website at 511.org. For the traffic information, the 511 program utilizes freeway sensors as well as toll tag readers installed along the major freeways to generate information including congestion levels and travel times. The 511 Program is considered the one stop source for traveler information including freeway congestion levels, incident reporting and transit planning. Thus, it is anticipated that the 511 Program will continue to be the primary data disseminator for the Solano Highways.

### **Corridor-Level ITS Architecture**

This Corridor-Level ITS Architecture includes both existing and planned components, as well as future and recommended components. The existing and planned components reflect those components that are already being programmed or planned for in previously documented efforts. The future and recommended category represents recommendations being made as a part of this Corridor-Level ITS Architecture and Implementation Plan development effort in order to fill in gaps in the existing system in relation to needs.

This Corridor-Level ITS Architecture, in accordance with federal guidelines, is technology-neutral and focuses on connectivity between and among systems and system components, in order to provide a basis for connectivity, thereby maximizing the technology and communications investments made. Specific field element locations will be outlined in a subsequent task in the Implementation Plan.

### **Existing Traffic Operations System (TOS)**

The existing TOS elements on I-80, 680, and 780 consist of CCTV cameras, changeable message signs (CMS), extinguishable message signs (EMS), highway advisory radio (HAR), and traffic monitoring stations (TMS). The devices are owned and operated by Caltrans. Figure A.1.1 illustrates a high-level diagram of the existing Traffic Operations System and the full inventory of existing ITS devices can be found in Appendix A. Additionally, Figure A.1.2 shows the approximate locations of the existing ITS devices along the three corridors.

### **CCTV Cameras**

The CCTV cameras on I-80, I-680, and I-780 are standard Caltrans analog cameras with remote pan, tilt, and zoom control. The cameras are used to monitor road conditions and verify incidents. Caltrans is moving towards having camera images available to the public on their website. However, none of the images currently online are from cameras in Solano County. The standard camera deployment is at 1-mile intervals. This allows the Caltrans operators to see all areas of the freeway. Currently, there is one camera on I-780. The cameras on I-680 are spaced at approximately 1-mile intervals, and the cameras on I-80 are spaced at 1-mile intervals with two 1-mile gaps.

### **Message Signs**

There are currently eight changeable message signs within the study area – one on I-780, two on I-680, and four on I-80. The signs are used to display travel times, warn travelers about incidents, and advise them on changes to roadway conditions. When not in use, signs are left blank. They are standard Caltrans Model 500 signs. Caltrans also has extinguishable message signs that are activated simultaneously by the Highway Advisory Radio (HAR) system when an HAR message is recorded and the operator initiates the HAR transmissions over the air.

### **Highway Advisory Radio**

Highway Advisory Radio (HAR) is used to transmit messages over the radio concerning road and travel conditions. They provide more detail about incidents or congestion than can be displayed on changeable message signs. An extinguishable message sign displays a message that instructs travelers to turn to station 840 AM. If there is no message, the HAR is silent. The HAR consists of an omni-directional antenna on a pole positioned to avoid overlapping signals. There are two HAR on I-680 and one on I-80.

### **Detection**

Vehicle detection is used to continuously monitor the flow of traffic on the freeway. Typically, detection (also known as traffic monitoring stations or TMS) is installed at quarter mile spacing to measure volume and speed to determine the extent of congestion or the impact of an incident. The detector reports back to the Transportation Management Center every 20 to 30 seconds. When collected and interpreted it can enable real-time traffic information to be disseminated to the public. The information collected is archived for system management planning purposes.

Most of the detectors are inductive loop detectors. I-80 has detection installed approximately every half mile, which is supplemented by wireless detection. I-780 has detection in two locations, and I-680 has detection at half-mile to one mile intervals with a few exceptions.

### **Communication Infrastructure**

These devices in the study area are connected to the TMC using a variety of different communications media. The CCTV, CMS, and HAR are connected typically via land lines. The land lines include a combination of Digital Subscriber Line, Integrated Services Digital Network, and Plain Old Telephone Service. The TMS use wireless General Packet Radio Service communications. Some of the CMS use wireless communications in addition to the land lines. Provided below are brief descriptions of some of the leased communications technologies employed by ITS systems in the Bay Area.

#### **Integrated Services Digital Network (ISDN)**

Integrated Services Digital Network (ISDN) is a form-up of dial-up communication used primarily for CCTV cameras. The data exchange rate is typically 112 kilobits per second (kbps) with rates up to 384 kbps depending on the service agreements with the ISDN provide. The video images from the cameras are digitized and compressed using the standard MPEG encoding formats.

#### **Digital Subscriber Line (DSL)**

Digital Subscriber Line (DSL) is a medium bandwidth digital communications technology using existing telephone lines. Depending on the flavor of DSL, the data exchange rate can reach up several megabits per second (Mbps) in one direction. However, the actual rate is dependent on the provider, the quality of the telephone lines and the proximity to the provider's central office. DSL is appropriate for medium speed data transfer and moderate quality video. The Bay Area Video Upgrade (BAVU) project is testing the use of DSL for communications with freeway CCTV cameras.

#### **Plain Old Telephone Service (POTS)**

Plain Old Telephone Service (POTS) is a dial-up phone connection to the field equipment. The connection is not always "on," it must be dialed and the connection must be established, which takes time. POTS is not suitable for video exchange and is currently used for center to field communications between the central system and the field masters.

#### **General Packet Radio Service (GPRS)**

General Packet Radio Service (GPRS) is a form of leased wireless communications used for some changeable message signs and is anticipated for the new forms of vehicle sensors being deployed on the major freeways.

Figures A.1.1 and A.1.2 on the following pages further illustrate ITS Architecture related elements.

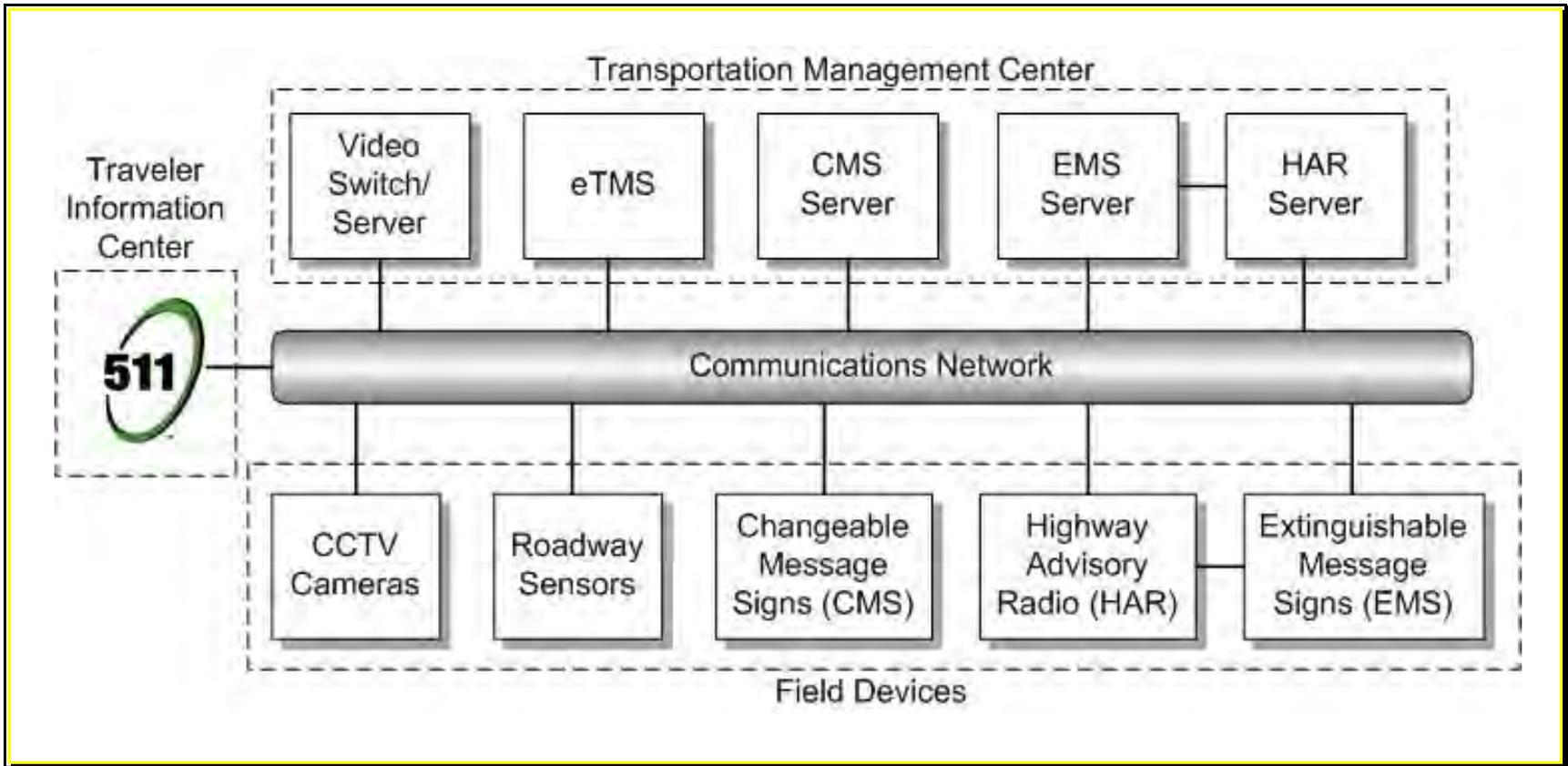


Figure A.1.1. High Level TOS Diagram - Existing.

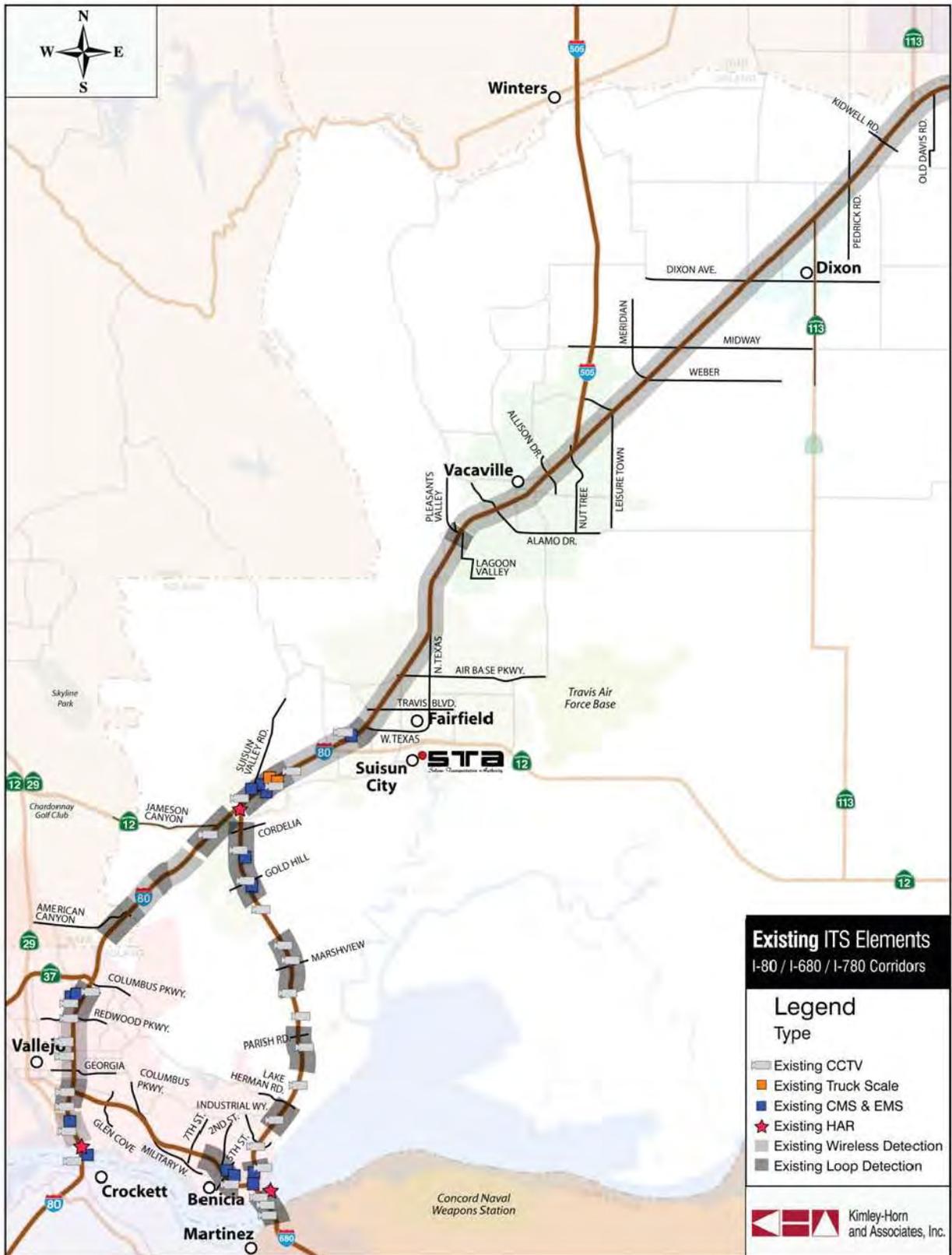


Figure A.1.2. Existing ITS Elements.

## A.2 Freeway Agreements

The Freeway Agreement documents the understanding between Caltrans and the local agency relating to the planned traffic circulation features of the proposed facility. It does not bind the State to construct on a particular schedule or staging. In the event that the freeway is fully constructed, it shows which streets may be closed or connected to the freeway; it shows which streets and roads may be separated from the freeway; it shows the location of frontage roads; and it shows how streets may be relocated, extended or otherwise modified to maintain traffic circulation in relation to the freeway. Locations of railroad and pedestrian structures, as well as those for other non-motorized facilities, should also be shown. Agreements are often executed many years before construction is anticipated and they form the basis for future planning, not only by Caltrans but by public and private interests in the community.

The California Freeway and Expressway System has a large financial investment in access control to insure safety and operational integrity of the highways. The legislative intent for requiring Freeway Agreements is to obtain the local agency's support of local road closures and changes to the local circulation system and to protect property rights and to assure adequate service to the community. Access control is necessary on the freeway or expressway so that current and future traffic safety and operations are not compromised. Table A.2.1 lists existing Freeway Agreements within I-80 East CSMP Corridor

County	Route	Post Mile	Agreement #	Approval Date	Agreements With
SOL	I-80	0.0-6.8	1346	11/21/68	County of Solano
SOL	I-80	0.0-5.8	1355	04/09/56	City of Vallejo
SOL	I-80	4.1-4.9	1356	10/29/85	City of Vallejo
SOL	I-80	8.0-12.0	1357	07/25/66	County of Solano
SOL	I-80 / I-680	12.3-13.0 / 12.0-13.1	1358	10/21/58	County of Solano
SOL	I-80	13.0-13.8	1359	10/01/74	City of Fairfield
SOL	I-80	13.8-16.3	1360	04/03/84	County of Solano
SOL	I-80	15.6-17.0	1361	01/17/84	City of Fairfield
SOL	I-80	17.0-18.4	1362	09/02/80	City of Fairfield
SOL	I-80	18.4-20.4	1347	08/20/85	City of Fairfield
SOL	I-80	20.4-24.9	1348	11/01/88	City of Fairfield
SOL	I-80	24.9-25.4	1349	06/09/87	City of Vacaville
SOL	I-80	25.4-28.9	1350	09/12/61	County of Solano
SOL	I-80	26.2-28.4	1351	03/22/88	City of Vacaville
SOL	I-80	28.9-42.1	1352	07/07/70	County of Solano
SOL	I-80	37.9-38.5	1353	06/24/80	County of Solano
SOL	I-80	42.1-44.7	1354	10/28/69	County of Solano

Table A.2.1. Summary of existing Freeway Agreements within I-80 East CSMP Corridor.

Key issues related to these agreements declare that certain or all sections of I-80 in Solano County to be and/or remain at freeway standard. The listed agreements between Solano County and the local jurisdictions represent consent to the closing and/or relocation of county and local roads. The agreements also represent consent by the local agency to the construction of frontage roads and connectors to the I-80 freeway. The State may, at the State's expense, install signs, signals, and other traffic control devices at appropriate locations to be determined by the State in order to regulate, warn or guide traffic upon the highways. Local jurisdictions consent to control and maintenance over each of the relocated or reconstructed county/local roads and frontage roads and other State constructed local roads. Local jurisdictions will accept control and maintenance over designated section of the interchange or separation structures constructed under the agreements except as to any portion thereof which is adopted by the State as a part of the freeway proper. The agreements may be modified at any time by mutual consent of the parties involved as may become necessary for the best accomplishment through State, county and local cooperation of the whole freeway project for the benefit of the people of the State, county and local jurisdiction.

## A.3 Corridor Mobility Improvement Account (CMIA) Project Factsheets

# SOL-80 HOV LANES, RED TOP ROAD TO EAST OF AIR BASE PARKWAY PROJECT FACT SHEET



### The Project

This project is to add a new 8.7-mile high occupancy vehicle (HOV) lane in each direction along Interstate 80 (I-80), in Solano County, in Fairfield, from Red Top Road to east of Air Base Parkway. This project is part of the Proposition 1B Corridor Mobility Improvement Account Program.

### The Need

I-80 is vital to interregional and regional commuting, freight movement, and recreational travel. It connects the Bay Area to Sacramento, connects Interstate 5 to the north via Interstate 505, and links the San Francisco Bay Area to the East Coast. Recent growth in Solano County has significantly increased transportation demand on the highway, necessitating the addition of an HOV lane.

### Benefits

The project will reduce travel delay, decrease congestion, and improve mobility in the corridor.

### Partnership

The project is developed through a partnership among the Solano Transportation Authority (STA), the Metropolitan Transportation Commission (MTC), the Bay Area Toll Authority (BATA), and the California Department of Transportation (Caltrans).

### Project Status

The environmental phase was completed in April 2007, and the design phase was completed in January 2008. Construction started in June 2008, and was completed in December 2009.

### Project Costs

The capital construction cost is \$29.55 million.

### Project Schedule

Start Construction: Spring 2008

Finish Construction: Fall 2009

### Summary

The I-80 HOV Lanes Project will add capacity, thereby relieving traffic congestion and reducing delays.

EA 0A531

May 2010

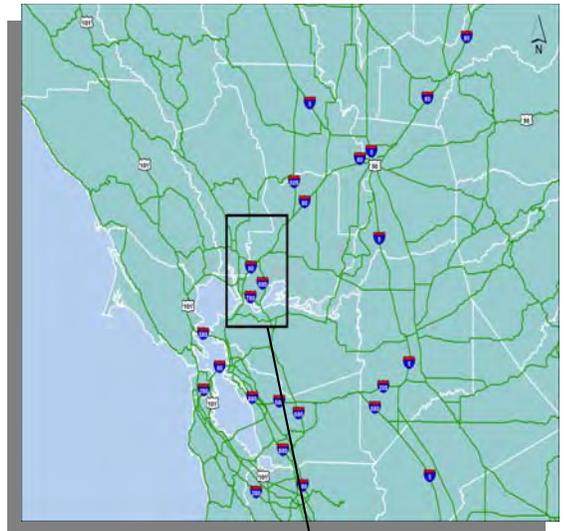


Figure A.3.1. SOL-80 HOV Lanes, Red Top Road to East of Air Base Parkway Project.

# SOL-80 HOV LANES, RAMP METERING IMPROVEMENT PROJECT

## FACT SHEET



### The Project

This project is one of three contracts split from the baseline Proposition 1B Corridor Mobility Improvement Account (CMIA) project – HOV Lanes, Fairfield. This project will construct traffic monitoring stations and ramp metering improvements on mainline, ramps, and connectors along I-80, from Red Top Road in Cordelia to Putah Canal in Fairfield, in Solano County.

### The Need

I-80 is vital to interregional and regional commuting, freight movement, and recreational travel. It connects the Bay Area to Sacramento, connects Interstate 5 to the north via Interstate 505, and links the San Francisco Bay Area to the East Coast. Recent growth in Solano County has significantly increased transportation demand on the highway, necessitating the addition of an HOV lane.

### Benefits

The project's improvements will reduce travel delay, decrease congestion, and improve mobility in the corridor.

### Partnership

The project is developed through a partnership among the Solano Transportation Authority (STA), the Metropolitan Transportation Commission (MTC), and the California Department of Transportation (Caltrans).

### Project Status

The environmental phase was completed in early April 2007, and the design phase is anticipated to be complete in February 2010.

### Project Costs

The programmed construction cost is \$6.91 million.

### Project Schedule

Start Construction: Fall 2010

Finish Construction: Spring 2011

### Summary

The I-80 Ramp Metering Improvement Project will improve traffic operations and reduce travel delay in the corridor.

EA 0A532

May 2010

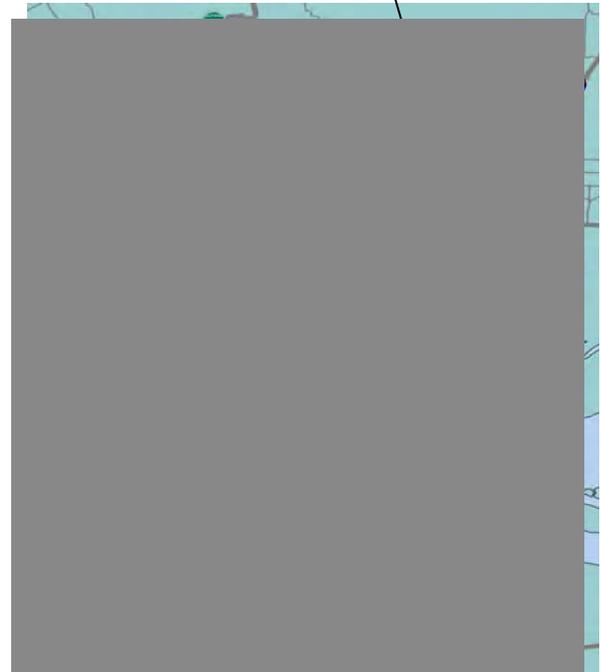
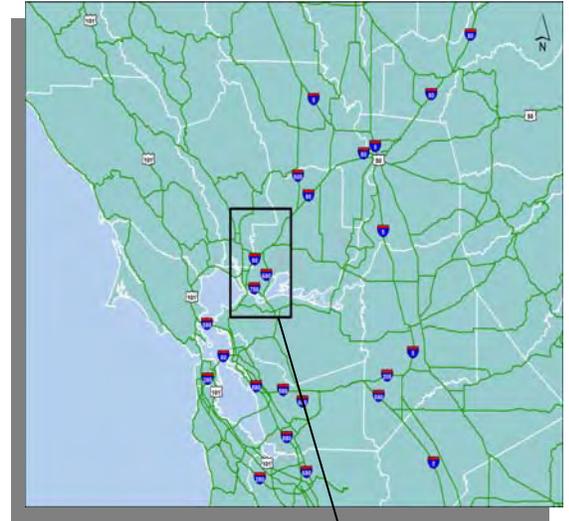


Figure A.3.2. SOL-80 HOV Lanes, Ramp Metering Improvement Project.

# SOL-80 ROADWAY REHABILITATION & FINAL HOV LANE PAVING PROJECT

## FACT SHEET



### The Project

This project is a combination of CMIA Project EA 0A533 and SHOPP project EA 4C151. This project will incorporate roadway rehabilitation with completion of final HOV lane paving along Interstate 80 (I-80), from Route 12 East to Putah Creek, in Solano County.

### The Need

I-80 is vital to interregional and regional commuting, freight movement, and recreational travel. It connects the Bay Area to Sacramento, connects Interstate 5 to the north via Interstate 505, and links the San Francisco Bay Area to the East Coast. Recent growth in Solano County has significantly increased transportation demand on the highway, necessitating the addition of an HOV lane.

### Benefits

The project's improvements will reduce travel delay, decrease congestion, and improve mobility in the corridor.

### Partnership

The project is developed through a partnership among the Solano Transportation Authority (STA), the Metropolitan Transportation Commission (MTC), and the California Department of Transportation (Caltrans).

### Project Status

The project is now in construction phase. It is expected to be completed September 2010.

### Project Costs

The capital construction cost is \$16.47 million.

### Project Schedule

Start Construction: Spring 2009  
 Finish Construction: Summer 2010

### Summary

The project will reduce travel delay, and improve traffic operations and traveling safety along the corridor.

EA 4C15U

May 2010

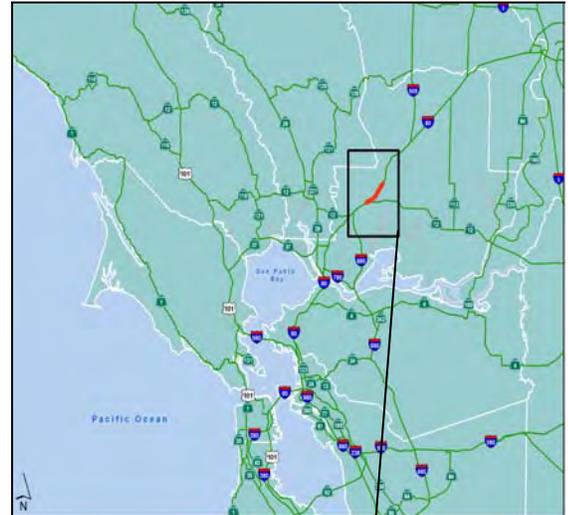


Figure A.3.3. SOL-80 Roadway Rehabilitation & Final HOV Lane Paving Project.

## CORRIDOR MANAGEMENT IMPROVEMENT ACCOUNT

## Project Nomination Fact Sheet

<b>Nominating Agency:</b>		<b>Fact Sheet Date:</b> 04/30/10	
Contact Person	Janet Adams		
Phone Number	(707) 424-8010	Fax Number	(707) 424-8074
Email Address	jadams@sta-snci.com		

<b>Project Information:</b>							
County	Caltrans District	PPNO *	EA *	Region/MPO/ TIP ID*	Route / Corridor *	Post Mile Back *	Post Mile Ahead *
Solano	4	5301L	0A534		I-80	R 11.976	12.91
* NOTE: PPNO & EA assigned by Caltrans. Region/MPO/TIP ID assigned by RTPA/MPO. Route/Corridor & Post Mile Back/Ahead used for State Highway System.							
Legislative Districts	Senate: 5			Congressional: 10			
	Assembly: 8						
Implementing Agency (by component)	PA&ED: STA/Caltrans			PS&E: STA			
	R/W: STA/Caltrans			CON: Caltrans			
Project Title	WB I-80 to SR 12 (West) Connector and Green Valley Road Interchange Improvements project						
<p><b>Location - Project Limits - Description and Scope of Work</b> (Provide a project location map on a separate sheet and attach to this form)  The WB I-80 to SR 12 (West) Connector and Green Valley Road Interchange Improvements project will improve traffic operations and safety, as well as reduce congestion within the existing I-80/I-680/SR12 interchange. Project would construct a two lane WB I-80 to WB SR12W connector (Connector) with a bridge crossing over a new WB I-80 Green Valley Road on ramp. The connector exit from I-80 would begin immediately west of the existing I-80/I-680 connector and would conform to SR 12W in the vicinity of the existing SR12W / Red Top Road intersection. Also, project would reconstruct the I-80 / Green Valley Road (GVR) interchange, consisting of the SB portion of the ultimate GVR overcrossing with an interim connection to Lopes Road.</p> <p><b>Description of Major Project Benefits</b>  <b>1) Improves Operations, Mobility and Reliability Safety.</b> The latestest traffic data indicates that during the AM peak, the existing WB I-80 to SR 12W Connector operates at LOS E, which causes significant queues to extend back onto I-80 and through the Green Valley Road Interchange. At times the queue will extend all the way back to the Westbound Truck Scales Facility. With the queue extending through the Green Valley Road Interchange, traffic from the Green Valley Road on ramp is not able to easily and safely access I-80, and as such, operates at LOS F during the same period. The project will improve safety by constructing a new WB I-80 to SR12 West Connector and will braid the new Connector with the Green Valley Road Interchange on-ramp, thereby eliminating the queue spillback onto I-80 and the conflict between the existing WB I-80 to SR12 Connector with the Green Valley Road Interchange westbound on-ramp.  The project would also provide operational, mobility and reliability benefits to I-80 Westbound traffic during the AM peak. The project will improve mobility by improving traffic operations through this stretch of I-80 by eliminating the queue spillback onto I-80 and thereby reducing daily vehicle-hours of travel. The project will reduce daily vehicle-hours of travel by 10% or 10,400 vehicle hours. The project will also result in a savings of 206,000 daily peak duration person-minutes. The planned improvements will also improve reliability through a corresponding operational benefit of reducing the likelihood of incidents in the corridor.</p> <p><b>2) Improves Safety.</b> According to data provided by Caltrans, I-80 within the project limits experienced a total accident rate (including fatal and injury accidents) of 1.20 accidents/million vehicle miles traveled from January 2004 to December 2006. This compares to the statewide average of 0.94 accidents/million vehicle miles traveled for similar facilities. The facility has an actual fatal accident rate of 0.008 compared to the statewide average of 0.005 over the same three year period. In addition, on SR 12 within the project limits, the total accident rate for the same three-year period was 1.44, as compared to 1.35 for similar facilities. A more detailed review of all freeway segments, ramp junctions, and SR 12 intersections within the project limits shows that over half these facilities have accident rates higher than the statewide average for similar facilities.</p> <p><b>3) Complements CMIA - Jameson Canyon Project.</b> The new WB I-80 to SR12 West Connector will complement the current CMIA – Jameson Canyon Project and will allow the traveling public to receive increased benefits from that CMIA transportation investment.</p> <p><b>Expected Source(s) of Additional Funding Necessary to Complete Project - as Identified Under 'Additional Need'</b></p>							

NOTE: The CTC Corridor Mobility Improvement Account (CMIA) Program Guidelines should have been read and understood prior to preparation of the CMIA Fact Sheet. A copy of the CTC CMIA Guidelines and a template of the Project Fact Sheet are available at: <http://www.dot.ca.gov/hq/transprog/> and at: <http://www.calo.ca.gov/>

Figure A.3.4. WB I-80 to SR 12 (West) Connector and Green Valley Road Interchange Improvements Project Fact Sheet.

## **A.4 Corridor Segment Data Sheets**

A.4.1. Segment A – Carquinez Bridge to I-80/I-780 Interchange

A.4.2. Segment B – I-80/I-780 Interchange to I-80/SR-37 Interchange

A.4.3. Segment C – I-80/SR-37 Interchange to I-80/SR-12 W Junction (Red Top Road)

A.4.4. Segment D – I-80/SR-12 West Junction (Red Top Road) to I-80/SR-12 East Interchange

A.4.5. Segment E – I-80/SR-12 East Interchange to I-80/I-505 Interchange

A.4.6. Segment F – I-80/I-505 Interchange to I-80/SR-113 South Junction (North First Street)

A.4.7. Segment G – I-80/SR-113 South Junction (North First Street) to I-80/ SR-113 North Interchange

I-80 EAST SEGMENT A DATA	
TITLE	DATA
<b>Features</b>	<b>Data</b>
County, City	Solano County, City of Vallejo
Facility type	Freeway
Existing Facility	7F (1H WB)
2035 Year Concept	8F (2H)
<b>Segment Characteristics</b>	
Segment Limits	Carquinez Bridge to I-80/I-780 Interchange
Begin/ End Post Mile	0.00 / 2.22
Length	2.22 mi
Terrain	Rolling
Land Use	Urban/Suburban
Grade % (Postmile to Postmile)	<1%
HOV lanes	WB only
Parallel Arterials	Lincoln Road West and East
Scenic Highway	No
Assembly District	District 7
Senate District	District 2
<b>Multi Modal</b>	
Bikeways/Bike lanes	Carquinez Bridge, Proposed Bay Trail
Transit Provider	Vallejo Transit Express Bus (Routes 80, 85), Benicia Transit (Routes 23, 75), Fairfield-Suisun Transit Express Bus (Routes 20, 30, 40, 90)
Rail Station(s)	No
Park and Ride	Curtola, Magazine, Vallejo Ferry Terminal
<b>Traffic Information</b>	
Actual Fatality + Injury Rate this segment (3-yr period)	0.33
Statewide Fatality + Injury Rate	0.3
Actual Total Accident Rate this segment (3-yr period)	1.33
Statewide Total Accident Rate	0.93
AADT 2007	116,000 - 123,000
AADT 2035	170,000 - 177,000
Vehicle Hours of Delay 2007 (AM Peak) + Direction	370
Vehicle Hours of Delay 2007 (PM Peak) + Direction	430
Eastbound Volumes 2007 AM (PM)	2,675 (5,415)
Westbound Volumes 2007 AM (PM)	5,025 (3,175)
Eastbound Volumes 2030 AM (PM)	7,329 (9,140)
Westbound Volumes 2030 AM (PM)	9,932 (8,128)
Truck Volumes 2006	5,732 - 5,892
Truck Traffic: Truck percentage of AADT	4.66 - 5.0
5+ Axle Truck Percentage of Truck AADT	57.2 - 63.59

## Solano County I - 80 PM 0.00 - 2.22 Segment A



Figure A.4.1. Segment A – Carquinez Bridge to I-80/I-780 Interchange

I-80 EAST SEGMENT B DATA	
TITLE	DATA
Features	Data
County, City	Solano County, City of Vallejo
Facility type	Freeway
Existing Facility	6F - 7F
2035 Year Concept	8F (2H)
<b>Segment Characteristics</b>	
Segment Limits	I-80/I-780 Interchange to I-80/SR-37 Interchange
Begin/ End Post Mile	2.22 / 5.63
Length	3.41 mi
Terrain	Flat
Land Use	Urban/Suburban
Grade % (Postmile to Postmile)	<1%
HOV lanes	No
Parallel Arterials	Admiral Callaghan Lane
Scenic Highway	No
Assembly District	District 7
Senate District	District 2
<b>Multi Modal</b>	
Bikeways/Bike lanes	Proposed Solano Bikeway
Transit Provider	Vallejo Transit Express Bus (Routes 80, 85), Fairfield-Suisun Transit Express Bus (Routes 20, 30, 40, 90)
Rail Station(s)	No
Park and Ride	No
<b>Traffic Information</b>	
Actual Fatality + Injury Rate this segment (3-yr period)	0.29
Statewide Fatality + Injury Rate	0.3
Actual Total Accident Rate this segment (3-yr period)	1.03
Statewide Total Accident Rate	1.12
AADT 2007	123,000 - 134,000
AADT 2035	177,000 - 192,000
Vehicle Hours of Delay 2007 (AM Peak) + Direction	None
Vehicle Hours of Delay 2007 (PM Peak) + Direction	None
Eastbound Volumes 2007 AM (PM)	4,160 (5,920)
Westbound Volumes 2007 AM (PM)	4,685 (4,830)
Eastbound Volumes 2030 AM (PM)	6,090 (7,061)
Westbound Volumes 2030 AM (PM)	7,816 (6,760)
Truck Volumes 2006	5,732 - 6,928
Truck Traffic: Truck percentage of AADT	4.66 - 5.17
5+ Axle Truck Percentage of Truck AADT	58.64 - 63.59

## Solano County I - 80 PM 2.22 - 5.63 Segment B

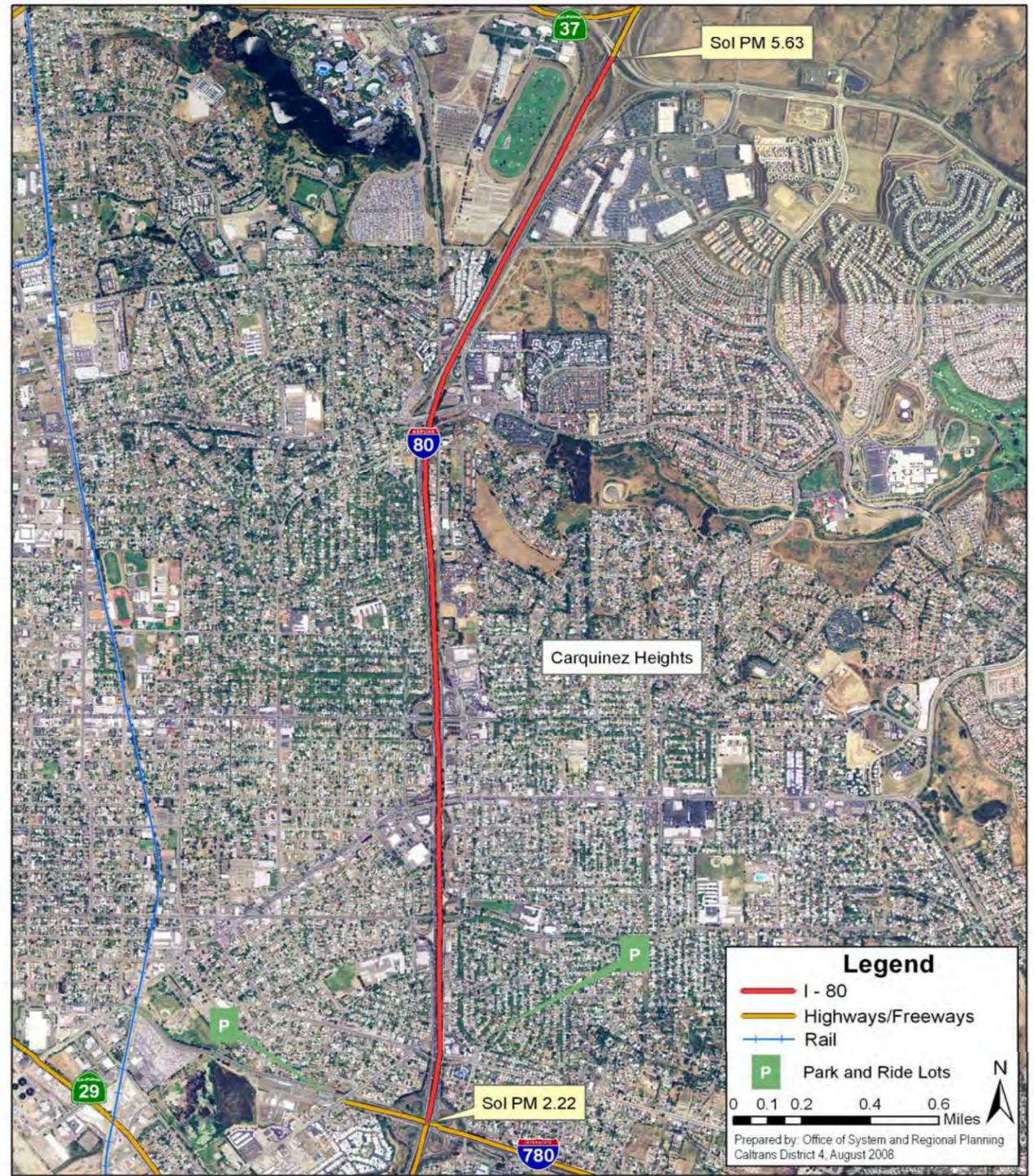


Figure A.4.2. Segment B – I-80/I-780 Interchange to I-80/SR-37 Interchange

I-80 EAST SEGMENT C DATA	
TITLE	DATA
Features	Data
County, City	Solano County
Facility type	Freeway
Existing Facility	8F - 9F
2035 Year Concept	10F (2H)
<b>Segment Characteristics</b>	
Segment Limits	I-80/SR-37 Interchange to I-80/SR-12 W Junction (Red Top Road)
Begin/ End Post Mile	5.63 / 11.98
Length	6.35 mi
Terrain	Rolling/Mountainous
Land Use	Rural/Open Space
Grade % (Postmile to Postmile)	<4.5%
HOV lanes	No
Parallel Arterials	McGary Road
Scenic Highway	No
Assembly District	District 7 & 8
Senate District	District 2 & 5
<b>Multi Modal</b>	
Bikeways/Bike lanes	Proposed Solano Bikeway
Transit Provider	Vallejo Transit Express Bus (Routes 80, 85), Fairfield-Suisun Transit Express Bus (Routes 20, 30, 40, 90)
Rail Station(s)	No
Park and Ride	No
<b>Traffic Information</b>	
Actual Fatality + Injury Rate this segment (3-yr period)	0.18
Statewide Fatality + Injury Rate	0.24
Actual Total Accident Rate this segment (3-yr period)	0.55
Statewide Total Accident Rate	0.69
AADT 2007	118,000 - 155,000
AADT 2035	172,000 - 209,000
Vehicle Hours of Delay 2007 (AM Peak) + Direction	None
Vehicle Hours of Delay 2007 (PM Peak) + Direction	None
Eastbound Volumes 2007 AM (PM)	3,680 (5,280)
Westbound Volumes 2007 AM (PM)	3,910 (3,485)
Eastbound Volumes 2030 AM (PM)	3,790 (9,072)
Westbound Volumes 2030 AM (PM)	8,205 (5,565)
Truck Volumes 2006	5,983 - 8,060
Truck Traffic: Truck percentage of AADT	5.07 - 5.6
5+ Axle Truck Percentage of Truck AADT	58.64 - 60.3

Solano County I - 80 PM 5.63 - R11.98  
Segment C

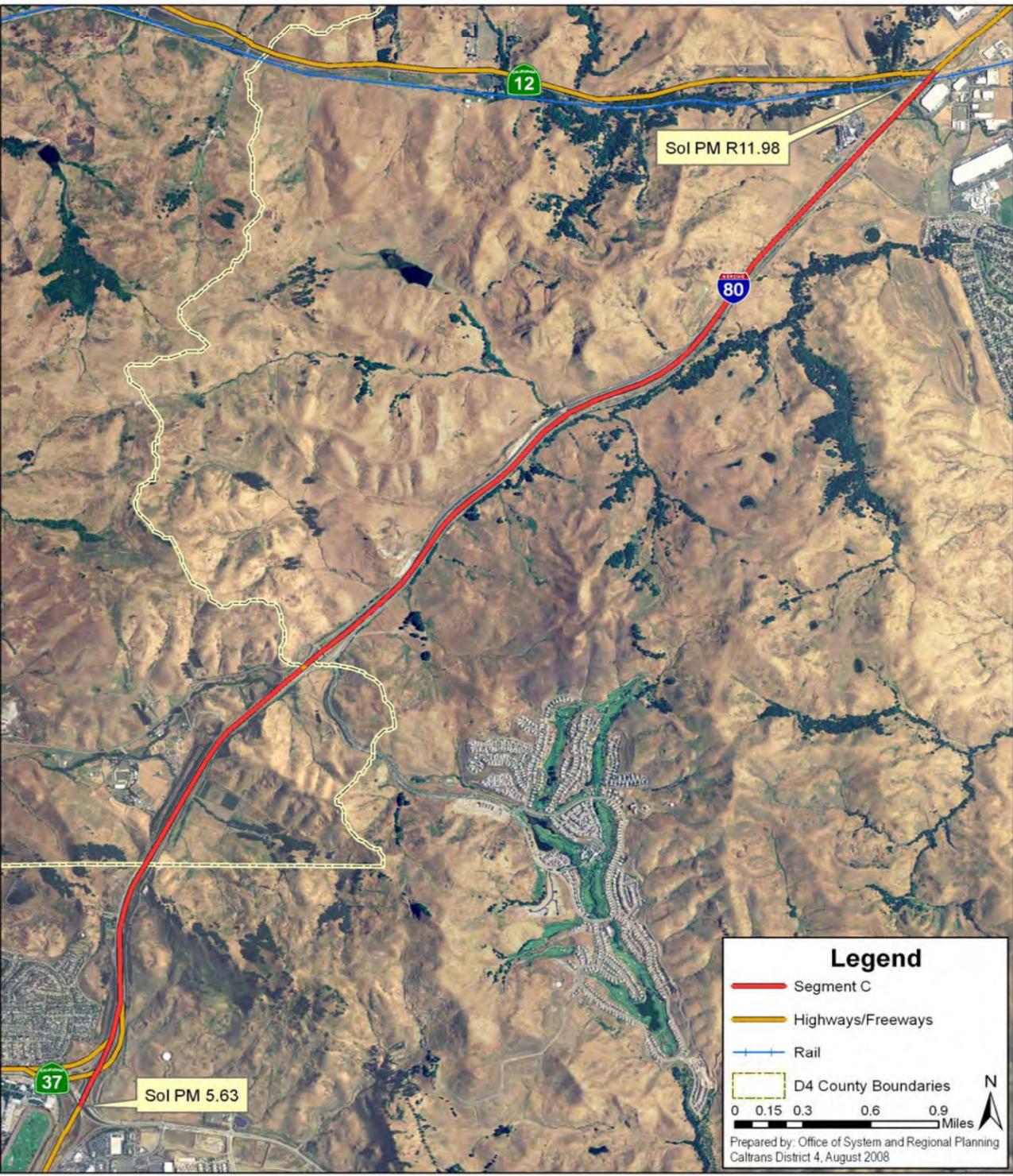


Figure A.4.3. Segment C – I-80/SR-37 Interchange to I-80/SR-12 W Junction (Red Top Road)

## Solano County I - 80 PM R11.98 - 15.82 Segment D

I-80 EAST SEGMENT D DATA	
TITLE	DATA
Features	Data
County, City	City of Fairfield, City of Suisun City, Cordelia (unincorporated)
Facility type	Freeway
Existing Facility	10F
2035 Year Concept	10F (2H)
Segment Characteristics	
Segment Limits	I-80/SR-12 West Junction (Red Top Road) to I-80/SR-12 East Interchange
Begin/ End Post Mile	11.98 / 15.82
Length	3.84 mi
Terrain	Flat
Land Use	Urban/Suburban
Grade % (Postmile to Postmile)	<1%
HOV lanes	No
Parallel Arterials	No
Scenic Highway	No
Assembly District	District 8
Senate District	District 5
Multi Modal	
Bikeways/Bike lanes	Fairfield Linear Park Trail, Proposed Bay Trail
Transit Provider	Vallejo Transit Express Bus (Routes 80, 85), Fairfield-Suisun Transit Express Bus (Routes 20, 30, 40, 90)
Rail Station(s)	Amtrak/Capitol Corridor Station at Suisun City
Park and Ride	Green Valley, Amtrak/Capitol Corridor Station at Suisun City
Traffic Information	
Actual Fatality + Injury Rate this segment (3-yr period)	0.26
Statewide Fatality + Injury Rate	0.33
Actual Total Accident Rate this segment (3-yr period)	1.11
Statewide Total Accident Rate	1.02
AADT 2007	155,000 - 212,000
AADT 2035	209,000 - 284,000
Vehicle Hours of Delay 2007 (AM Peak) + Direction	420
Vehicle Hours of Delay 2007 (PM Peak) + Direction	730
Eastbound Volumes 2007 AM (PM)	5,940 (8,480)
Westbound Volumes 2007 AM (PM)	8,465 (6,785)
Eastbound Volumes 2030 AM (PM)	6,853 (16,206)
Westbound Volumes 2030 AM (PM)	13,786 (8,292)
Truck Volumes 2006	8,060 - 11,250
Truck Traffic: Truck percentage of AADT	4.61 - 6.56
5+ Axle Truck Percentage of Truck AADT	58.33 - 60.51



Figure A.4.4. Segment D – I-80/SR-12 West Junction (Red Top Road) to I-80/SR-12 East Interchange

## Solano County I - 80 PM 15.82 - 30.20 Segment E



I-80 EAST SEGMENT E DATA	
TITLE	DATA
Features	Data
County, City	Solano County, City of Vacaville, City of Dixon
Facility type	Freeway
Existing Facility	8F
2035 Year Concept	10F (2H)
Segment Characteristics	
Segment Limits	I-80/SR-12 East Interchange to I-80/I-505 Interchange
Begin/ End Post Mile	15.82 / 30.2
Length	14.38 mi
Terrain	Flat/Rolling
Land Use	Urban/Suburban
Grade % (Postmile to Postmile)	<2.5%
HOV lanes	No
Parallel Arterials	No
Scenic Highway	No
Assembly District	District 8
Senate District	District 5
Multi Modal	
Bikeways/Bike lanes	Fairfield Linear Park Trail
Transit Provider	Vallejo Transit Express Bus (Routes 80, 85), Fairfield-Suisun Transit Express Bus (Routes 20, 30, 40, 90)
Rail Station(s)	Amtrak/Capitol Corridor Station at Suisun City
Park and Ride	multiple
Traffic Information	
Actual Fatality + Injury Rate this segment (3-yr period)	0.2
Statewide Fatality + Injury Rate	0.3
Actual Total Accident Rate this segment (3-yr period)	0.71
Statewide Total Accident Rate	0.92
AADT 2007	124,000 - 212,000
AADT 2035	176,000 - 264,000
Vehicle Hours of Delay 2007 (AM Peak) + Direction	None
Vehicle Hours of Delay 2007 (PM Peak) + Direction	220
Eastbound Volumes 2007 AM (PM)	4,830 (8,190)
Westbound Volumes 2007 AM (PM)	7,395 (5,855)
Eastbound Volumes 2030 AM (PM)	5,931 (12,278)
Westbound Volumes 2030 AM (PM)	11,225 (7,011)
Truck Volumes 2006	6,202 - 10,672
Truck Traffic: Truck percentage of AADT	3.67 - 6.4
5+ Axle Truck Percentage of Truck AADT	58.4 - 60.88

Figure A.4.5. Segment E – I-80/SR-12 East Interchange to I-80/I-505 Interchange

I-80 EAST SEGMENT F DATA	
TITLE	DATA
Features	Data
County, City	Solano County, City of Vacaville, City of Dixon
Facility type	Freeway
Existing Facility	6F - 8F
2035 Year Concept	8F
<b>Segment Characteristics</b>	
Segment Limits	I-80/I-505 Interchange to I-80/SR-113 South Junction (North First Street)
Begin/ End Post Mile	30.2 / 38.21
Length	8.01 mi
Terrain	Flat
Land Use	Suburban/Rural
Grade % (Postmile to Postmile)	<1%
HOV lanes	No
Parallel Arterials	No
Scenic Highway	No
Assembly District	District 8
Senate District	District 5
<b>Multi Modal</b>	
Bikeways/Bike lanes	Dixon City Bikeway
Transit Provider	Fairfield-Suisun Transit Express Bus (Routes 20, 30, 40, 90), Yolobus (Route 220)
Rail Station(s)	No
Park and Ride	Multiple
<b>Traffic Information</b>	
Actual Fatality + Injury Rate this segment (3-yr period)	0.14
Statewide Fatality + Injury Rate	0.31
Actual Total Accident Rate this segment (3-yr period)	0.47
Statewide Total Accident Rate	0.86
AADT 2007	100,000 - 124,000
AADT 2035	134,000 - 158,000
Vehicle Hours of Delay 2007 (AM Peak) + Direction	None
Vehicle Hours of Delay 2007 (PM Peak) + Direction	None
Eastbound Volumes 2007 AM (PM)	4,675 (5,470)
Westbound Volumes 2007 AM (PM)	3,850 (4,585)
Eastbound Volumes 2030 AM (PM)	5,292 (6,469)
Westbound Volumes 2030 AM (PM)	4,723 (5,089)
Truck Volumes 2006	6,150 - 7,936
Truck Traffic: Truck percentage of AADT	6.15 - 6.72
5+ Axle Truck Percentage of Truck AADT	54.2 - 60.1

## Solano County I - 80 PM 30.20 - 38.21 Segment F

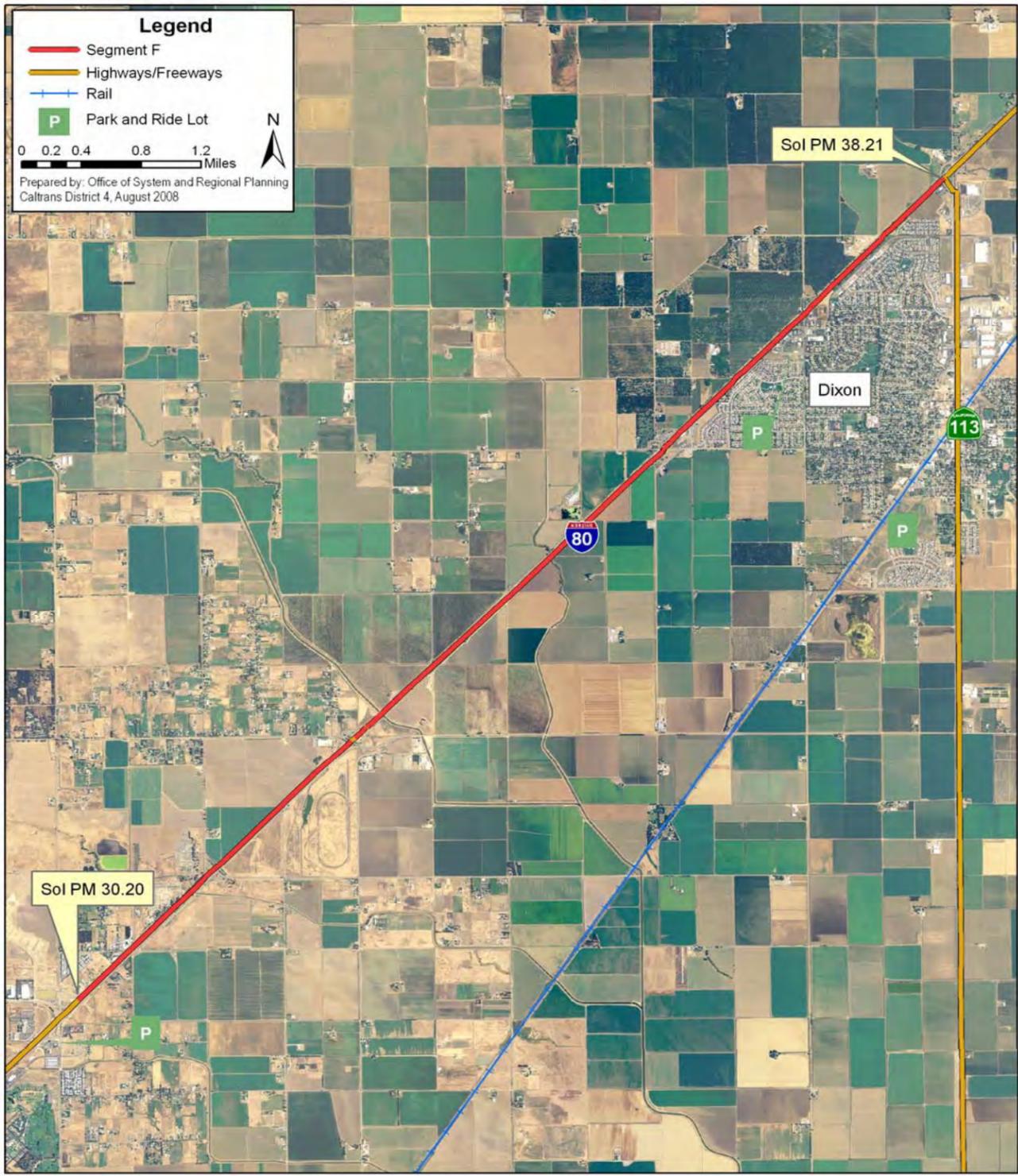


Figure A.4.6. Segment F – I-80/I-505 Interchange to I-80/SR-113 South Junction (North First Street)

I-80 EAST SEGMENT G DATA	
TITLE	DATA
Features	Data
County, City	Solano County, City of Dixon
Facility type	Freeway
Existing Facility	6F - 8F
2035 Year Concept	8F
<b>Segment Characteristics</b>	
Segment Limits	I-80/SR-113 South Junction (North First Street) to I-80/SR-113 North Interchange
Begin/ End Post Mile	38.21 / 42.67
Length	4.46 mi
Terrain	Flat
Land Use	Suburban/Rural
Grade % (Postmile to Postmile)	<1%
HOV lanes	No
Parallel Arterials	No
Scenic Highway	No
Assembly District	District 8
Senate District	District 5
<b>Multi Modal</b>	
Bikeways/Bike lanes	Proposed bikeway Dixon City Bikeway
Transit Provider	Fairfield-Suisun Transit Express Bus (Routes 20, 30, 40, 90)
Rail Station(s)	No
Park and Ride	No
<b>Traffic Information</b>	
Actual Fatality + Injury Rate this segment (3-yr period)	0.14
Statewide Fatality + Injury Rate	0.27
Actual Total Accident Rate this segment (3-yr period)	0.43
Statewide Total Accident Rate	0.75
AADT 2007	105,000 - 117,000
AADT 2035	139,000 - 151,000
Vehicle Hours of Delay 2007 (AM Peak) + Direction	None
Vehicle Hours of Delay 2007 (PM Peak) + Direction	None
Eastbound Volumes 2007 AM (PM)	4,985 (5,840)
Westbound Volumes 2007 AM (PM)	3,680 (4,900)
Eastbound Volumes 2030 AM (PM)	5,444 (5,984)
Westbound Volumes 2030 AM (PM)	4,265 (5,323)
Truck Volumes 2006	7,056 - 7,839
Truck Traffic: Truck percentage of AADT	6.7 - 6.72
5+ Axle Truck Percentage of Truck AADT	54.2 - 57.2

## Solano County I - 80 PM 38.21 - 42.67 Segment G

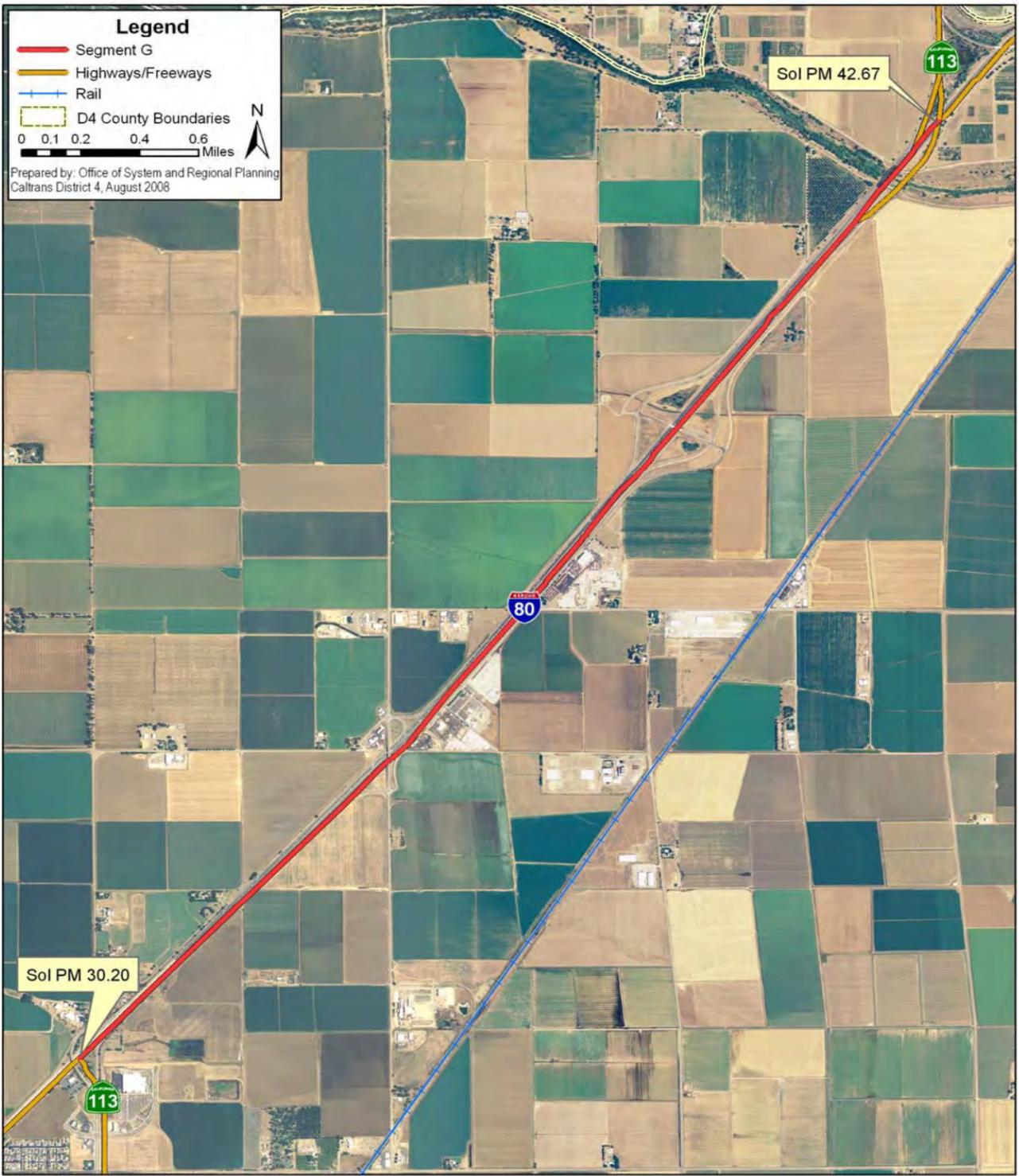
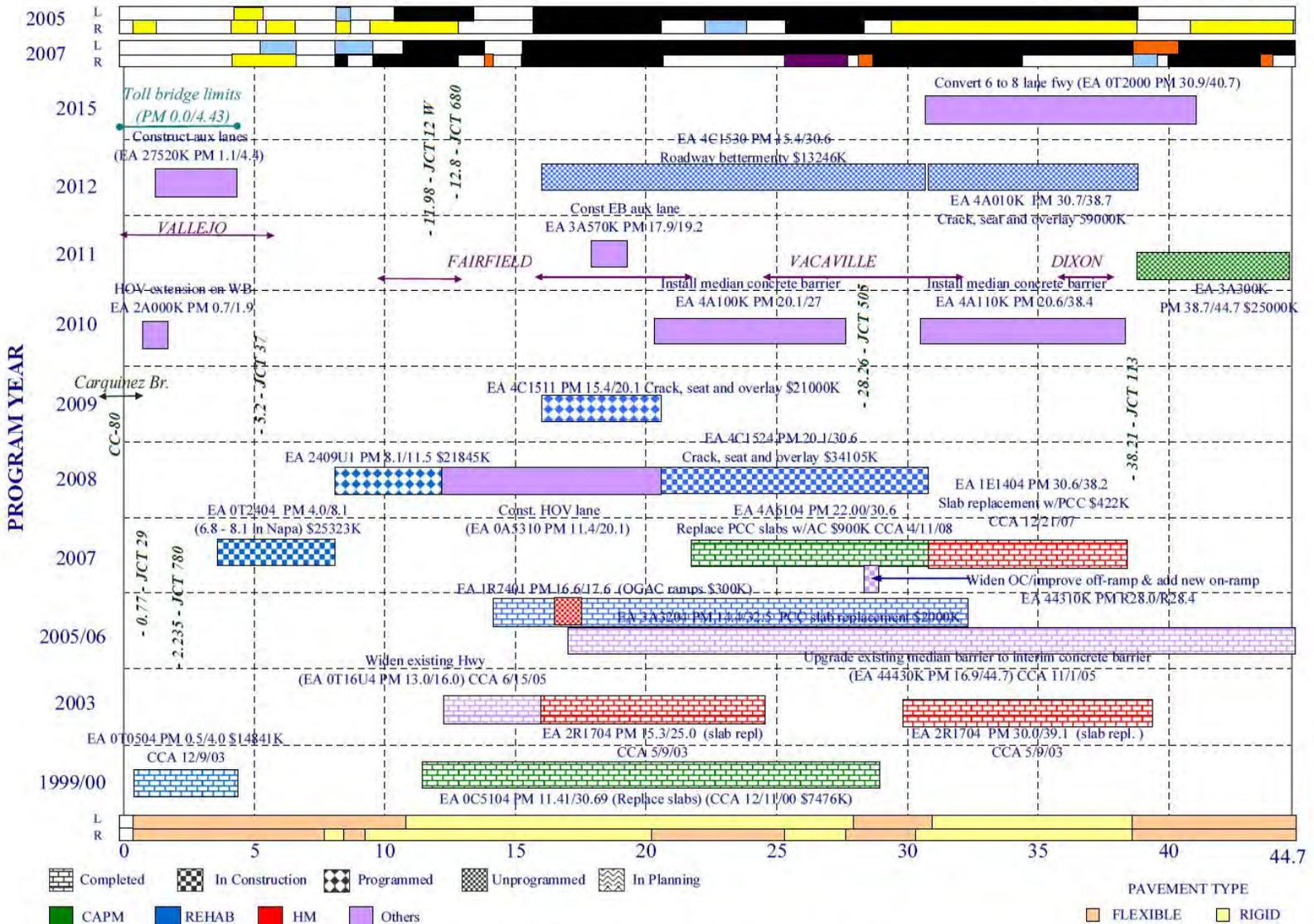
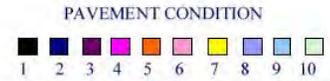


Figure A.4.7. Segment G – I-80/SR-113 S. Junction (North First Street) to I-80/ SR-113 North Interchange

# SOLANO COUNTY - ROUTE 80



Note: For maintenance planning purposes only.

9/17/2008

Figure A.5.1. I-80 (SOL) 10-Year Pavement Management Plan.

## A.5.10-Year Pavement Management Plan - Solano County Interstate 80

**A.6 Metropolitan Transportation Commission Resolution No. 3794**

Date: February 28, 2007  
W.I.: 1236  
Referred by: Operations Comm.

**ABSTRACT**

Resolution No. 3794

This resolution authorizes the Metropolitan Transportation Commission (MTC) to enter into a cooperative agreement with the California Department of Transportation (DEPARTMENT) to provide supplemental funds for the Bay Area Freeway Performance Initiative Corridor Studies.

Attachment 1 – Scope of Work for the cooperative agreement

Date: February 28, 2007  
W.I: 1236  
Referred by: Operations Comm.

RE: Authorizing a Cooperative Agreement with the California Department of Transportation

METROPOLITAN TRANSPORTATION COMMISSION  
RESOLUTION NO. 3794

WHEREAS, the Metropolitan Transportation Commission (MTC) is the regional transportation planning agency for the San Francisco Bay Area pursuant to Government Code Section 66500 *et seq.*; and

WHEREAS, MTC has committed, as part of the agency strategic plan adopted on March 22, 2006 to the development of a strategic plan for the Bay Area freeway system, called the Freeway Performance Initiative; and

WHEREAS, as part of implementing the Freeway Performance Initiative, MTC is conducting a number of technical assessments of the major freeway corridors in the Bay Area called the Freeway Performance Initiative Corridor Studies (Corridor Studies).

WHEREAS, MTC, as part of its submittal of project nominations for the Corridor Mobility Improvement Account, committed to the development of corridor management plans in cooperation with the California Department of Transportation (DEPARTMENT); and

WHEREAS, MTC has historically worked collaboratively with the DEPARTMENT to plan for the effective management and expansion of the Bay Area freeway system; and

WHEREAS, the DEPARTMENT has allocated \$1.5 million State Highway Account funds to supplement the Corridor Studies; and

WHEREAS, MTC now wishes to enter into a cooperative agreement with the DEPARTMENT to accept the supplemental funds; now, therefore, be it

RESOLVED, that MTC authorizes the Executive Director, or his designee, to enter into a cooperative agreement, based on the scope of work attached, with the DEPARTMENT to accept the aforementioned \$1.5 million for the Corridor Studies, and

RESOLVED, that MTC commits to the completion of Corridor Studies plans consistent with guidance provided by the DEPARTMENT and the timely submittal of study results and recommendations.

METROPOLITAN TRANSPORTATION COMMISSION

  
Chair

The above resolution was entered into by the Metropolitan Transportation Commission at a regular meeting of the Commission held in Oakland, California, on February 28, 2007.

Figure A.6.1. Metropolitan Transportation Commission Resolution No. 3794.

## **A.7 Corridor Concept**

The Corridor Concept conveys Caltrans' vision for a route with respect to corridor capacity and operations for a 25-year planning horizon.

The Corridor Concept is derived from examination of strategies and projects recommended in the CSMP technical analysis report. The CSMP technical analysis was done with sensitivity to information contained in current approved planning documents and operations plans, local and regional input, and review of Freeway Agreements.

The Corridor Concept supersedes previous "route concepts" documented in District 4 (D4) 1980s Route Concept Reports (RCRs) and facility and operational concepts in the 2001-02 Transportation Corridor Concept Reports (TCCRs). Table A.7.1 below lists the 25-year corridor concept for the segments of I-80 East CSMP Corridor.

<b>Segment</b>	<b>County</b>	<b>Segment Description</b>	<b>Existing Facility</b>	<b>25-yr Concept</b>
Segment A I-80 (0.00 - 2.22)	SOL	Carquinez Bridge to I-80/I-780 Interchange	7F (1H WB)	8F (2H)
Segment B I-80 (2.22 - 5.63)	SOL	I-80/I-780 Interchange to I-80/SR-37 Interchange	6F - 7F	8F (2H)
Segment C I-80 (5.63 - 11.98)	SOL	I-80/SR-37 Interchange to I-80/SR-12 W Junction (Red Top Road)	8F - 9F	10F (2H)
Segment D I-80 (11.98 - 15.82)	SOL	I-80/SR-12 West Junction (Red Top Road) to I-80/SR-12 East Interchange	10F (2H)	12F (2H)
Segment E I-80 (15.82 - 30.2)	SOL	I-80/SR-12 East Interchange to I-80/I-505 Interchange	8F (2H) (HOV lane ends just beyond Air Base Pkwy)	10F (2H)
Segment F I-80 (30.2 - 38.21)	SOL	I-80/I-505 Interchange to I-80/SR-113 South Junction (North First Street)	6F - 8F	8F (2H)
Segment G I-80 (38.21 - 42.67)	SOL	I-80/SR-113 South Junction (North First Street) to I-80/ SR-113 North Interchange	6F - 8F	8F (2H)

Table A.7.1. Corridor Concept for I-80 East CSMP Corridor.

F=Freeway, H=HOV or HOT, R=Reversible

### ***Concept Rationale***

Caltrans and its partners have strategies and projects to address performance issues within the I-80 East CSMP Corridor. Short-term improvements include operational, ITS and capacity increasing projects. Long term improvements include enhanced HOV lanes.